Annex H

Habitats Regulations Assessment (HRA) – No Significant Effects Report (NSER)

H1 INTRODUCTION

H1.1 PURPOSE OF THIS ANNEX

H.1.1 Sembcorp Utilities (UK) Limited ('Sembcorp') is proposing to construct and operate a natural gas fired combined-cycle gas turbine (CCGT) generating station with an output capacity of up to 1,700 MWE ('the Project') on land within the Wilton International site, Teesside.

H.1.2 The Project is classified as a Nationally Significant Infrastructure Project (NSIP) under sections 15(1) and 15(2) and 14(1)(a) of the *Planning Act 2008* (henceforth, the Act) as it is an onshore generating station with an installed capacity of more than 50 MWe. It will therefore be consented under the Development Consent Order (DCO) regime.

H.1.3 The proposals may affect European sites in the surrounds of the Project site, but are not connected with or necessary to the management for nature conservation of any of the European sites considered in the report. If an application for a NSIP is likely to affect a European designated site and/or a European marine site of nature conservation importance (1), a report must be provided with the application showing the site(s) that may be affected together with sufficient information to enable the competent authority (the Secretary of State (SoS)) to make an Appropriate Assessment (AA), if required. This process is referred to here as a Habitats Regulations Assessment (HRA).

H.1.4 This Annex is a No Significant Effects Report (NSER) which is required as part of the submission to the SoS as described in the Planning Inspectorate's Advice Note 10 (2). The NSER reports the findings of the screening stage of the HRA process (see *Section A2*).

H1.2 THE PROJECT AND PROJECT SITE

H1.2.1 The Project

H.1.5 The Project will comprise a natural gas fired CCGT generating station with an output capacity of up to 1,700 MWe (see *Figure H1.1*). The station will include up to two gas turbine units, up to two steam turbine units, ancillary plant and equipment located in the main power island in the western part of the Project site. The northern part of the site will include up to two hybrid cooling towers and, in accordance with policy requirements for new generating infrastructure, an area of land for possible future carbon capture equipment has been set aside in the eastern part of the site.

(1) European sites comprise: Sites of Community Importance (SCIs), Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs), Special Protection Areas (SPAs), possible SACs (pSACs), potential SPAs (pSPAs) and under UK law Ramsar sites.

(2) Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. The Planning Inspectorate. Republished January 2016, Version 7.

H.1.6 The Project site also includes existing connections to gas transmission infrastructure and connections to the national grid.

H.1.7 All of these elements of the Project are located within the draft DCO site boundary.

H.1.8 There will be no direct abstraction from, or discharges to, natural water bodies or watercourses. The emissions from the stack referred to in this report are oxides of nitrogen (NO_x), nutrient nitrogen deposition and acid deposition from the operation of the CCGTs.

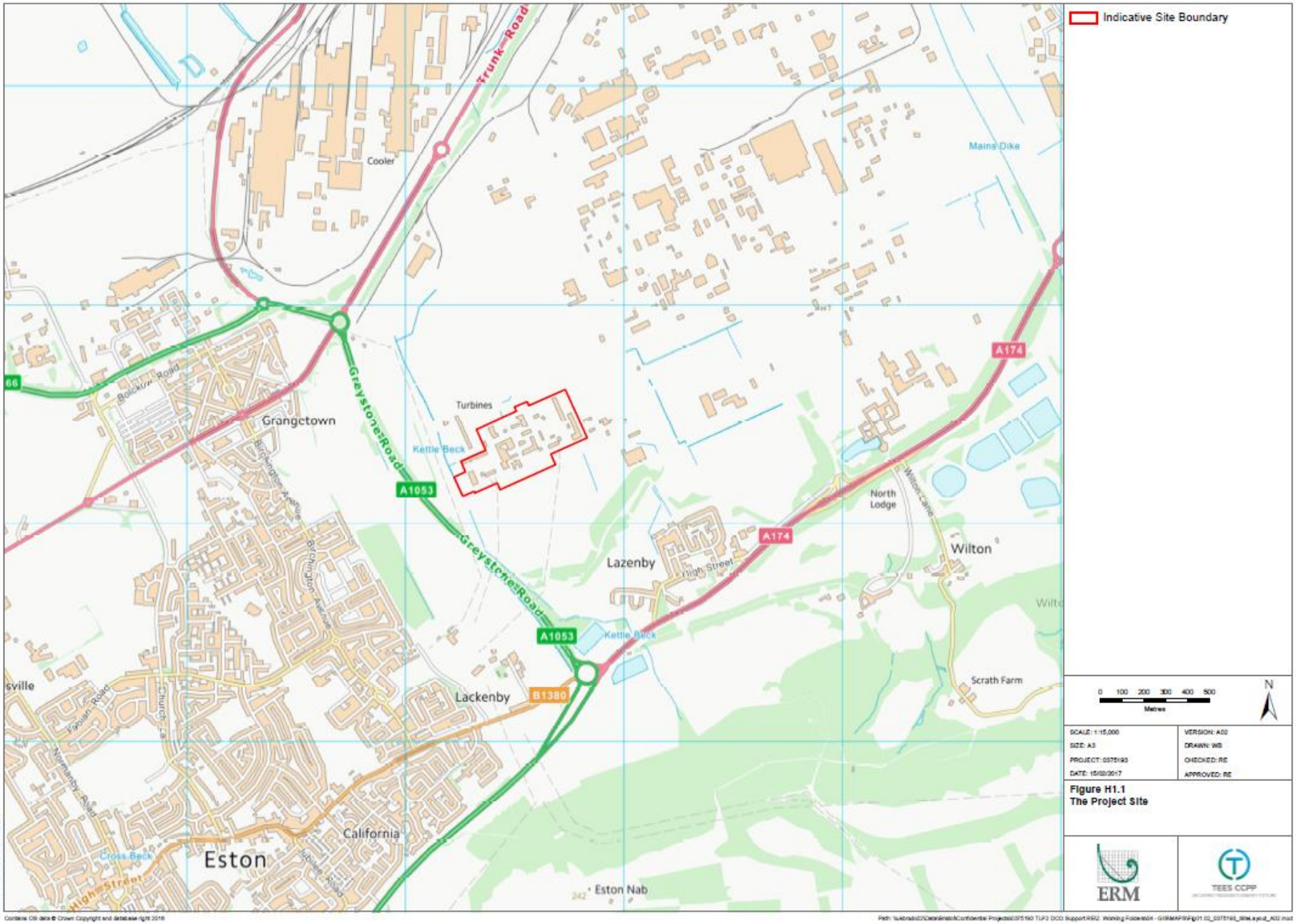
H.1.9 Further details about the Project are provided in Chapter 5 Project Description, Section 5.5 Key Features of the Project, paragraphs 5.18 to 5.80.

H1.2.2 General Ecological Context of the Project Site

H.1.10 The Project Site is situated on the southwest corner of the Wilton International site, close to the A1053 Greystones Road, and covers an area of approximately 15 ha. It is a largely industrial site with two thirds of the site consisting of hardstanding from the previous power station. There are occasional areas of ephemeral /short perennial and tall ruderal vegetation. There are two operational buildings within the site.

H.1.11 The immediately surrounding area to the north and east are operational industrial areas within the Wilton International site. Immediately to the west is the Kettle Beck and beyond that are further operational industrial areas within the Wilton International site. To the south there is approximately 25 ha of arable land which separates the Project Site from the village of Lazenby.

H.1.12 Further details are given in *Chapter 9* Ecology and Nature Conservation (see *Section 9.4 Baseline Conditions*, *paragraphs 9.55 - 9.70*).


Indicative Site Boundary
Trunk Road
Cooler
Mains Dike
A174
Turbines
Grangetown
Kettle Beck
Greystones Road
A1053
North Lodge
Wilton Lane
Wilton
Lazenby
High Street
Scrath Farm
Lackenby
B1380
California
Eston
Eston Nab
Cross Beck
0 100 200 300 400 500
Metres
N
SCALE: 1:15,000
SIZE: A3
PROJECT: 0375193
DATE: 15/02/2017
VERSION: A02
DRAWN: WB
CHECKED: RE
APPROVED: RE
Figure H1.1
The Project Site
ERM
TEES CCPP

H2 APPROACH TO THE HRA

H2.1 OVERVIEW

H.1.13 The approach taken follows the guidance set out in the Planning Inspectorate's Advice Note 10 (1) and guidance produced by the Defra / Environment Agency (EA) on screening risks from emissions to air on protected areas for nature conservation (2). It has also taken account of a range of other guidance material such as guidance produced by the European Commission (EC) (2011 (3), 2007 (4); 2002 (5), 2000 (6)).

H.1.14 The process comprises four main stages:

- **Stage 1 Screening** to identify the likely effects of a project on a European Site and consider whether the effects are likely to be significant;
- **Stage 2 Appropriate Assessment** to determine whether the integrity of the European site will be adversely affected by the project;
- **Stage 3 Assessment of Alternative Solutions** to establish if there are any that will result in a lesser effect on the European site; and
- **Stage 4 Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures** to establish whether it is necessary for the project to proceed despite the effects on the European site, and to confirm that necessary compensatory measures are in place to maintain the coherence of the Natura 2000 network.

H.1.15 Each of the above stages is discussed in more detail below.

H2.2 STAGE 1 – SCREENING

H.1.16 The screening stage examines the likely effects of a project either alone, or in combination with other projects and plans on a European site, and seeks to answer the question "*can it be concluded that no likely significant effect will occur?*" To determine if the construction, operation or decommissioning of the

(1) Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. The Planning Inspectorate. Republished January 2016, Version 7.
(2) https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas
(3) European Commission (2011) *Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones with Particular Attention to Port Development and Dredging*. **Advice Note 10** EC
(4) European Commission (2007) *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC*. EC
(5) European Commission (2002) *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*. EC
(6) European Commission (2000) *Managing Natura 2000 Sites - The Provisions of Article 6 of the 'Habitats' Directive 92/43/CEE*. EC

Project [1] is likely to have any significant effects on the designated sites the following issues have been considered:

- could the proposals affect the qualifying interest and are they sensitive / vulnerable to the effect;
- the probability of the effect happening;
- the likely consequences for the site's conservation objectives if the effect occurred; and
- the magnitude, duration and reversibility of the effect, taking into account any mitigation built in to the project design.

H.1.17 The screening stage has therefore sought to conclude one of the following outcomes:

1. no likely significant effect;
2. a likely significant effect will occur; or
3. it cannot be concluded that there will be no likely significant effect.

H.1.18 Where the assessment concludes the second or third outcome, then the need for an Appropriate Assessment (AA) is triggered [2]. The assessment should take account of the specific conservation objectives and qualifying features of the European site, and the nature, scale and location of the effects on it.

H.1.19 The screening assessment should also include a consideration of other projects and whether likely significant effects to European sites may result in-combination.

H2.3 STAGE 2 – APPROPRIATE ASSESSMENT (AA)

H.1.20 Where an AA is required, its aim is to determine if the effects of a project will have an adverse effect on European sites. It should provide and analyse sufficient information to allow the competent authority to make this determination. AA should exclusively focus on the qualifying features of the European site, and it must consider any impacts on the conservation objectives of those qualifying interests. It should also be based on, and supported by, evidence that is capable of standing up to scientific scrutiny. EC guidance states that without proper reasoning the assessment does not fulfil its purpose, and cannot be considered *"appropriate"* and therefore cannot be consented. In terms of what is reasonable, guidance states *"to identify the*

(1) It has been assumed that any effects from decommissioning would be addressed in full by the Competent Authority closer to the time when it may occur, based on more specific information about the activities and processes involved, and also the prevailing environmental conditions.

(2) In the case of the third outcome, European guidance (*Assessment of Plans and Projects Significantly affecting Natura 2000 sites (2001)*) advises that sufficient uncertainty remains to indicate that an appropriate assessment should be carried out.

potential risks, so far as they may be reasonably foreseeable in the light of such information as can be reasonably obtained" [(1)].

H.1.21 In undertaking an AA, there are two stages:

- a scientific evaluation of all the likely significant effects of a project on the relevant qualifying interests of a European site; and
- a conclusion based on outcomes of the scientific evaluation whether the integrity of a European site will be compromised.

H.1.22 The emphasis for AA is to prove that no adverse impacts due to a project will occur which would undermine a European site's conservation integrity. Site integrity can be defined as:

"the coherence of its structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified" [(2)].

H.1.23 The assessment also needs to take into account any measures which will be implemented to avoid, or reduce the level of impact from a project. The Competent Authority may also consider the use of conditions or restrictions to help avoid adverse effects on site integrity.

H.1.24 If the AA concludes that there will be an adverse effect on the integrity of the European site, or that there is uncertainty and a precautionary approach is taken, then consent can only be granted if there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) is applicable and compensatory measures have been secured.

H2.4 STAGE 3 – ASSESSMENT OF ALTERNATIVE SOLUTIONS

H.1.25 All feasible alternatives have to be analysed to ensure that there are none which *"better respect the integrity of the site in question"* and its contribution to the overall coherence of the Natura 2000 network (EC, 2007). Alternatives could include the location of the site, its scale and design, and the way in which it is constructed and operated. The *"zero"* option also has to be considered.

H.1.26 The comparisons of alternatives should not allow other assessment criteria (eg economics) to overrule ecological criteria (EC, 2007). However, the same guidance also refers to the opinion for the case C-239/04 (1), where the opinion of the Advocate General was that *"the choice does not inevitably have to be determined by which alternative least adversely affects the site concerned. Instead,*

(1) Scottish Natural Heritage (SNH) (2001) Natura Casework Guidance: Consideration of Proposals Affecting SPAs and SACs. SNH Guidance Note Series. SNH

(2) European Communities (2000) Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/CEE. EC

the choice requires a balance to be struck between the adverse effect on the integrity of the SPA and the relevant reasons of overriding public interest".

H2.5 STAGE 4 – IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST (IROPI) AND COMPENSATION MEASURES

H.1.27 Where a development has an adverse effect on the integrity of a European site and there are no alternative solutions, consent can only be granted if there are imperative reasons of overriding public interest, including those of social or economic nature which would require the realisation of a project. A definition of "*overriding public interest*" does not occur in the directive, however examples considered are:

- human health, public safety or beneficial consequences of primary importance to the environment; and
- any other reasons which are considered by the Competent Authority to be IROPI taking account of the opinion of the EC; or
- if the site does not host a priority habitat or species then IROPI must be demonstrated, and the reasons can include those of a social, or economic nature.

H.1.28 If the importance of a project is deemed to outweigh the effects which will result on the European site, and there are no alternatives, compensatory measures must be secured before consent is granted. Compensatory measures are independent of a project and are intended to offset the adverse effects of a project, corresponding specifically to the negative effects on habitats and species concerned.

H.1.29 To be acceptable, compensatory measures should:

- take account of the comparable proportions of habitats and species which are adversely effected;
- be within the same bio-geographical range within which the European site is located;
- provide functions which are comparable to those which justified the selection of the original site; and
- have clearly defined implementation and management objectives so the measures can achieve the aim of maintaining the overall coherence of the network.

H2.6 CONSULTATION AND KEY ISSUES

H.1.30 Sembcorp has conducted various formal and informal consultation activities as part of the DCO process. Consultation responses relevant to ecology and nature conservation were received from Natural England (NE), Environment Agency (EA), the Secretary of State (SoS), Redcar and Cleveland Borough Council (RCBC), Teesmouth Bird Club and North Yorkshire Country Council (NYCC). These responses are detailed in *Table 9.1* of *Chapter 9 Ecology*.

H.1.31 The responses to the Scoping and Preliminary Environmental Information reports highlighted the following to be included in the HRA.

- The effects on the following European sites are to be considered:
    - Teesmouth and Cleveland Coast Special Protection Area (SPA);
    - Teesmouth and Cleveland Coast potential SPA (pSPA) (which should be treated in the same way as a classified site);
    - Teesmouth and Cleveland Coast Ramsar site;
    - North York Moors Special Area of Conservation (SAC); and
    - North York Moors SPA.
- Effects of air pollutants emitted by the operating Project on European sites are to be considered within a 15 km radius.
- In-combination effects with other air pollution sources are to be considered (typically various forms of thermal power plants within the study area).

H.1.32 Other secondary effects (eg noise, lighting, presence of workforce) are unlikely to have significant effects due to the lack of connectivity, and/or distance between the European sites and the Project (the nearest European site is approximately 2.8 km to the northwest of the Project).

H2.7 EUROPEAN SITES

H.1.33 No European sites will be directly affected by the Project. In line with the guidance, European sites which could be affected by air pollutants from the Project were identified as those which fell within the Project Area of Influence (AoI), based on the air quality modelling presented in *Chapter 7 Air Quality*. This AoI comprises a radius of 15 km from the Project, adopting the worst case distance for effects from larger emitters, as defined by Defra / EA Guidance [(1)].

(1)https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit First accessed 03/05/17

H.1.34 The European sites included in this assessment are:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast pSPA;
- Teesmouth and Cleveland Coast Ramsar site;
- North York Moors SAC; and
- North York Moors SPA.

H.1.35 Further details about these European sites including their qualifying interests, and links to their citations, conservation objectives and Site Improvement Plans are contained in Figure H2.1

H.1.36 Their locations are shown in Figure 7.4 (Air Quality, Sensitive Ecological Receptors) which is reproduced below as Figure H2.1.

H.1.37 In general the conservation objectives seek to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status (FCS) 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.

H.1.38 The approach to assessing the effects on habitats and species from emissions to air is more prescriptive and complex, and further details have been provided in *Section H2.8.*

Figure H2.1

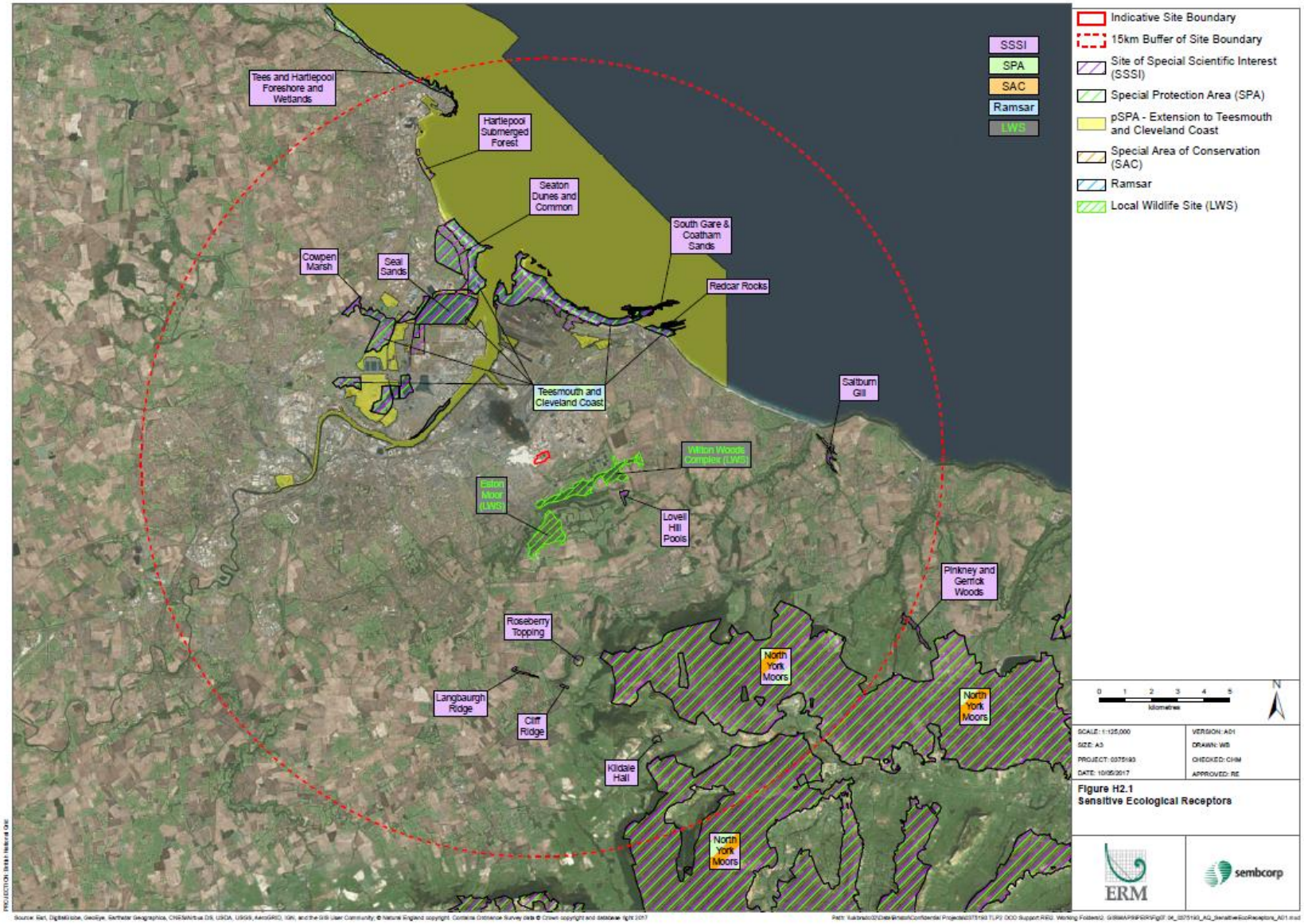

Tees and Hartlepool Foreshore and Wetlands
Hartlepool Submerged Forest
Seaton Dunes and Common
South Gare & Coatham Sands
Cowpen Marsh
Seal Sands
Redcar Rocks
Teesmouth and Cleveland Coast
Saltburn Gill
Wilton Woods Complex (LWS)
Eston Moor (LWS)
Lovell Hill Pools
Pinkney and Gerrick Woods
Roseberry Topping
North York Moors
Langbaurgh Ridge
Cliff Ridge
Kildale Hall
SSSI
SPA
SAC
Ramsar
LWS
Indicative Site Boundary
15km Buffer of Site Boundary
Site of Special Scientific Interest (SSSI)
Special Protection Area (SPA)
pSPA - Extension to Teesmouth and Cleveland Coast
Special Area of Conservation (SAC)
Ramsar
Local Wildlife Site (LWS)
Figure H2.1
Sensitive Ecological Receptors
ERM
sembcorp

Table H2.1 Summary of Qualifying Features of the European Sites

Site Name, Designation and Proximity to Project Site (km to closest point)	Qualifying Features (Annex I and Annex II primary and non-primary reasons for selection of the SAC, Article 4.1 Qualification (2009/147/EC and Article 4.2 Qualification (2009/147/EC for SPA and Justification for the application of Ramsar Criteria)	Link to detailed information on Qualifying Features	Link to Conservation Objectives and Citation	Link to Site Improvement Plan
Teesmouth and Cleveland Coast SPA Area: 1247.31 ha 3.9 km to the north west of the Project Site	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive. During the breeding season • Little tern *Sternula albifrons*, 37 pairs representing at least 1.5% of the breeding population in Great Britain (4 year mean 1993-1996). On passage • Sandwich tern *Sterna sandvicensis*, 2,190 individuals representing at least 5.2% of the population in Great Britain (5 year mean 1991-1995). This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: On passage • Ringed plover *Charadrius hiaticula*, 634 individuals representing at least 1.3% of the Europe/Northern	JNCC Site Description: http://jncc.defra.gov.uk/default.aspx?page=1993	http://publications.naturalengland.org.uk/publication/661991869906944 0?category=4698884316069888	http://publications.naturalengland.org.uk/publication/5803888850501632?category=628039844731289 6

Site Name, Designation and Proximity to Project Site (km to closest point)	Qualifying Features (Annex I and Annex II primary and non-primary reasons for selection of the SAC, Article 4.1 Qualification (2009/147/EC and Article 4.2 Qualification (2009/147/EC for SPA and Justification for the application of Ramsar Criteria)	Link to detailed information on Qualifying Features	Link to Conservation Objectives and Citation	Link to Site Improvement Plan
	Africa – wintering population (5 yr mean spring 91 – 95). Over winter • Knot *Calidris canutus,* 4,190 individuals representing at least 1.2% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6). • Redshank *Tringa totanus*, 1,648 individuals representing at least 1.1% of the wintering Eastern Atlantic - wintering population (5 year peak mean 87-91). The area qualifies under Article 4.2 of the Directive (79/409/EEC) as a wetland of international importance by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 21,406 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: sanderling *Calidris alba*, lapwing *Vanellus vanellus*, shelduck *Tadorna tadorna*, cormorant *Phalacrocorax carbo*, redshank *Tringa totanus*, knot *Calidris canutus.*			
Teesmouth and Cleveland Coast pSPA	Proposals for the potential SPA include to:	Natural England Technical	n/a	n/a

Site Name, Designation and Proximity to Project Site (km to closest point)	Qualifying Features (Annex I and Annex II primary and non-primary reasons for selection of the SAC, Article 4.1 Qualification (2009/147/EC and Article 4.2 Qualification (2009/147/EC for SPA and Justification for the application of Ramsar Criteria)	Link to detailed information on Qualifying Features	Link to Conservation Objectives and Citation	Link to Site Improvement Plan
Area: TBC 2.8 km to the north west of the Project site	• protect breeding common tern *Sterna hirundo* and avocet *Recurvirostra avosetta* as new 'qualifying features' within the extended SPA; • extend the boundary of the Teesmouth and Cleveland Coast SPA into the marine environment to protect foraging areas for little *tern Sternula albifrons* and common tern; and • include additional terrestrial areas within the SPA to protect breeding colonies of common tern and avocet, and non-breeding waterbirds.	Information Note TIN172 – a possible extension to the Teesmouth and Cleveland Coast Special Protection Area: http://publications.naturalengland.org.uk/publication/5987326182293504		
Teesmouth and Cleveland Coast Ramsar Area: 1247.31 ha 3.9 km to the north west of the Project site	The site qualifies under: Ramsar criterion 5 (Assemblages of international importance): Species with peak counts in winter: 9528 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar criterion 6 (Species/populations occurring at levels of international importance): Species with peak counts in spring/autumn:	JNCC Information Sheet on Ramsar Wetlands: http://jncc.defra.gov.uk/pdf/RIS/UK11068.pdf	n/a	n/a

Site Name, Designation and Proximity to Project Site (km to closest point)	Qualifying Features (Annex I and Annex II primary and non-primary reasons for selection of the SAC, Article 4.1 Qualification (2009/147/EC and Article 4.2 Qualification (2009/147/EC for SPA and Justification for the application of Ramsar Criteria)	Link to detailed information on Qualifying Features	Link to Conservation Objectives and Citation	Link to Site Improvement Plan
	• Common redshank *Tringa totanus totanus*, 883 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9-2002/3). Species with peak counts in winter: • Red knot, *Calidris canutus islandica*, W and Southern Africa (wintering), 2579 individuals, representing an average of 0.9% of the GB population (5 year peak mean 1998/9-2002/3).			
North York Moors SAC Area: 44,053.29 ha 7.6 km to the south east of the Project site	Annex I habitats that are a primary reason for selection of this site: • 4010 Northern Atlantic wet heaths with *Erica tetralix*; and • 4030 European dry heaths. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • 7130 Blanket bogs (if active bog).	JNCC Site Description: http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030228	http://publications.naturalengland.org.uk/publication/6048216608931840?category=4698884316069888	http://publications.naturalengland.org.uk/publication/6110322049941504?category=5171232873906176
North York Moors SPA Area: 44087.68 ha	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive. During the breeding season:	JNCC Site Description:	http://publications.naturalengland.org.uk/publication/6207512114102272?category	http://publications.naturalengland.org.uk/publication/6110322049941504?category=5171232873906176

Site Name, Designation and Proximity to Project Site (km to closest point)	Qualifying Features (Annex I and Annex II primary and non-primary reasons for selection of the SAC, Article 4.1 Qualification (2009/147/EC and Article 4.2 Qualification (2009/147/EC for SPA and Justification for the application of Ramsar Criteria)	Link to detailed information on Qualifying Features	Link to Conservation Objectives and Citation	Link to Site Improvement Plan
7.6 km to the south east of the Project site Area: 1122.32 ha	• Golden plover *Pluvialis apricaria*, 526 pairs representing at least 2.3% of the breeding population in Great Britain. • Merlin *Falco columbarius*, 40 pairs representing at least 3.1% of the breeding population in Great Britain.	http://jncc.defra.gov.uk/page-1998-theme=default	=46988843160698 88	

H2.8 APPROACH TO ASSESSING THE EFFECTS ON HABITATS AND SPECIES FROM EMISSIONS TO AIR

H.1.39 Information about the relative sensitivity to air pollutants of qualifying interest habitats and plant species, and habitats supporting qualifying interest fauna species of the European sites, was obtained from the Air Pollution Information System (APIS) (1).

H.1.40 The critical levels (2) and critical loads (3), used as tools for helping to assess the risk of air pollutants on habitats, were obtained from APIS. Critical levels (eg for effects from NO_x) are not assessed on a habitat or species-specific basis; rather they are assessed against standards which are applied for all habitat types and locations. For NO_x, these standards are 30 µg m^{-3} as an annual average. Effects relating to acid and nutrient nitrogen deposition are considered by a habitat and species specific approach, against the specific critical loads listed in APIS.

H.1.41 The Process Contributions (PC) (4) have been predicted to include concentrations in both the short (24 hr averages) and long term (annual averages).

H.1.42 The screening approach to determine whether the PCs were insignificant, or required further assessment, was undertaken by comparing the PCs, and where necessary Predicted Environmental Contributions (PECs), against the percentages of the critical levels / loads set out in the Defra / EA guidance (5) (see *Table H2.2)*.

(1) http://www.apis.ac.uk/

(2) Critical levels are defined as "*concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge*". (Source: www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm)

(3) Critical Loads are defined as: " *a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*" (Source: www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm)

(4) Process Contribution (PC) is the environmental concentrations of each substance emitted to air (https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas)

(5) EA Guidance on Predicted Environmental Contributions (PECs) (https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas)

Table H2.2 Screening Criteria used in Assessing Impacts with regard to Protected Habitats and Species

Criterion	Assessment
Long Term / Short Term	
• PC < 1% of CL (long) • PC < 10% of CL (short)	Insignificant contribution either alone, or in-combination with other projects. No further assessment required, and considered in the ecological assessment to have no likely significant effect.
• PC > 1% of CL (long) or >10% of CL (short) • PEC (1) < 70% of CL	Insignificant contribution and considered in the ecological assessment to have no likely significant effect for the Project alone but further assessment may be required for long-term effects (2) in-combination with other projects to determine the effects on habitats and species.
• PC > 1% of CL (long) or > 10% of CL (short) • PEC > 70% of CL	Potential for significant (3) contribution and considered in the ecological assessment to have a likely significant effect for the Project alone, and further assessment may be required in-combination with other projects to determine the effects on habitats and species

H.1.43 The levels and loads of air pollutants at habitats in the European sites within a 15 km radius from the Project were predicted by air dispersion modelling. Details about the model and its input data can be found in *Chapter 7 Air Quality*.

(1) Predicted Environmental Concentration (PEC) is the PC for each substance plus the concentration of the substance already present in the environment.
(2) Short-term effects are excluded from further assessment as by their nature they are very unlikely to create any cumulative impact.
(3) The term 'significant' is used here in the context of its meaning within the Defra/EA guidance and not within the context of the EIA Regulations.

H3 SCREENING OF LIKELY SIGNIFICANT EFFECTS

H3.1 INTRODUCTION

H.1.44 This section summarises the findings of the screening assessment for the identified European sites, namely:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast pSPA;
- Teesmouth and Cleveland Coast Ramsar site;
- North York Moors SAC; and
- North York Moors SPA.

H3.2 EFFECTS CONSIDERED IN THE ASSESSMENT

H.1.45 The potential effects upon European site(s) as a result of the Project, and the way that they have been referred to in the screening matrices, are listed in *Table H3.1*. No mitigation measures have been relied upon to reach the conclusions in this report as no adverse effects were identified.

Table H3.1 Effects Considered within the Screening Matrices

Designation	Effects described in submission information	Presented in screening matrices as:
• Teesmouth and Cleveland Coast SPA • Teesmouth and Cleveland Coast pSPA • Teesmouth and Cleveland Coast Ramsar site • North York Moors SAC • North York Moors SPA	Secondary effects from air pollutants including: • nutrient nitrogen • acid deposition • NO_x (annual mean) • NO_x (24 hr mean)	Emissions

H.1.46 The screening matrices below (*Tables H3.2 – H3.6*) list the effects which are predicted to occur from the Project, and for each effect whether a likely significant effect can be excluded (X), or whether further assessment (ie AA) is required (✓) on the basis of objective information (ie because the effect is uncertain) [(1)].

(1) The tables included in this report are alternatives to those set out in Appendix 11 (HRA Matrices) of the PINS (Wales) Developments of National Significance (DNS) Guidance , but contain the relevant information.

H.1.47 *Appendix A* contains details of the predicted levels of deposited nitrogen, deposited acids and NO_x (long and short term) at each of the European sites affected, and the PC/PEC as percentages of the CLs.

H3.3 IN-COMBINATION EFFECTS

H3.3.1 Introduction

H.1.48 Under *The Conservation of Habitats and Species Regulations 2010* (as amended) an in-combination assessment is required at the Screening Stage, to determine whether a plan or project requires an Appropriate Assessment (AA) due to the combined effects with other plans / projects. For developments which emit air pollution, there is no practical guidance published on the approach to in-combination assessment. Previous approaches to this have taken levels below 1% as being insignificant alone or in-combination. However, recent case law has re-iterated the need to aggregate contributions to determine whether a significant effect is likely in-combination, even where they are all insignificant alone (1).

H.1.49 The air quality modelling for the Project does not identify any potential effects on the habitats and species associated with the identified European sites. Project contributions of nutrient nitrogen, acid deposition and oxides of nitrogen (NO_x) were all found to be insignificant.

H.1.50 The information provided in this HRA seeks to explain why in this case the effects of the identified projects are unlikely to have a significant effect alone or in-combination with the Project. Notwithstanding this, a qualitative in-combination assessment of relevant projects including those with insignificant effects alone has been undertaken.

H.1.51 NE has agreed with the conclusion of this assessment: that it is unlikely that the project will have significant effects on European designated sites, either alone or in combination with other projects or plans (NE letter to Sembcorp Utilities (UK) Ltd, ref 226716, dated 06 October 2017).

H3.3.2 Critical Levels / Loads

H.1.52 The Critical Level / Load (CL) thresholds for specific pollutant and habitat types have been drawn up based on the collective views of a working group of experts (through the United Nations Economic Commission for Europe (UNECE)) based on current knowledge, and are subject to regular review. The assessment approach is based around thresholds where the Process Contribution (PC) is only 1% of the CLs. It is more of an insignificance threshold (ie below the threshold the contributions are so insignificant that they are considered inconsequential and a likely significant effect will not occur). Exceedance of the 1% of the CL threshold does not in any event automatically mean that an adverse effect will occur, but provides a trigger for

(1) Wealden v SSCLG [2017] EWHC 351 (Admin)

further assessment of the potential effect. Using a 1% of the CL threshold already builds in a large protective margin, and that margin is increased further where PCs are less than the 1% threshold.

H3.3.3 Pollutant Sources and Background Levels

H.1.53 In considering the effects of several PCs from proposed developments in-combination, it is also important to consider the main sources of pollution. The key pollutants assessed as part of the Project application are NO_x, and deposited nitrogen and acidity. Information about the current background levels / loads at the European sites affected, and the sources of the contributing pollutants, is available on APIS (http://www.apis.ac.uk/) for deposited nitrogen and acidity, and from Defra for northern England, which provides a reasonable indication (https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2013).

H.1.54 It is clear from this information that the main contributors to the background levels / loads are from sources such as livestock, transport (eg shipping, road traffic), fertiliser imports, and from emissions from continental Europe. In the case of nutrient nitrogen and acidity, this can amount to approximately three quarters of the background loads. For example, the annual contributions to background nutrient nitrogen from sources other than those described above are well below the CL (min) for even the most sensitive habitat type affected at The Teesmouth and Cleveland Coast SPA (eg approximately 4 kg N/ha/yr, compared with a CL (min) of 8 kg N/ha/yr for supralittoral sediment), and only marginally above the CL (min) for bogs and montane habitat at the North York Moors SPA (approximately 6.5 kg N/ha/yr compared with a CL (min) of 5 kg N/ha/yr), and well below the CL (max) (10 kg N/ha/yr)) for the same habitat type. The PCs from the Project are small (eg nutrient nitrogen contributions to the European sites from the proposed CCGT plant are around 0.03 / 0.04 kg N/ha/yr). These are peak loads and may be lower across parts of the European sites.

H.1.55 Background levels / loads at the European sites can exceed the CLs already, as is the case at the European sites for some of the pollutant types assessed for the Project. Even if several planned and proposed projects (all with PCs < 1% of CL) combine to be close to, or just exceed 1% of the CL, the contributions are still likely to be insignificant compared with the background, which is heavily influenced by the sources described above (eg agriculture, transport, transboundary sources). In cases where the background levels / loads are lower than the CL, there is less risk of effects in the first place by the small increases, even in-combination.

H.1.56 In many cases now, newer more efficient power generation plant is being built and it will help reduce future pollution by replacing existing older plant (1).

(1) It is possible that for some pollutants the data on background levels available do not take account yet of closure of some plants (eg large coal fired power stations), and reflect the improvements to air quality.

The proposed Project is such an example, as it is a modern and more efficient plant which will replace the demolished CCGT plant which previously stood on the site. The Applicant's experience of the permitting requirements and design of new plant is that there is a real focus on achieving PC levels/loads which are < 1% of CL. Overall such insignificant contributions in-combination are also likely to remain insignificant. This approach has been accepted by Inspectors at Inquiries and Hearings.

H3.3.4 Wider Air Quality Context

H.1.57 As discussed above, the background NO_x, acid deposition and nutrient nitrogen deposition are derived from a large number of sources. Within this a significant proportion is derived from sources that are not local (ie within 15 km) and therefore it is important to consider the wider context in addition to the local context.

H.1.58 In APIS there is detailed information available on the sources contributing to the baseline. It is noted that this is based upon an inventory from 2012, as by the nature of the data this will always be somewhat in arrears. However, in the case of the Teesside area this is a particularly important point. In the detailed source breakdown, emissions are included in the baseline from several large coal fired power stations, including Eggborough, Ferrybridge, Drax, Longannet, Fiddlers Ferry and Ratcliffe on Soar, as well as other large combustion processes. Due to the implementation of the requirements of the Industrial Emissions Directive (IED) and its predecessor the Large Combustion Plant Directive (LCPD), since 2012 these plants have either been subject to closure, or substantial reductions in emissions of NO_x and sulphur dioxide (SO_2). There are also policies and measures in place to further reduce emissions from other sources, including more stringent emission limits on vehicles and other industrial sources. Overall, the trend in the UK, and the European continent relevant to transboundary pollution, has been towards steadily improving air quality over the long term. This is particularly evident in the very considerable reductions in ambient SO_2 since the 1960-1980's, and the downward trend continues.

H.1.59 The baseline is therefore not static, and the long term reduction in NO_x, acid deposition and nutrient nitrogen deposition cannot be ignored when considering the impacts of individual projects, or the in-combination effects of multiple projects. Undertaking a quantitative in-combination assessment of new projects within a 15 km radius of the Project, and assessing their impact assuming that there is a static baseline is not practical or appropriate. It is difficult to ascertain the exact pollution balance at a given habitat site, with the reductions in overall baseline and the increase due to new projects, but given the dominance of the baseline and the widespread reduction in emissions, it is reasonable to conclude that the overall trend will continue to be downward even if new projects contribute a net (aggregate for two projects or more) increase of >1% of the Critical Load.

H.1.60 As a general rule, projects contributing >1% of the Critical Load at a habitat where the Critical Load is already exceeded will generally be required to take steps to reduce these impacts; however this does not apply to the Project. Given the general level of industrial development, balanced against the continued downward trend in emissions and ambient airborne pollution it is reasonable to conclude that there are very few, if any, foreseeable circumstances where in-combination effects of the Project with the other two planned developments will lead to a significant negative impact on a habitat in the long term.

H3.3.5 Quantitative In-combination Assessment

H.1.61 In addition to the overarching need question (see above), there are also practical difficulties with undertaking a detailed quantitative in-combination assessment. It is often difficult to obtain detailed quantitative information about other developments, if it has not been submitted with the application. Often the reports simply state PC contributions are <1% of PC. Even if more detailed information is available (eg modelled data) there can be difficulties in combining the data depending on the models used, assumptions which have been made etc. Given that the main contributors of pollutants are from more diffuse sources (eg livestock), or transboundary (eg from continental Europe), the scope of inputs into a meaningful in-combination model could be wide ranging.

H3.3.6 Qualitative In-combination Assessment

H.1.62 Notwithstanding the above considerations, *Chapter 7* (Air Quality) and *Chapter 9* (Ecology and Nature Conservation) of the ES identify other planned and proposed projects that could have impacts on air quality and effects on ecology in-combination with those from the Project.

H.1.63 Following a detailed screening process for all potential cumulative schemes, three other proposed projects within a 15 km radius of the Project were identified as having the potential to lead to cumulative or in-combination effects based on their likely scale of emissions to atmosphere:

- North Sea Pipelines Ltd (ConocoPhillips) CCGT/CHP facility at Seal Sands, north of the Tees;
- Thor Cogeneration plant also north of the Tees; and
- The MGT biomass facility south of the Tees.

H.1.64 Subsequently it was determined that the Thor Generation project had its licence revoked in August 2013 (https://www.ofgem.gov.uk/sites/default/files/docs/2013/08/thor_cogeneration_limited_electricity-revocation-notice-not-supply.pdf); this project is therefore not considered further.

H.1.65 An Appropriate Assessment was undertaken by the Department of Energy and Climate Change (DECC) in April 2009 for the North Sea Pipelines Ltd project (*Record of the Appropriate Assessment under Regulation 48(1) of the Conservation (Natural Habitats, &c.) Regulations 1994 for an Application under Section 36 of the Electricity Act 1989; Title of Application: 800 MW Combined Heat and Power Combined Cycle Gas Turbine Generating Station at Seal Sands, Teesside*). The appropriate assessment considered all three of the above proposed project.

H.1.66 The assessment made the following conclusion:

With regard to the in-combination effects due to the deposition of nitrogen, this assessment demonstrates that the proposed development will not affect the integrity of the habitat of the Teesmouth and Cleveland Coast SPA and Ramsar site, even in the unlikely event that the ConocoPhillips CHP plant and those plants assessed in-combination, operated at full load continuously.

H.1.67 In regard to the MGT biomass facility, the Secretary of State's decision letter of 15th July 2009 stated the following with respect to effects on European (protected) sites.

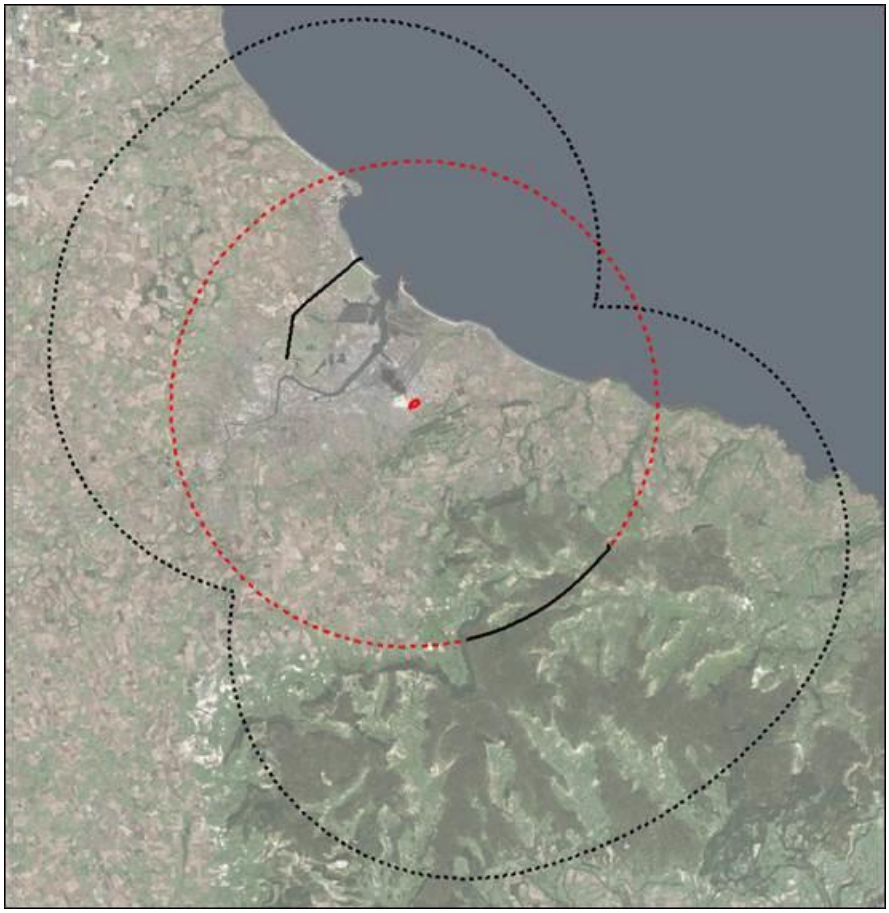
The Secretary of State notes that the development is located near to the Teesmouth and Cleveland Coast Special Protection Area and Ramsar site and the Tees and Hartlepool Foreshore and Wetlands SSSI. However, he has been informed by Natural England that the location, scale and nature of the proposed development are such that it will not be likely to have a significant effect on their interest features and an "Appropriate Assessment" (AA) does not need to be undertaken by the Secretary of State pursuant to Regulation 48 of the 1994 Regulations.

H.1.68 Although the consent has been subsequently varied it is assumed that the above decision still applies.

H.1.69 In addition to the above plans and proposals, there is the potential for large combustion projects that are more than 15 km from the Project to have an impact on the same protected area receptors as the Project. Taking a precautionary approach a wider search zone for other large combustion projects has been identified in *Figure H3.1* below. The red dotted circle encloses the zone within 15 km radius of the Project Site. The black lines/arcs are the furthest extent of protected areas (Teesmouth and Cleveland Coast SPA and Ramsar site and North York Moors SAC) from the Project Site and within 15 km of it. The black dotted lines enclose the additional search zone of 15 km beyond the black lines/arcs.

H.1.70 The Planning Inspectorate and BEIS portals have been checked and there are no further large combustion projects proposed within the above zones.

Figure H3.1 Additional Zones Reviewed for Potential (Large Combustion Project) Cumulative Schemes



H.1.71 Taking into consideration the above conclusions and the revocation of the licence for the Thor Cogeneration project it can be concluded that there is no potential for cumulative and in-combination effects from the Project and these other projects to have a likely significant effect on the interest features of any European sites.

H.1.72 In summary the major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

H3.4 STAGE 1 – SCREENING TABLES

H.1.73 The screening assessment is set out in the screening matrices below (*Table H3.2 –Table H3.6*), as per the requirement set out in the Planning Inspectorate's

Advice Note 10 [1]. The key to the Screening Matrix is summarised in *Box H3.1*.

H.1.74 The air quality modelling did not identify any likely significant effects on the habitats and species associated with the identified European sites (as summarised in the tables in *Appendix A* and detailed in *Chapter 7 Air Quality*). Project contributions of nutrient nitrogen, acid deposition and NOx (both annual mean and 24 hr mean) were concluded to be insignificant (max PC < 1% of CL).

Box H3.1 Screening Matrix Key

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

C = construction
O = operation
D = decommissioning

Where effects are not applicable to a particular feature the matrix cell is formatted as follows: n/a

a, b, c = refers to the nature of the evidence that supports the conclusions, as explained underneath the table.

H.1.75 The tables provided below are based on the templates within the PINS HRA guidance. All European Site Features have been included in the tables and assessed. The effects of air pollutants on habitats within the European sites were identified as part of the Air Quality assessment (see *Chapter 7 Air Quality, Section 7.3.2, Paragraphs 7.84 to 7.93*). The sensitivity of these habitats to the effects of air pollutants emitted from the Project has been identified based on information on the APIS website [2].

(1) Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. The Planning Inspectorate. Republished January 2016, Version 7.
(2) http://www.apis.ac.uk/ For example, the site feature information for nutrient nitrogen for Teesmouth and Cleveland Coast SPA is presented in http://www.apis.ac.uk/srcl/select-a-feature?site=UK9006061&SiteType=SPA&submit=Next

Table H3.2 Stage 1 Matrix 1: Teesmouth and Cleveland Coast SPA

Name of European site and designation: Teesmouth and Cleveland Coast SPA						
EU Code: UK9006061						
Distance to Project: 3.9 km to the north west of the Project						
European site qualifying features	Likely Effects of Project					
Effect	Emissions			In combination effects		
Stage of Development	C	O	D	C	O	D
Little tern *Sternula albifrons* (breeding)	×a	×b	×a	×a	×c	×a
Sandwich tern *Sterna sandvicensis* (on passage)	×a	×b	×a	×a	×c	×a
Ringed plover *Charadrius hiaticula* (on passage)	×a	×b	×a	×a	×c	×a
Knot *Calidris canutus* (over winter)	×a	×b	×a	×a	×c	×a
Redshank *Tringa totanus* (over winter)	×a	×b	×a	×a	×c	×a
Waterfowl assemblage: over winter the area regularly supports at least 20,000 individual waterfowl including: sanderling *Calidris alba*, lapwing *Vanellus vanellus*, shelduck *Tadorna tadorna*, cormorant *Phalacrocorax carbo*, redshank and knot.	×a	×b	×a	×a	×c	×a

Evidence supporting conclusions:

a. Impacts from emissions during construction and decommissioning (such as from traffic) are considered negligible (see *Chapter 7 Air Quality, Paragraphs 7.107 and 7.115*) and have been screened out from further consideration.

b. The operational emissions from the Project are not predicted to make a significant contribution to any European designated site, with max PC < 1% for nutrient nitrogen deposition, acid deposition and ambient NO_x emissions (see *Chapter 7 Air Quality, Paragraph 7.114*). Relevant habitats identified by the APIS website that are likely to be used by the qualifying interest bird species include supralittoral sediment (acidic and calcareous type), littoral sediment and standing open water and canals. The supralittoral and littoral sediment habitat types were assessed during the air quality assessment and will not be significantly affected by operational emissions (see *Appendix A* of this HRA and

Annex E.1 of the ES for a more detailed summary of the results). No critical loads were available for the assessment of standing open water and canal habitats on APIS. However, nutrient nitrogen inputs for these habitats are influenced predominantly by water based nutrient loadings rather than by inputs from the atmosphere and no significant effects are expected. Therefore no significant effects on the supporting habitats or the bird species that are qualifying interests of the SPA are predicted.

H.1.76 Impacts from the in-combination effect of other plans and projects have been considered and no likely significant effects were concluded (see *Section H3.3, Paragraphs H1.49 – H1.50* of this HRA report). The major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

Table H3.3 Stage 1 Matrix 1: Teesmouth and Cleveland Coast pSPA Extension

Name of European site and designation: Teesmouth and Cleveland Coast pSPA Extension						
EU Code: Unknown. Extension to UK9006061						
Distance to Project: 2.8 km to the north west of the Project						
European site qualifying features	Likely Effects of Project					
Effect	Emissions			In combination effects		
Stage of Development	C	O	D	C	O	D
Qualifying interests as listed above for Teesmouth and Cleveland Coast SPA and the additional qualifying features listed below:						
Common tern Sterna hirundo (breeding)	×a	×b	×a	×a	×c	×a
Avocet Recurvirostra avosetta (breeding)	×a	×b	×a	×a	×c	×a
Possible marine extensions for foraging tern: little tern Sterna albifrons (breeding) and common tern Sterna hirundo (breeding)	×a	×b	×a	×a	×c	×a
Possible terrestrial extensions to the SPA for breeding avocet, breeding common tern and wintering waterbirds.	×a	×b	×a	×a	×c	×a

Evidence supporting conclusions:

a. Impacts from emissions during construction and decommissioning (such as from traffic) are considered negligible (see *Chapter 7 Air Quality, Paragraphs 7.107 and 7.115*) and have been screened out from further consideration.

b. The operational emissions from the Project are not predicted to make a significant contribution to any European designated site, with max PC < 1% for nutrient nitrogen deposition, acid deposition and ambient NO_x emissions (see *Chapter 7 Air Quality, Paragraph 7.114*). Relevant habitats identified by the APIS website that are likely to be used by the qualifying interest bird species include supralittoral sediment (acidic and calcareous type), littoral sediment and standing open water and canals. The supralittoral and littoral sediment habitat types were assessed during the air quality assessment and will not be significantly affected by operational emissions (see *Appendix A* of this HRA and *Annex E.1* of the ES for a more detailed summary of the results). No critical loads were available for the assessment of

standing open water and canal habitats on APIS. However, nutrient nitrogen inputs for these habitats are influenced predominantly by water based nutrient loadings rather than by inputs from the atmosphere and no significant effects are expected. Therefore no significant effects on the supporting habitats or the bird species that are qualifying interests of the SPA are predicted.

c. Impacts from the in-combination effect of other plans and projects have been considered and no likely significant effects were concluded (see *Section H3.3, Paragraphs H1.49 – H1.50* of this HRA report). The major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

Table H3.4 Stage 1 Matrix 1: Teesmouth and Cleveland Coast Ramsar site

Name of European site and designation: Teesmouth and Cleveland Coast Ramsar						
EU Code: UK11068						
Distance to Project: 3.9 km to the north west of the Project						
European site qualifying features	Likely Effects of Project					
Effect	Emissions			In combination effects		
Stage of Development	C	O	D	C	O	D
Ramsar Criterion 5 – Assemblages of international importance: species with peak counts in winter - 9528 waterfowl	×a	×b	×a	×a	×c	×a
Ramsar Criterion 6 – Species/populations occurring at levels of international importance: species with peak counts in spring/autumn – common redshank Tringa totanus tetanus; and species with peak counts in winter - red knot Calidris canutus islandica.	×a	×b	×a	×a	×c	×a

Evidence supporting conclusions:

a. Impacts from emissions during construction and decommissioning (such as from traffic) are considered negligible (see *Chapter 7 Air Quality, Paragraphs 7.107 and 7.115*) and have been screened out from further consideration.

b. There are no critical loads available on APIS for Ramsar sites, so the site could not be specifically assessed in the AQ modelling. However, the Ramsar site has the same key bird species and site boundaries as the Teesmouth and Cleveland Coast SPA which has been assessed. The operational emissions from the Project are not predicted to make a significant contribution to any European designated site, with max PC < 1% for nutrient nitrogen deposition, acid deposition and ambient NO_x emissions (see *Chapter 7 Air Quality, Paragraph 7.114*).

c. Impacts from the in-combination effect of other plans and projects have been considered and no likely significant effects were concluded (see *Section H3.3, Paragraphs H1.49 – H1.50* of this HRA report). The major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very

unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

Table H3.5 Stage 1 Matrix 1: North York Moors SAC

Name of European site and designation: North York Moor SAC						
EU Code:						
Distance to Project: 7.6 km to the south east of the Project						
European site qualifying features	Likely Effects of Project					
Effect	Emissions			In combination effects		
Stage of Development	C	O	D	C	O	D
4010 Northern Atlantic wet heaths with Erica tetralix	×a	×b	×a	×a	×c	×a
4030 European dry heaths	×a	×b	×a	×a	×c	×a
7130 Blanket bogs (* priority feature if active bog)	×a	×b	×a	×a	×c	×a

Evidence supporting conclusions:

a. Impacts from emissions during construction and decommissioning (such as from traffic) are considered negligible (see *Chapter 7 Air Quality, Paragraphs 7.107 and 7.115*) and have been screened out from further consideration.

b. The operational emissions from the Project are not predicted to make a significant contribution to any European designated site, with max PC < 1% for nutrient nitrogen deposition, acid deposition and long term ambient NO_x emissions (see *Chapter 7 Air Quality, Paragraph 7.114*). A more detailed summary of the results is provided in *Appendix A* of this HRA and *Annex E.1* of the ES.

c. Impacts from the in-combination effect of other plans and projects have been considered and no likely significant effects were concluded (see *Section H3.3, Paragraphs H1.49 – H1.50* of this HRA report). The major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

Table H3.6 Stage 1 Matrix 1: North York Moors SPA

Name of European site and designation: North York Moor SPA						
EU Code: UK9006161						
Distance to Project: 7.6 km to the south east of the Project						
European site qualifying features	Likely Effects of Project					
Effect	Emissions			In combination effects		
Stage of Development	C	O	D	C	O	D
Golden plover Pluvialis apricaria (breeding)	×a	×b	×a	×a	×c	×a
Merlin Falco columbarius (breeding)	×a	×b	×a	×a	×c	×a

Evidence supporting conclusions:

a. Impacts from emissions during construction and decommissioning (such as from traffic) are considered negligible (see *Chapter 7 Air Quality*, *Paragraphs 7.107 and 7.115*) and have been screened out from further consideration.

b. The operational emissions from the Project are not predicted to make a significant contribution to any European designated site, with max PC < 1% for nutrient nitrogen deposition, acid deposition and long term ambient NO_x emissions (see *Chapter 7 Air Quality*, *Paragraph 7.114*). Relevant habitats identified by the APIS website that are likely to be used by the qualifying interest bird species include bog, montane and dwarf shrub heath habitats. These habitats were assessed during the air quality assessment and will not be significantly affected by operational emissions (see *Appendix A* of this HRA and *Annex E.1* of the ES for a more detailed summary of the results). Therefore no significant effects on the supporting habitats or the bird species that are qualifying interests of the SPA are predicted.

c. Impacts from the in-combination effect of other plans and projects have been considered and no likely significant effects were concluded (see *Section H3.3, Paragraphs H1.49 – H1.50* of this HRA report). The major influences on the European sites are from other pollutant sources such as agriculture, transport, and transboundary, and it is considered very unlikely that insignificant additions of air pollutants by the Project would combine with insignificant contributions from other proposed developments to result in likely significant effects on the European sites.

H3.5 SCREENING ASSESSMENT SUMMARY

H.1.77 The key findings of the assessment are listed below.

H.1.78 Habitats at five European sites will receive pollutants from the Project (NO_x, deposited nitrogen and acidity):

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast pSPA;
- Teesmouth and Cleveland Coast Ramsar site;
- North York Moors SAC; and
- North York Moors SPA.

H.1.79 Modelling of the nutrient nitrogen deposition, acid deposition and ambient NOx (short and long term exposures) showed that contributions from the Project will be insignificant at all European sites according to the recognised criteria.

H.1.80 The screening assessment found no likely significant effects on the qualifying interest features of the European sites from the Project alone, or in-combination with other projects. Hence an AA is not considered necessary for the Project.

H.1.81 This conclusion has been agreed with NE (NE letter to Sembcorp Utilities (UK) Ltd, ref 226716, dated 06 October 2017). A draft Statement of Common Ground (PINS Ref: EN010082) has also been agreed with Natural England where it states that the HRA methodology is acceptable, together with the conclusions of no likely significant effects on European designated sites.

APPENDIX A – AIR QUALITY MODELLING TABLES

Table 1 Predicted Nutrient Nitrogen Deposition at Ecological Receptors (Annual Mean)

Sites	Habitat feature	Critical Load (CL) for Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})		Process Contribution (PC) (kgN ha^{-1} yr^{-1})	PC/CL (%)		Background Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})	PEC (kgN ha^{-1} yr^{-1})	PEC/CL (%)	
		Min	Max		Min	Max			Min	Max
Teesmouth and Cleveland Coast SPA	Supralittoral sediment (acidic type) supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	8	10	0.0392	<1	<1	18.48	-	-	-
	Supralittoral sediment (calcareous type) supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	10	15	0.0392	<1	<1	18.48	-	-	-
	Supralittoral sediment supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	15	20	0.0392	<1	<1	18.48	-	-	-
	Littoral sediment supporting: • Common shelduck *Tadorna tadorna* • Eurasian teal *Anas crecca* • Red knot *Calidris canutus* • Sanderling *Calidris alba*	20	30	0.0392	<1	<1	18.48	-	-	-

Sites	Habitat feature	Critical Load (CL) for Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})		Process Contribution (PC) (kgN ha^{-1} yr^{-1})	PC/CL (%)		Background Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})	PEC (kgN ha^{-1} yr^{-1})	PEC/CL (%)	
		Min	Max		Min	Max			Min	Max
	• Common redshank *Tringa totanus*									
	Standing open water and canals supporting: • Eurasian teal *Anas crecca* • Northern shoveler *Anas clypeata* • Great cormorant *Phalacrocorax carbo*	Sensitive but no CL		0.0392	n/a	n/a	12.04	n/a	n/a	n/a
Teesmouth and Cleveland Coast pSPA	Qualifying interests as listed above for Teesmouth and Cleveland Coast SPA and the additional qualifying features (1) listed below:									
	Supralittoral sediment (acidic type) supporting: • common tern *Sterna hirundo*	8	10	0.0407	<1	<1	18.48	-	-	-
	Supralittoral sediment (calcareous type) supporting: • common tern *Sterna hirundo*	10	15	0.0407	<1	<1	18.48	-	-	-
	Supralittoral sediment supporting:	10	20	0.0407	<1	<1	18.48	-	-	-

(1) In the absence of site-specific critical loads, it has been assumed that the general critical loads published on APIS for these species are applicable.

Sites	Habitat feature	Critical Load (CL) for Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})		Process Contribution (PC) (kgN ha^{-1} yr^{-1})	PC/CL (%)		Background Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})	PEC (kgN ha^{-1} yr^{-1})	PEC/CL (%)	
		Min	Max		Min	Max			Min	Max
	• common tern *Sterna hirundo*									
	Standing open water and canals supporting: • common tern *Sterna hirundo*	Sensitive but no CL		0.0407	n/a	n/a	18.48	n/a	n/a	n/a
	Littoral sediment supporting: • avocet *Recurvirostra avosetta*	20	30	0.0407	<1	<1	18.48	-	-	-
Teesmouth and Cleveland Coast Ramsar	No Ramsar information on APIS. Key designated species are assessed via the SPA designation (same site boundary)	n/a		0.0433	n/a	n/a	n/a	n/a	n/a	n/a
North York Moors SAC	Blanket bogs (* if active bog)	5	10	0.0318	<1	<1	23.52	-	-	-
	Northern Atlantic wet heaths with *Erica tetralix* European dry heaths	10	20	0.0318	<1	<1	23.52	-	-	-
North York Moors SPA	Bogs and montane habitat supporting: • European golden plover *Pluvialis apricaria*	5	10	0.0318	<1	<1	23.52	-	-	-
	Dwarf shrub heath supporting:	10	20	0.0318	<1	<1	23.52	-	-	-

Sites	Habitat feature	Critical Load (CL) for Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})		Process Contribution (PC) (kgN ha^{-1} yr^{-1})	PC/CL (%)		Background Nutrient Nitrogen Deposition (kgN ha^{-1} yr^{-1})	PEC (kgN ha^{-1} yr^{-1})	PEC/CL (%)	
		Min	Max		Min	Max			Min	Max
	• European golden plover *Pluvialis apricaria* • Merlin *Falco columbarius*									

Table 2 Predicted Acid Deposition at Ecological Receptors (Annual Mean) - for most sensitive qualifying feature

Site	Habitat Feature	Critical Load (CL) for Acid Deposition (keq ha^{-1} yr^{-1})			Background Acid Deposition (keq ha^{-1} yr^{-1}		PC / CL %	PEC / CL %
		CL max S	CL min N	CL max N	S baseline	N baseline		
Teesmouth and Cleveland Coast SPA	Supralittoral sediment (acidic type) supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	1.56	0.223	1.998	0.48	1.38	<1	-
	Supralittoral sediment (calcareous type) supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	4	0.856	4.856	0.48	1.38	<1	-
	Supralittoral sediment supporting: • Sandwich tern *Sterna sandvicensis* • Little tern *Sterna albifrons*	Not Sensitive			n/a	n/a	n/a	n/a

Site	Habitat Feature	Critical Load (CL) for Acid Deposition (keq ha^{-1} yr^{-1})			Background Acid Deposition (keq ha^{-1} yr^{-1}		PC / CL %	PEC / CL %
		CL max S	CL min N	CL max N	S baseline	N baseline		
	Littoral sediment supporting: • Common shelduck *Tadorna tadorna* • Eurasian teal *Anas crecca* • Red knot *Calidris canutus* • Sanderling *Calidris alba* • Common redshank *Tringa totanus*							
	Standing open water and canals supporting: • Northern shoveler *Anas clypeata* • Great cormorant *Phalacrocorax carbo* • Eurasian teal *Anas crecca*	Sensitive but no CL			n/a	n/a	n/a	n/a
Teesmouth and Cleveland Coast pSPA	Qualifying interests as listed above for Teesmouth and Cleveland Coast SPA and the additional qualifying features (1) listed below:							
	Supralittoral sediment (acidic type) supporting: • common tern *Sterna hirundo*	1.56	0.223	1.998	0.48	1.38	<1	-
	Supralittoral sediment (calcareous type) supporting: • common tern *Sterna hirundo*	4	0.856	4.856	0.48	1.38	<1	-
	Standing open water and canals supporting: • common tern *Sterna hirundo*	Sensitive but no CL			n/a	n/a	n/a	n/a
	Littoral sediment supporting: • avocet *Recurvirostra avosetta*	Not sensitive			n/a	n/a	n/a	n/a

(1) As there are no general CLs published on APIS for common tern & acid deposition, the CLs provided for sandwich tern and little tern have been used as the most suitable alternative.

Site	Habitat Feature	Critical Load (CL) for Acid Deposition (keq ha^{-1} yr^{-1})			Background Acid Deposition (keq ha^{-1} yr^{-1}		PC / CL %	PEC / CL %
		CL max S	CL min N	CL max N	S baseline	N baseline		
Teesmouth and Cleveland Coast Ramsar	No Ramsar information on APIS. Key designated species are assessed via the SPA designation (same site boundary)	n/a			n/a	n/a	n/a	n/a
North York Moors SAC	Blanket bogs (* if active bog)	0.183	0.321	0.54	0.47	1.77	<1	-
	Northern Atlantic wet heaths with *Erica tetralix* European dry heaths	0.15	0.499	0.792	0.47	1.77	<1	-
North York Moors SPA	Bog habitats supporting: • European golden plover *Pluvialis apricaria*	0.183	0.321	0.54	0.47	1.77	<1	-
	Montane habitat supporting: • European golden plover *Pluvialis apricaria*	0.15	0.178	0.471	0.15	1.77	<1	-
	Dwarf shrub heath supporting: • European golden plover *Pluvialis apricaria* • Merlin *Falco columbarius*	0.15	0.499	0.792	0.47	1.77	<1	-

Table 3 Predicted NOx at Ecological Receptors (Annual Mean)

Sites	Critical Level (µg m^{-3})	Background Conditions (µg m^{-3})	PC (µg m^{-3})	PC / CL (%)	PEC (µg m^{-3})	PEC / CL(%)
Teesmouth and Cleveland Coast SPA	30	31.8	0.272	<1	-	-
Teesmouth and Cleveland Coast pSPA	30	31.8	0.283	<1	-	-
Teesmouth and Cleveland Coast Ramsar	30	31.8	0.272	<1	-	-
North York Moors SAC	30	11.3	0.221	<1	-	-
North York Moors SPA	30	11.3	0.221	<1	-	-

Table 4 Predicted NOx at Ecological Receptors (24 hr Mean)

Sites	Critical Level (µg m^{-3})	Background Conditions (µg m^{-3})	PC (µg m^{-3})	PC / CL (%)	PEC (µg m^{-3})	PEC / CL(%)
Teesmouth and Cleveland Coast SPA	75	63.6	3.29	<10	-	-
Teesmouth and Cleveland Coast pSPA	75	18.5	4.89	<10	-	-
Teesmouth and Cleveland Coast Ramsar	75	63.6	3.29	<10	-	-
North York Moors SAC	75	22.6	9.19	12	31.8	42
North York Moors SPA	75	22.6	9.19	12	31.8	42