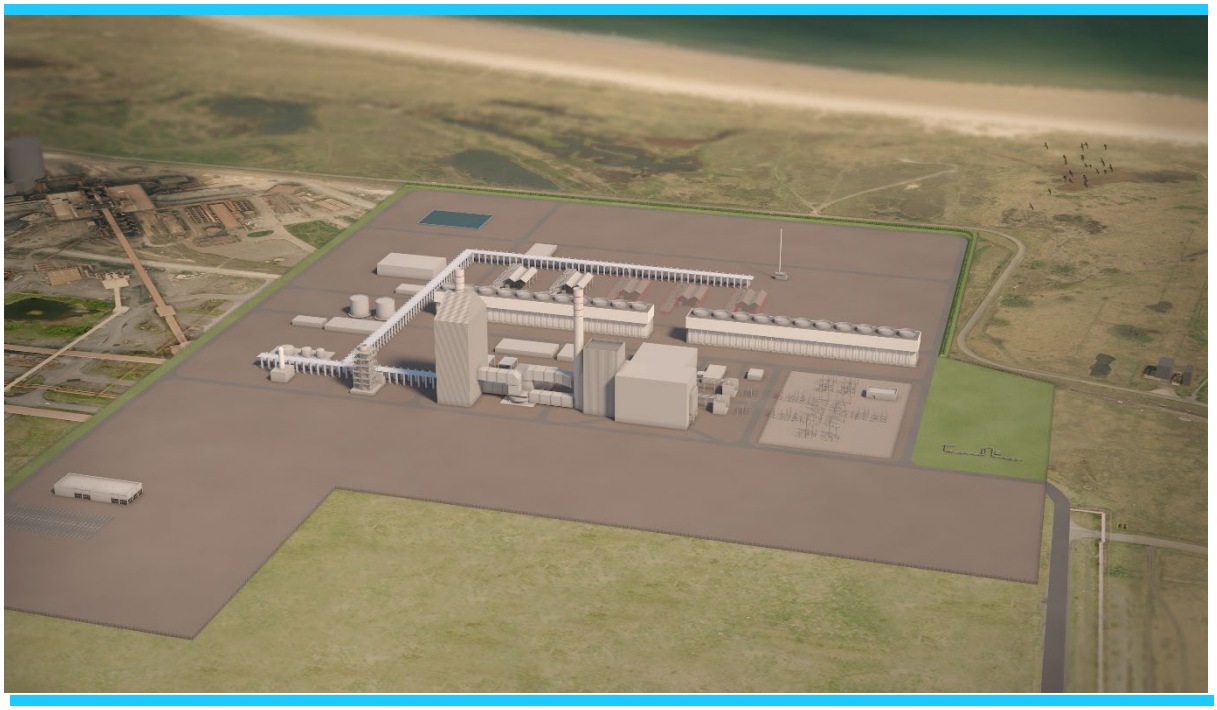
Net Zero Teesside Project

Planning Inspectorate Reference: EN010103

Land at and in the vicinity of the former Redcar Steel Works site, Redcar and in Stockton-on-Tees, Teesside

The Net Zero Teesside Order

Document Reference: 8.6 – Statement of Common Ground with Natural England



Applicants: Net Zero Teesside Power Limited (NZT Power Ltd) & Net Zero North Sea Storage Limited (NZNS Storage Ltd)

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GLOSSARY

Abbreviation	Description
AD Guidance	Guidance on associated development applications for major infrastructure projects' (April 2013)
AGI	Above Ground Installation
Applicants	Together NZT Power and NZNS Storage
Application (or DCO Application)	The application for a DCO made to the SoS under Section 37 of PA 2008 in respect of the Proposed Development, required pursuant to Section 31 of the PA 2008 because the Proposed Development is a NSIP under Section 14(1)(a) and Section 15 of PA 2008 by virtue of being an onshore generating station in England or Wales of electrical capacity of more than 50 megawatts, and which does not generate electricity from wind, and by the Section 35 Direction
Associated Development	Defined under S.115(2) of PA 2008 as development which is associated with the principal development and that has a direct relationship with it. Associated development should either support the construction or operation of the principal development or help address its impacts. It should not be an aim in itself but should be subordinate to the principal development
BEIS	Department for Business, Energy, and Industrial Strategy
CCP	Carbon capture plant
CCGT	Combined cycle gas turbine
CCUS	Carbon capture usage and storage

Abbreviation	Description
CEMP	Construction and Environmental Management Plan
CROW	Countryside and Rights of Way Act 2000
DCO	A Development Consent Order made by the relevant Secretary of State pursuant to the PA 2008 to authorise a NSIP. A DCO can incorporate or remove the need for a range of consents which would otherwise be required for a development. A DCO can also include powers of compulsory acquisition
EIA	Environmental Impact Assessment - the assessment of the likely significant environmental effects of a development, undertaken in accordance with the EIA Regulations
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) setting out how the environmental assessment of NSIPs must be carried out and the procedures that must be followed
Electricity Generating Station (or CCGT / Low Carbon Electricity Generating Station)	A new electricity generating station fuelled by natural gas and with a gross output capacity of up to 860 megawatts
EPC Contractor	Engineering, Procurement and Construction contractor who will undertake the detailed engineering design, procurement and deliver the construction of the Proposed Development
ES	Environmental Statement, documenting the findings of the EIA
ExA	Examining Authority
Land Plans	The plans showing the land that is required for the Proposed Development, and the land over which interests or rights in land are sought as part of the Order
Limits of Deviation	The limits shown on the Works Plans within which the Proposed Development may be built
NSIP	Nationally Significant Infrastructure Project that must be authorised by the making of a DCO under PA 2008
NZT Power	Net Zero Teesside Power Limited
NZNS Storage	Net Zero North Sea Storage Limited
NZT	Net Zero Teesside - the name of the Proposed Development.
Open Space Land	The parts of the Order Land which are considered to be open space for the purposes of section 132

Abbreviation	Description
	of the PA 2008 and as shown hatched blue on the Land Plans
Order	The Net Zero Teesside Order, being the DCO that would be made by the Secretary of State authorising the Proposed Development, a draft of which has been submitted as part of the Application
Order Land	The land which is required for, or is required to facilitate, or is incidental to, or is affected by, the Proposed Development and over which powers of compulsory acquisition are sought in the Order
Order Limits	The limits of the land to which the Application relates and shown on the Land Plans and Works Plans within which the Proposed Development must be carried out and which is required for its construction and operation
PA 2008	The Planning Act 2008 which is the legislation in relation to applications for NSIPs, including preapplication consultation and publicity, the examination of applications and decision making by the Secretary of State
PCC Site	Power, Capture and Compression Site - the part of the Site that will accommodate the Electricity Generating Station, along with the CCP and high-pressure compressor station
Proposed Development (or Project)	The development to which the Application relates and which requires a DCO, and as set out in Schedule 1 to the Order
Requirements	The 'requirements' at Schedule 2 to the Order that, amongst other matters, are intended to control the final details of the Proposed Development as to be constructed and to control its operation, amongst other matters to ensure that it accords with the EIA and does not result in unacceptable impacts
Site (or Proposed Development Site)	The land corresponding to the Order Limits which is required for the construction and operation of the Proposed Development
SoCG	Statement of Common Ground
Section 35 Direction	The direction under section 35 of the PA 2008 dated 17 January 2020 from the SoS that the Specified Elements together with any

Abbreviation	Description
	matters/development associated with them should be treated as development for which development consent under the PA 2008 is required
SoS	The Secretary of State - the decision maker for DCO applications and head of Government department. In this case the SoS for the Department for Business, Energy, and Industrial Strategy
Specified Elements	Those elements of the Proposed Development that, by virtue of the Section 35 Direction, are to be treated as development for which development consent under the PA 2008 is required being: the CO2 gathering network, including the CO2 pipeline connections from the proposed CCGT Electricity Generating Station and industrial facilities on Teesside to transport the captured CO2 (including the connections under the tidal River Tees), a high-pressure carbon dioxide compressor station to receive captured CO2 from the CO2 gathering network, and a section of the CO2 transport pipeline for the onward transport of the captured CO2 to a suitable offshore geological storage site
STDC	South Tees Development Corporation
Work No.	Work number, a component of the Proposed Development, described at Schedule 1 to the Order
Works Plans	Plans showing the numbered works referred to at Schedule 1 to the Order and which together make up the Proposed Development

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TABLES

APPENDICES

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1.0 INTRODUCTION

1.1 Overview

1.1.1 This Statement of Common Ground (Document Ref. 8.6) has been prepared by Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited (the 'Applicants') in conjunction with Natural England in respect of the Net Zero Teesside Project (the 'Proposed Development').

1.1.2 The SoCG relates to the application (the 'Application') that has been submitted to the Secretary of State ('SoS') for Business, Energy and Industrial Strategy, under Section 37 of 'The Planning Act 2008' (the 'PA 2008'), seeking development consent for the Proposed Development. The Application was accepted for Examination by the SoS on 16th August 2021.

1.1.3 The SoCG sets out the matters of agreement between the Applicants and Natural England and also explains those matters which, at the time of writing, remain unresolved between the parties.

1.1.4 The agreements to date have been reached through consultation and continuing discussions between the parties, including interface meetings and regular face to face discussions.

1.2 Description of Proposed Development

1.2.1 The Proposed Development will work by capturing CO_2 from a new the gas-fired power station in addition to a cluster of local industries on Teesside and transporting it via a CO_2 transport pipeline to the Endurance saline aquifer under the North Sea. The Proposed Development will initially capture and transport up to 4Mt of CO_2 per annum, although the CO_2 transport pipeline has the capacity to accommodate up to 10Mt of CO_2 per annum thereby allowing for future expansion.

1.2.2 The Proposed Development comprises the following elements:

- **Work Number ('Work No.') 1** – a Combined Cycle Gas Turbine electricity generating station with an electrical output of up to 860 megawatts and post-combustion carbon capture plant (the **'Low Carbon Electricity Generating Station'**);
- **Work No. 2** – natural gas supply connections and Above Ground Installations ('AGIs') (the **'Gas Connection'**);
- **Work No. 3** – an electricity grid connection (the **'Electrical Connection'**);
- **Work No. 4** – water supply connections (the **'Water Supply Connection Corridor'**);
- **Work No. 5** – waste water disposal connections (the **'Water Discharge Connection Corridor'**);
- **Work No. 6** – a CO_2 gathering network (including connections under the tidal River Tees) to collect and transport the captured CO_2 from industrial emitters (the

industrial emitters using the gathering network will be responsible for consenting their own carbon capture plant and connections to the gathering network) (the **'CO_2 Gathering Network Corridor'**);

- **Work No. 7** – a high-pressure CO_2 compressor station to receive and compress the captured CO_2 from the Low Carbon Electricity Generating Station and the CO_2 Gathering Network before it is transported offshore (the **'HP Compressor Station'**);
- **Work No. 8** – a dense phase CO_2 export pipeline for the onward transport of the captured and compressed CO_2 to the Endurance saline aquifer under the North Sea (the **'CO_2 Export Pipeline'**);
- **Work No. 9** – temporary construction and laydown areas, including contractor compounds, construction staff welfare and vehicle parking for use during the construction phase of the Proposed Development (the **'Laydown Areas'**); and
- **Work No. 10** – access and highway improvement works (the **'Access and Highway Works'**).

1.2.3 The electricity generating station, its post-combustion carbon capture plant and the CO_2 compressor station will be located on part of the South Tees Development Corporation ('STDC') Teesworks area (on part of the former Redcar Steel Works Site). The CO_2 export pipeline will also start in this location before heading offshore. The generating station connections and the CO_2 gathering network will require corridors of land within both Redcar and Stockton-on-Tees, including a new crossing beneath the River Tees.

1.3 The Role of Natural England

1.3.1 Natural England is a non-departmental public body. Its statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

1.3.2 Natural England's role in relation to the DCO process derives from the PA 2008 and secondary legislation made under the Act. The roles and responsibilities of Natural England under PA 2008 are outlined as follows:

- Natural England is a consultee under section 42 of the PA 2008, meaning applicants must consult with Natural England before submitting a Nationally Significant Infrastructure Project (NSIP) application;
- NE is the statutory nature conservation body under the Conservation of Habitats and Species Regulations 2019 ('Habitats Regulations') in respect of the Habitats Regulation Assessment ('HRA') process; and
- Natural England is the consenting and licensing authority in respect of protected species and operations likely to damage the protected features of Sites of Special Scientific Interest (SSSIs) pursuant to the Wildlife and Countryside Act 1981 (WCA 1981) and in relation to European protected species under the Habitats Regulations.

1.3.3 In more general terms aside from its responsibilities under PA 2008, Natural England is responsible for:

- promoting nature conservation and protecting biodiversity, conserving and enhancing the landscape;
- securing the provision and improvement of facilities for the study, understanding and enjoyment of the natural environment;
- promoting access to the countryside and open spaces; and
- encouraging open-air recreation and contributing in other ways to social and economic well-being through management of the natural environment.

1.4 The Purpose and Structure of this Document

1.4.1 The purpose of this document is to summarise the agreements reached between the parties on matters relevant to the Examination of the Application and to assist the Examining Authority ('ExA'). It also explains the matters which remain unresolved at the time of writing, but which both parties are working positively toward resolving. As such, it is expected that further iterations of the SoCG will be submitted to the ExA throughout the Examination and prior to the making of any Development Consent Order ('DCO') for the Proposed Development.

1.4.2 The SoCG has been prepared with regard to the guidance in 'Planning Act 2008: examination of application for development consent' (Department for Communities and Local Government, March 2015).

1.4.3 The SoCG is structured as follows:

- Section 2 – sets out consultation and related discussions held between the Applicants and Natural England.
- Section 3 – sets out the matters discussed and agreed to date.
- Section 4 – sets out matters to be agreed and the proposed way forward.

2.0 SUMMARY OF CONSULTATION AND DISCUSSIONS

2.1 Overview

2.1.1 This section provides a summary of how the Applicants have consulted Natural England on the Proposed Development and also sets out the discussions and correspondence that have taken place between the parties – see **Table 2.1**.

Table 2.1: Summary of Consultation

Consultation Stage/Date	Natural England Response
July 2017 (Pre-Application engagement meeting)	Following the agreement of a Natural England discretionary advice service (DAS) contract, an introductory meeting was held with Natural England. The purpose was to introduce the Proposed Development, identify key milestones, provide an overview of key site constraints and the technical approach to HRA.
August 2017 (Circulation of Ecological technical note)	A preliminary constraints assessment was provided to Natural England, alongside a proposed ecological scope of work.
September 2017 (Methodology and scope review)	Following receipt of Natural England feedback on the ecological scope of work, a further technical note was provided to Natural England summarising how feedback had been actioned. This correspondence also confirmed appointment of ornithological surveyors for the 2017/2018 season.
March 2019 (EIA Scoping)	PINS consulted with Natural England on the Scoping Report prepared by the applicant in March 2019. Key topics raised in PINS Scoping Opinion included: • Need to assess the extension to the Teesmouth and Cleveland Coast Ramsar, SPA and SSSI as well as the NNR and RSPB Reserve • 15 km study area for aerial emissions • Phase 1 Habitat Survey data should be collected for the entirety of the application site. Species surveys should be sufficient to support a robust assessment and justified in the ES • Marine surveys should be undertaken if there is a potential for significant effects. • Methodology for assessing noise disturbance on birds should be agreed with NE and mitigation identified if necessary. • Traffic, vibration and visual impacts should also be considered where significant effects likely.

	• Air quality assessment should include dust impacts on designated sites. • Quantification of temporary and permanent habitat gains and losses by type (including functionally linked land). • Invasive species surveys should be undertaken and any eradication/control measures detailed in the ES. • Impacts on trees/woodland within/adjacent to the site should be assessed and any mitigation proposed.
April 2019 (Pre-Application engagement meeting)	Technical progress on survey activity (as well as EIA) together with planned surveys and ecological assessments and an indicative timeline of key next-steps for the Proposed Development. Key points raised by NE: • NE to provide GIS data and information on designated sites that the Tees Estuary Partnership has identified for opportunities for BNG • Non-standard emissions (e.g. nitrosamines) to be included in ES/HRA • Noise impact on bird thresholds to be evaluated. Piling should avoid overwintering period if possible. • Consider potential UXO presence at South Gare • Updating the wintering birds information is not a concern north of Tees. For land north of Tees existing INCA/RSPB/WeBS bird data sufficient if within existing corridors. • Phase 1 Habitat Survey to be completed and shared with NE. • Separate discussions on marine data collection and surveys to be held with NE.
February 2020 (Pre-Application engagement meeting)	Survey progress was discussed, alongside the planned scope of further surveys for the Proposed Development Site and surrounds. The Applicants' Marine, Aquatic, Terrestrial and Ornithological specialists attended the meeting and provided technical updates to Natural England. An update on progress with the HRA was also provided.
April 2020 (email update from AECOM to NE regarding the survey scope in light of COVID-19; circulation of	The Applicants presented the progress on ecological surveys to-date and the remaining survey suite planned for completion ahead of DCO submission.

survey scope technical memo)	
July 2020 (Stage 2 consultation – Preliminary Environmental Information (PEI) Report)	Natural England were consulted as part of the Stage 2 formal consultation, including upon the PEI Report prepared by the Applicants. Natural England provided a range of feedback; key topics raised included: • Nationally and internationally designated sites (the Teesmouth and Cleveland Coast SSSI, SPA and Ramsar) • Protected Species • Landscape • Habitat Enhancement • Ongoing Engagement
October 2020 (Natural England assent/consent application for water surveys)	An assent/consent application was made to Natural England and granted for a limited series of surface water surveys/sampling within the Coatham Sands area.
November 2020 (Natural England assent/consent application for unexploded ordnance surveys)	An assent/consent application was made to Natural England and granted for a limited series of drone-based magnometer surveys within the Coatham Sands area.
December 2020 (Pre-Application engagement meeting)	Detailed feedback from Stage 2 consultation was discussed, as well as the Applicants' responses. Updated review of survey progress (and planned surveys) and the general sufficiency of surveys to-date and planned was agreed with NE.
December 2020 (Air Quality technical memo)	An update on HRA progress included agreement of key topics surrounding the HRA, including appropriate noise thresholds for the Teesside area and the nitrogen deposition thresholds.
January 2021 (Natural England assent/consent application for intertidal sampling)	A detailed technical discussion was undertaken with Natural England regarding air quality; this included the approach to cumulative effects assessment.
January 2021 (Pre-application engagement meeting; technical memo related to cumulative effects)	A technical memo was circulated to Natural England to help inform the appraisal of emissions to air arising from the Proposed Development. The memo also set out key areas that were agreed between the parties as being important to reach agreement on.

March 2021 (Natural England assent/consent application for geotechnical investigation)	An assent/consent application was made to Natural England and granted for a limited series of intertidal sampling within the Coatham Sands area.
April 2021 (Technical meeting ahead of DCO submission)	Update on progress and technical discussion related to air quality. Neighbouring third-party development proposals, including combustion plant(s), were discussed regarding cumulative effects with the Proposed Development and an approach was agreed between the parties on how to consider the cumulative effects on the Coatham Sands area.
May 2021 (HRA Review)	The HRA Appropriate Assessment was submitted for review and comments were received.
December 2021 (Publication of Natural England's Relevant Representation	Summarised all formal consultation and technical engagement to-date. The findings from key EIA workstreams, including noise and air quality, were presented and discussed.
March 2022	Meeting to discuss Natural England's Relevant Representation.
May 2022	Email exchange regarding the contents of the SoCG.

3.0 MATTERS AGREED

3.1.1 **Table 3.1** below contains a list of matters agreed along with a concise commentary of what the item refers to.

Table 3.1: List of Matters Agreed between the Applicant and Natural England

Matter Agreed	Natural England Response
General Adequacy of the Environmental Statement and other relevant documents submitted with the DCO application	The Impacts on ecology are considered in ES Volume I, Chapter 12: Terrestrial Ecology and Nature Conservation [**APP-094**]; Chapter 13: Aquatic Ecology [**APP-095**]; Chapter 14: Marine Ecology and Nature Conservation [**APP-096**]; and Chapter 15: Ornithology [**APP-097**]. These chapters summarise the ecological surveys undertaken and provide an assessment of the effects of the Proposed Development on ecological receptors. The survey reports are provided in ES Volume II, Appendices 12C to 12J [**APP-301 to APP-312**] and [**AS-030**], 14A to 14D [**APP-315 to APP-320**], and 15A and 15B [**APP-322, APP-323, APP-325, APP-326 and AS-031**]. A Landscaping and Biodiversity Strategy is included within the draft DCO application documents [**APP-079**]. The assessments made in Chapters 12, 13, 14 and 15 have been informed by the results of the following ES chapters: Chapter 8: Air quality [**APP-090**] Chapter 9: Surface Water, Flood Risk and Water Resources [**APP-091**] Chapter 10: Geology and Contaminated Land [**APP-092**] Chapter 11: Noise and vibration [**APP-093**] It is agreed that the baseline surveys and assessment methods used to inform the assessment of effects upon protected species and habitats (with exception of those which further information has been requested for and referenced with Section 4.0 of this Statement of Common Ground) and presented in the ES are appropriate, adequate and follow current guidance.
The assessment of effects on Onshore Ecology	It is agreed that, in line with the conclusions of ES Volume I, Chapter 12: Terrestrial Ecology and Nature Conservation [**APP-094**] subject to the specific points listed below, the proposed control and mitigation measures for construction and operational effects will provide effective protection to designated sites and protected species, that no significant effects are likely and therefore that the effects are acceptable.
The assessment of effects on Ornithology	It is agreed that, in line with the conclusions of ES Volume I, Chapter 15: Ornithology **[APP-097]** subject to the specific points listed below, the proposed control and mitigation measures for construction and operational effects will provide effective protection to designated sites and protected species, that no

	significant effects are likely and therefore that the effects are acceptable.
The assessment of effects on Aquatic and Marine Ecology	It is agreed that, in line with the conclusions of ES Volume I, Chapter 13: Aquatic Ecology [**APP-095**] and Chapter 14 Marine Ecology and Nature Conservation [**APP-096**] subject to the specific points listed below, the proposed control and mitigation measures for construction and operational effects will provide effective protection to designated sites and protected species, that no significant effects are likely and therefore that the effects are acceptable.
Habitats Regulations Assessment and Effects on Internationally and Nationally Designated Sites	***Teesmouth and Cleveland Coast SPA/Ramsar/SSSI*** The application is accompanied by a Habitats Regulations Assessment Report [**AS-194**] which contains sufficient information required by the competent authority to undertake an 'Appropriate Assessment' under the terms of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the 'Habitats Regulations'), including identifying and considering all potentially relevant protected sites. ***Noise and Vibration Disturbance (Construction and Decommissioning)*** Potential effects on the qualifying species of the Teesmouth and Cleveland Coast Special Protection Area (SPA)/ Ramsar/ Site of Special Scientific Interest (SSSI) as a result of noise and vibration have been addressed ES Volume I Chapter 11 Noise and Vibration [**APP-093**] and ES Volume II, Appendices 11A [**APP-296**] and 11B [**APP-297**]. Natural England have confirmed that they consider a 70 dB threshold to be an appropriate disturbance metric for the SPA / Ramsar, based on research undertaken in the Humber Estuary. It is agreed that through the proposed control and mitigation measures, to be secured through Requirement 23 (Piling and penetrative foundation design) that during construction there will be no adverse effect on integrity resulting from the installation of bored piles at the PCC Site. It is agreed that the wording of draft DCO Requirement 23 adequately secures the control of construction piling (with regards to noise effects on waterbirds). The wording of Requirement 23 is as follows, with the amended wording to be included at Deadline 2: *"23.—(1) No part of the authorised development comprised within Work Nos. 1 or 7 may commence, save for the permitted preliminary works, until a written piling and penetrative foundation design method statement, informed by a risk*

	assessment, for that part, has been submitted to and, after consultation with the Environment Agency and Natural England, approved by the relevant planning authority. *(2) All piling and penetrative foundation works must be carried out in accordance with the approved method statement unless otherwise agreed with the relevant planning authority."* The construction works for the CO_2 export pipeline will involve trenchless techniques, whilst the replacement outfall if required would involve construction of a micro-bored tunnel. Noise levels are predicted to be below the 70 dB threshold agreed with Natural England during these construction works. This pipeline traverses part of the Teesmouth and Cleveland Coast SPA / Ramsar at Coatham Dunes and Sands but would be installed many metres below the surface with no open cut works and no loss of habitat. The only works within the dunes would be non-intrusive surveillance by a contractor. Notwithstanding this, it is agreed that, if construction occurs during November to March, simultaneous vantage point bird monitoring will be undertaken in order to confirm the absence of disturbance events. There will therefore be no adverse effect on the integrity of the Teesmouth & Cleveland Coast SPA and Ramsar site during construction of the CO_2 export pipeline. The CO_2 Gathering Network corridor runs to the north of the Saltholme Reserve (part of the Teesmouth and Cleveland Coast SPA / Ramsar), before crossing the River Tees and reaching the PCC Site. As predicted construction noise levels for the CO_2 Gathering Network remain below 70 dB at the nearest waterbodies used by birds within the SPA, a conclusion of no adverse effect on the integrity of the Teesmouth & Cleveland Coast SPA/Ramsar is agreed. Preparation of a Construction Environmental Management Plan (CEMP) including construction noise and vibration control measures is to be secured by Requirement 16 (Construction Environmental Management Plan). In addition, Requirement 21 secures appropriate controls on construction noise and vibration. Based on the above, it is agreed that the effects of noise and vibration disturbance on the Teesmouth and Cleveland Coast bird species and harbour seals during construction have been adequately assessed and controlled and that construction of the Proposed Development will not result in any adverse effects on ecological receptors. ***Atmospheric Pollution (Operational emissions)***

	Potential operational atmospheric pollution effects of the Proposed Development were screened in for Appropriate Assessment in the HRA, primarily due to the extent of additional nitrogen deposition predicted to result from emissions of Nitrogen Dioxide (NO_2) and Ammonia (NH_3), on avocet and tern nesting habitats from emissions from the carbon capture absorber stack (part of Work No. 1). It is agreed that based on the predicted effects and their location an adverse effect on the integrity of the SPA/Ramsar via this impact pathway would not arise. A number of potential cumulative schemes have been considered as part of the EIA. It is also agreed that cumulative effects of the Proposed Development with other committed or proposed schemes will not give rise to any adverse effect on the integrity of the SPA/Ramsar. Similarly, it is also agreed that cumulative effects of the Proposed Development together with other committed or proposed schemes will not give rise to any adverse effect on the Teesmouth and Cleveland Coast SSSI, in particular Coatham Dunes. ***Water Quality (Construction, Operation and Decommissioning)*** Considering the specific mitigation measures identified in Chapters 13 (Aquatic Ecology) and 14 (Marine Ecology) ([**APP-095 and APP-096**]), some of which are part of the inherent development design, it is concluded that construction, operation and decommissioning of the Proposed Development will not result in adverse effects on the Teesmouth and Cleveland Coast SPA / Ramsar regarding water quality . The Proposed Development will also not result in adverse effects on interest features in the Teesmouth and Cleveland Coast SSSI, namely harbour seals and habitats in Coatham Dunes. ***North York Moors SAC / SPA*** Due to the distance between the Proposed Development and the North York Moors SAC/SPA there are no construction effects associated with noise and vibration, air quality (including dust) or water. There are also no effects associated with atmospheric pollution arising from the operation of the Proposed Development on the North York Moors SAC/SPA. A conclusion of no adverse effect on integrity can therefore be drawn. ***Southern North Sea SAC*** It is concluded that there will be no adverse effects on the integrity of the Southern North Sea SAC regarding disturbance in any functionally linked habitat either due to construction or operation of the Proposed Development. This included the

	potential effects of UXO detonations, whereby the Proposed Development will require a marine licence and any marine licence will require mitigation measures to ensure no mortality or significant disturbance to designation features.
Effects on Non-Statutory Nature Conservation Designations	Chapter 12: Terrestrial Ecology and Nature Conservation [**APP-094**]; Chapter 13: Aquatic Ecology [APP-095]; and Chapter 15: Ornithology [**APP-097**] include an assessment of potential effects on Local Wildlife Sites. No likely significant effects have been identified on Local Wildlife Sites.
Construction Environmental Management Plan	It is agreed that the Framework CEMP [**APP-246**] includes the necessary principal controls to effectively manage environmental risks associated with the construction of the Proposed Development. The Framework CEMP will be updated at Deadline 2 to include the requirement for the Construction CEMP to include mitigation for cases of HHD bore collapse. The CEMP will also be amended at Deadline 2 to specify any required mitigation which would result from construction disturbance to bird species being detected through vantage point bird monitoring between November to March. It is also agreed that Requirement 16 (Construction Environmental Management Plan) of the draft DCO is appropriate for controlling the environmental effects of construction. The wording of Requirement 16 is agreed as follows: *"16. (1) No part of the authorised development may commence, save for the permitted preliminary works, until a construction environmental management plan for that part has been submitted to and approved by the relevant planning authority.* *(2) The plan submitted and approved must be in accordance with the framework construction environmental management plan and the indicative landscaping and biodiversity strategy and incorporate -* *(a) a code of construction practice, specifying measures designed to minimise the impacts of construction works;* *(b) a scheme for the control of any emissions to air;* *(c) a soil management plan;* *(d) a sediment control plan;* *(e) a scheme for environmental monitoring and reporting during the construction of the authorised development, including measures for undertaking any corrective actions;*

	(f) a scheme for the notification of any significant construction impacts on local residents and for handling any complaints received from local residents relating to such impacts during the construction of the authorised development.; and; *(g) the measures outlined in paragraphs 15.7.4, 15.8.12 to 15.8.16, 15.8.19 and 15.9.1 in Appendix B: Ornithology in the Environmental Statement Addendum – Volume I of the ES addendum or such other measures to achieve the same maximum noise levels as are set out in paragraphs 15.8.13 to 15.8.16 of Appendix B: Ornithology in the Environmental Statement Addendum – Volume I of the ES addendum. (3) All construction works associated with the authorised development must be carried out in accordance with the relevant approved construction environmental management plan unless otherwise agreed with the relevant planning authority."*
Biodiversity Protection, Mitigation and Enhancement	Measures to protect biodiversity during construction are set out in the Landscape and Biodiversity Strategy [**APP-079**]. This includes: • Use of a Clerk of Works, as required; • Adoption of precautionary Protected and Invasive Species Working Methods, focussed on nesting birds, common lizard, invasive, non-native plant species, and animal welfare requirements; • updated terrestrial invasive non-native plant species survey(s) and preparation of an Invasive Species Management Plan (ISMP); • Should any building demolition be required, if bat roosts are found then a Bat Low Impact Class Licence or a European Protected Species Mitigation Licence (depending on the magnitude of the bat constraint identified) would be applied for from Natural England to permit demolition works to proceed. Demolition would only proceed once all necessary licences were in place, and associated mitigation requirements (e.g. provision of replacement roosts) have been met'; • no mature trees would be affected by the Proposed Development; • construction temporary lighting would be arranged so that glare is minimised outside the Site as far as reasonably practicable. Measures to minimise the impact of lighting are detailed in the Indicative Lighting Strategy [AS-017] and Framework CEMP [**APP-246**]; • habitats that would be temporarily lost or damaged during construction, mainly comprising species-poor grassland, would be reinstated on a like-for-like basis in

	accordance with the requirements of the relevant landowner (see Chapter 5: Construction Programme and Management [**APP-087**]. It is agreed that the biodiversity protection, mitigation and enhancement measures provided within the Landscape and Biodiversity Strategy [**APP-079**] are appropriate and comply with the policy in NPS EN-1 on biodiversity including paragraphs 5.3.15 and 5.3.18. These measures are secured by DCO Requirement 4 (Landscaping and Biodiversity Protection Management and Enhancement). To seek to achieve biodiversity net gain for the Proposed Development, use has been made of the calculator tool and metric published by Natural England for this purpose (Natural England, 2019). The assessment of habitat losses and gains has been based on the provision of the identified habitat creation measures in all of the indicative areas within the PCC Site. Not all of this land would be required to achieve the stated gain (total available area = 20.57 ha, total land currently required to achieve net gain = 18.99 ha) and therefore the indicative Landscape and Biodiversity Strategy provided at this stage includes a degree of conservatism. The location and extent of land for biodiversity enhancement will be subject to detailed design and will be confirmed in the final Strategy. However, the relative level of biodiversity gain to be provided would remain as committed in the indicative Landscape and Biodiversity Strategy. These matters are adequately secured by paragraphs (4) to (8) of Requirement 4.
The wording of Requirement 4	The wording of Requirement 4 is agreed as follows: *4.—(1) No part of the authorised development may commence until a landscaping and biodiversity protection plan for that part has been submitted to and approved by the relevant planning authority.* *(2) The plan submitted and approved pursuant to sub-paragraph (1) must include details of—* *(a) measures to protect existing shrub and tree planting that is to be retained;* *(b) details of any trees and hedgerows to be removed; and* *(c) biodiversity and habitat mitigation and impact avoidance.* *(3) The plan submitted and approved pursuant to sub-paragraph (1) must be implemented as approved throughout the construction of the authorised development unless otherwise agreed with the relevant planning authority.* *(4) No part of Work Nos. 1 or 7 may be commissioned until a landscaping and biodiversity management and enhancement*

	plan for that part has been submitted to and approved by the relevant planning authority. *(5) The plan submitted and approved pursuant to sub-paragraph (4) must include details of—* *(a) implementation and management of all new shrub and tree planting;* *(b) measures to enhance and maintain existing shrub and tree planting that is to be retained;* *(c) measures to enhance biodiversity and habitats;* *(d) an implementation timetable; and* *(e) annual landscaping and biodiversity management and maintenance.* *(6) Any shrub or tree planted as part of the approved plan that, within a period of five years after planting, is removed, dies or becomes, in the opinion of the relevant planning authority, seriously damaged or diseased, must be replaced in the first available planting season with a specimen of the same species and size as that originally planted unless otherwise agreed with the relevant planning authority.* *(7) The plan submitted and approved pursuant to sub-paragraph (4) must be in accordance with the principles of the indicative landscaping and biodiversity strategy.* *(8) The plan must be implemented and maintained as approved during the operation of the relevant part of the authorised development unless otherwise agreed with the relevant planning authority.*
Landscape	The effects of the Proposed Development on landscape character are assessed in ES Volume I, Chapter 17: Landscape and Visual Amenity [**APP-099**]. It is agreed that there are no identified significant landscape effects associated with the Proposed Development.
Access land	It is agreed that areas of 'access land' are identified (in beige shading) on the Access and Rights of Way Plans (Document Ref. 4.5) and are where the public has a right of open air recreation pursuant to section 2(1) of the Countryside and Rights of Way Act 2000 ('CROW'). Article 13 in the Draft Order [**AS-136**] includes power for the Applicants to be able to stop up areas of the access land where required in relation to the construction of the Proposed Development (in particular the connections which cross under the beach and dunes, being the CO_2 Export Pipeline and (if required) the Water Discharge Connection). The works to install those pipelines are subterranean (as set out above) and any

	activities by the Applicants and restrictions on the access land would be limited in scope and time. These are set out at paragraph 3.4.12 onwards of the Explanatory Memorandum [**AS-137**]. Natural England must be consulted pursuant to article 13(10) before any restrictions on the access land are imposed, and Requirement 5 adequately secures the submission, approval and implementation of a management plan in relation to any public rights of way and access land which is to be temporarily stopped up. Given the limited nature of the restrictions on the access land, no impacts are predicted.
The wording of Requirement 5	The wording of Requirement 5 is agreed as follows: 5.—(1) No public rights of way may be temporarily diverted or stopped up and access to any access land must not be temporarily prevented until a management plan for the relevant section of public rights of way or access land has been submitted to and approved by the relevant planning authority. (2) The plan must include details of— (a) measures to minimise the length of any sections of public rights of way and the area of any access land to be temporarily closed; and (b) advance publicity and signage in respect of any sections of public rights of way to be temporarily closed or diverted and access land to be temporarily closed. (3) The plan must be implemented as approved unless otherwise agreed with the relevant planning authority.

4.0 MATTERS TO BE AGREED

4.1 Overview

4.1.1 This section sets out matters to be agreed between the parties and the proposed way forward.

4.1.2 Following Natural England's Relevant Representation dated 17th December 2021, Natural England has requested further clarification regarding the following matters:

- Natural England consider that the potential for process water discharges (particularly nitrogen) to have adverse effects on site integrity of the adjacent Teesmouth and Cleveland Coast Ramsar, SPA and SSSI designated sites needs to be assessed further. The Applicants are undertaking confirmatory modelling to understand the impacts of nitrogen from both atmospheric deposition and effluent discharges. This will include the effects of other existing discharges into the same controlled waters. The confirmatory modelling will be based on a series of appropriate assumptions, because the final design and technologies for process water treatment will not be known until a contractor is appointed. The Applicants are working with both Natural England and the Environment Agency to develop the modelling assumptions and approach so that all parties can have confidence in the results. The Applicants' modelling methodology was shared with Natural England in May 2022. The Applicants and Natural England will continue to discuss this matter and the Applicants will provide the results of this modelling during the examination process; an initial draft of the report is targeted to be issued to Natural England by the end of June 2022.
- Natural England consider that the potential impacts of installing rock armour protection at the end of the Water Discharge Connection (Work No. 5A or 5B) have not been considered in the Habitats Regulations Assessment Report (Document Ref. 5.13 [**APP-080**]). The Applicants will update the Habitats Regulations Assessment Report to include explicit reference to the rock armour and this will be submitted during the examination process an initial draft of the updated report is targeted to be issued to Natural England by mid July 2022. The installation of rock armour protection at the end of the Water Discharge Connection was considered in Chapter 14 Marine Ecology and Nature Conservation (Document Ref. 6.2.14 [**APP-096**]) and was concluded to result in a not significant effect.

4.1.3 The parties are committed to taking forward discussions on the matters above as necessary, so whilst they are not yet agreed, both parties hope to reach agreement in the near future.

APPENDIX 1: RECORDS OF CONSULTATION AND ENGAGEMENT WITH NATURAL ENGLAND

- April 2019 meeting minutes
- February 2020 meeting minutes
- December 2020 meeting minutes

Coe, Matthew

From: Taylor, Ross
Sent: 29 November 2019 09:51
To: Walker, Ed
Subject: FW: Natural England Meeting 3rd April 2019
Attachments: CGP NE Meeting 03.04.2019 v2.pptx

Ross Taylor, BEng PIEMA
Principal Environmental Consultant, Environment and Planning
[redacted]

From: Taylor, Ross
Sent: 16 April 2019 09:06
To: [redacted]
Cc: Lowe, Richard [redacted]
Subject: FW: Natural England Meeting 3rd April 2019

Hi Sarah,

We have prepared the following summary of the meeting with NE on 3 April 2019. I have attached the presentation that was used (for ease of reference and to allow identification of the matters discussed).

Attendees:

Sarah Wilford (BP)
Richard Lowe (AECOM)
Richard Wardle (AECOM)
Ross Taylor (AECOM)

Andrew Whitehead (Natural England)

The purpose of the meeting was to:

Re-engage with NE following previous consultations regarding the project and the survey requirements for the previously proposed generating station and the associated connections. The attached presentation was walked through to outline the updates to the project definition (reduction of power station capacity and inclusion of a CO2 gathering network). In addition, summaries of the surveys undertaken to date were discussed and NE were made aware of where gaps in the survey data were known, based on the increase in the area considered by the red line boundary.

The key points that were taken away were:

- NE GIS data is currently being updated and is expected to be available in May
- The area of focus for NE is along the 'river channel', north of the A66 (south bank) and the Saltholme area (north bank) that is almost all designated as a SSSI/ RSPB reserve. The RSPB may require specific consultation with respect to the Saltholme Nature Reserve
- NE noted that the River Tees is now part of the SSSI (ending at the river mouth) for foraging support (fish stocks etc.) for the relevant bird species of the previous SSSI designations. The SPA has a significant offshore element for tern foraging

- Biodiversity in the area is subject to a masterplanning approach across the banks of the River Tees involving four local planning authorities
- The Tees Estuary Partnership has a MOU between the EA, NE, MMO and INCA as well as the local authorities and mapping for opportunities for gain (based on Defra metrics) has been undertaken.
- The GI layer for these opportunities is available from INCA
- Discussions were held regarding the potential 'non-standard' emissions from the Project – e.g. nitrosamines. Guidance was sought regarding how such substances should be included within the EIA/Habitats regs assessments (e.g. deposition)
- In respect of underwater noise, seals and salmon were noted by NE as being present however these are not part of the interest features that have led to the SSSI designation
- NE stated that the approach to noise impact on birds is based on a 70dB threshold at the receptor for construction impacts.
- Piling was discussed and NE suggested that the avoidance of the overwintering period would be preferable. Also avoid the salmonid season for installation of any coffer dams
- The South Gare was identified as an area of risk of UXO being present. This drove the Breagh pipeline to be constructed using open cut methods. This was accepted by Natural England on the basis that they had a restoration plan already in place before the works were undertaken. The area is noted to have recovered well.
- NE also confirmed that, north of the River Tees, wintering birds were not of concern (i.e. breeding only)
- Advice was sought on the data requirements (and any associated seasonality) for the application for consent of the offshore elements
- NE stated that the offshore application would involve NE, the MMO and the JNCC
- NE advised that local wildlife trust was Tees Valley WT, which manages Coatham Marsh and which works well with INCA. The Chief Executive is Jeremy Garside
- It was agreed that the Phase 1 of the areas previously not surveyed would be undertaken ASAP and shared with NE to agree the need and nature of further survey work. INCA should also be consulted
- For land to the north of the River Tees, it was agreed that, given that development would primarily be pipelines along existing corridors, the existing INCA/RSPB/WeBS bird data would be sufficient.
- Separate discussions are to be held with Andy's marine colleague on the scope of required marine impact assessment and data gathering
- NE noted that there was approximately £2,000 left on the DAS agreement and that an extension could be requested. NE also confirmed that the agreement of any Statement of Common Ground was not included for in the existing DAS arrangement,
- It was agreed that a follow up meeting with NE would be appropriate in the next 2-3 months subject to progress in: the assessments; surveys; and other relevant factors.

Actions:

- NE to confirm its guidance (if any) regarding 'non-standard' air emissions and their assessment
- NE to confirm the noise threshold for birds and whether this is applicable in either or both day- and night-time
- NE to confirm contact details to discuss offshore and marine assessment
- Team to consider UXO risk and review past work in the area to determine whether open cut crossing of the coastal area is required
- AECOM to obtain copies of the biodiversity mapping
- AECOM to update and finalise current reports (including boundary amendments for designated sites), for sharing with NE
- AECOM to undertake the Phase 1 survey ASAP and agree further survey requirements with NE
- AECOM to arrange follow up meeting at appropriate time

Please let me know if you have any comments or additions to the above or feel free to contact either Richard or I to discuss.

Thanks and Regards
Ross

Ross Taylor, BEng PIEMA
Principal Environmental Consultant, Environment and Planning
[redacted]

AECOM
One Trinity Gardens, First Floor
Quayside
Newcastle-upon-Tyne, NE1 2HF, United Kingdom
[redacted]

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Meeting Minutes

Meeting name
Net Zero Teesside (NZT) – Natural England Engagement Meeting

Meeting date
24 February 2020

AECOM project number
60559231

Subject
Net Zero Teesside (NZT) HRA & Ecology Update Meeting

Time
10:00 – 15:30

Additional information
Indicative Red Line Boundary as provided in Annex 01 (Ref. 'NZT_191204_P8')

Attendees
Ian Campbell (IC), AECOM
Ed Walker (EW), AECOM
Natalie Angelopoulos (NA), AECOM
Hannah Young (HY), AECOM
Gary McGovern (GM), Pinsent Masons LLP
Richard Lowe (RL), AECOM [DIAL IN]
Richard Wardle (RW), AECOM [DIAL IN]
James Riley (JR), AECOM [DIAL IN]
Andrew Whitehead (AW), Natural England
Josh Parker (JP), Natural England

Meeting Location
Natural England, Lancaster House, Hampshire Court, Newcastle Business Park, Newcastle Upon Tyne, NE4 7YH [OR] Dial-In

Natural England Engagement Meeting Minutes – 24 February 2020

No.	Agenda Item	Notes
1.	Introductions / Meeting Objectives	EW opened the meeting and thanked attendees who have travelled / are on dial in. EW opened a round of introductions. EW – Consultant with AECOM GM – On behalf of Pinsent Masons LLP IC – PM for the project EIA HY – Marine Ecology lead NA – Aquatics / Freshwater lead AW – Sustainable Development Marine Team Leader JP – Marine-specific adviser RL – Project Director and environmental lead RW – Terrestrial Ecology lead JR – HRA lead EW clarified the meeting objectives • Refamiliarise NE • Update on how NE advice to-date has been actioned • Set out approaches for individual disciplines and how HRA / the EcIA is aligning this • Highlight known areas of sensitivity / risk; and • Obtain Natural England's feedback on the approach being taken, key issues and survey/sampling scope EW summarised the agenda for the day and indicative timings for comfort breaks / lunch
2.	Brief overview of the TNZ Project & NE engagement to-date	IC suggested that RL could provide an update on the NZT project RL summarised the wider project and the key drivers. RL clarified that the project is focused on dispatchable energy especially with the growth of renewables across the energy mix. RL clarified that the project is also seeking to 'unlock' the ability to capture CO_2; this is an underdeveloped area and NZT is seen as a new 'first of a kind'. The project is an enabler in terms of provid8ing a CO_2 network for future connection for future users to connect into. RL summarised that a wide range of

No.	Agenda Item	Notes
		considerations had been made regarding project location; Teesside had lots of advantages and is now being pursued. RL clarified that this is an NSIP and requires a DC; RL clarified the scope of this DCO - which is looking at the onshore scheme – but that further connection would be made to an offshore store for the CO_2. RL confirmed that a range of capture technologies had been considered and that a post-combustion amine-based technology was chosen on the basis that it is proven and relatively low-risk. RL confirmed that AECOM is aware of the potential issues associated with the use of this technology and that we will work with NE as we head toward PEI around May 2020. RL noted that this is a tight programme and that the consenting process for the project is running slightly ahead of the engineering programme; for this reason, not all information is available so some precautionary worst-case assumptions have been made for some aspects of the scheme.
3.	Update on latest project changes	Covered mainly above; RL also summarised some key recent project updates and summarised NE engagement since 2017 when discussions with NE commenced. RL clarified that the onshore works were being progressed under a DCO, the timeframe for which we will discuss later. The offshore package of works is being progressed under a separate consenting regime; this is a far quicker process and one which will therefore be commenced later in the scheme programme.
4.	Summary of key worst-case works	IC suggested that ahead of EW presenting the key worst-case aspects of the construction, RL may be able to provide an update with regards to aerial emissions (on the basis he may need to leave the call early). RL confirmed that AECOM were in the process of undertaking detailed air quality modelling to assess the potential effects from the CCGT units, each of which have two stacks. RL noted that nitrogen releases were a principal area of interest for this particular technology. RL explained that there are two scenarios for the Proposed Development, an abated and an unabated mode (the unabated mode is the mode without carbon capture, abated with). RL explained that Selective Catalytic Reduction (SCR) will be installed anyway to help bring nitrogen levels down and that indeed, any new build CCGT would generate a level of nitrogen. RL explained that for this project, the highest efficiency “H-Class” CCGT design is being proposed; RL noted the current EU Best Available Technology (BAT) guidance for CCGTs which promotes a higher stack temperature in order to promote dispersion of emissions, particularly in terms of nitrogen. RL noted that whether or not this temperature can be reached can effect the dispersion levels from the stack; RL explained that it is common for secondary abatement to be fitted and a typical form of secondary abatement is SCR. AW queried what SCR was. RL confirmed that it is Selective Catalytic Reduction. RL noted that an ammonia-based SCR is being explored for the NZT project however, there is a known issue with operating this technique frequently referred to as ammonia slip. RL noted that the use of SCR results in an increased likelihood of ammonia slip and that AECOM was currently investigating the potential effects from it, particularly in terms of nitrogen deposition, at the Teesside site. RL explained that there are two core scenarios being explored, one which relates to a relatively standard high efficiency CCGT operating and another which relates to a scenario when carbon capture is applied (“abated”). RL went on to explain that in abated mode, there are various potential aerial pollutants and an area of key interest is nitrogen but also unreacted ammonia. Ammonia degradation products are also being considered but this is probably more of a salient issue for human health receptors. RL noted that AECOM is assessing the impacts with and without the carbon capture system being applied and with a range of stack temperatures and stack heights. RL noted that as part of the assessment for the EIA, AECOM was reviewing potential effects on local receptors. As part of this work, AECOM have background data on critical loading for these particular contaminants (APIS) but that a key question today is if NE have any more localised data available on sensitivity thresholds for habitats; i.e. how sensitive some local habitats are to, for example, nitrogen deposition.

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		EW summarised an action for NE to review the available data which they hold on site-specific critical loading / sensitivity and to provide to AECOM if available. AW reiterated that APIS tends to be the starting point for NE too but he would discuss with regional leads and try and find more site-specific information. RL thanked attendees and left the call. EW provided a GIS demonstration and highlighted the key areas of worst-case working. EW explained that since AECOM last met with NE, the worst-case envelope had been developed somewhat. EW reiterated for that the majority of the following slides in his section, the worst-case is presented but that in almost all cases, the likelihood is that through refurbishment and or minor upgrade, the actual extent of works would be far lower. EW reiterated RLs earlier comments that as engineering programme was a little less well-progressed than the consenting, this was seen as an appropriate approach. AW suggested that this was a reasonable and fairly standard approach. EW explained that there were various key activities associated with the main generation station / CCP; these typically include: • Earthworks / re-profiling • Construction laydown areas • Preparation and levelling for the Proposed Power Plant Site • Piling and excavation for main foundations • Once buildings are erected, installation of plant will commence (i.e. gas turbine, generator, steam turbine, HRSG, stack etc.) EW explained that there were also various works being assessed as part of the CO2 gathering network; again, these principally include the Construction of Gas Connection and Above Ground installations (noting that the worst-case for assessment is some areas of below ground installation; the alternative is the re-use of existing above ground racking which is highly likely to be the final “installation” method. EW explained that there were other more “conventional” aspects of the works which relate to the natural gas and electrical connection (gas to fuel the CCGT and electrical connection for some limited site loads and export of electricity). IC confirmed that the electrical connection would include provision for export. EW noted that these are probably more well-understood works and not atypical of a power project of this type. EW explained that one of the more unusual aspects of this project was a CO2 gathering network which extends throughout Teesside. This is a network of collection points to existing or potential future industrial operations which may generate CO2. IC clarified that the network is for the movement of CO2 post-capture and that the expectation is each individual site location will be fitted with it’s own CCP. EW explained that both the gas connection and CO2 network include a crossing underneath the Tees and that this would most likely be via HDD. EW explained that one of the other more unusual aspects of the scheme was an “onshore” CO2 transport corridor but one which did include a ~220m wide portion of area below mean high water springs. EW explained that the CO2 corridor would be to serve the transport of CO2 via a high-pressure pipe (carrying compressed CO2 in an effluent form at this point) to a location below MHWS where it would connect to a future network for offshore transport. EW explained that this pipeline would likely be installed via a combination of open-cut techniques and HDD; EW explained that he was aware of several historical examples of the Coatham Dunes being crossed

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		successfully and with minimal ecological impact (i.e. Breagh / CATS). EW noted that AECOM would like to discuss this in more detail further in the meeting. EW lastly explained the worst-case extent of works within the water connection corridor; EW explained that in this area (an inverted L shape), works would include the refurbishment and/or replacement of water connection infrastructure (i.e. intake in the River Tees, Discharge line into the Tees Bay). EW reiterated that the worst case for assessment is to include combination of above ground works, small sections of open-cut trenchwork and Horizontal Directional Drilling – HDD – to minimise disruption). Using the GIS demo, EW also indicated the presence of a cofferdam which is also being assessed (this is located on the River Tees). EW asked if NE had any queries regarding the worst-case extent of works? AW noted that this was a lot clearer following scoping and that the works were clear. AW explained that he was aware of the Breagh crossing but that the CATS crossing predated his involvement with NE / the Teesside area.
5.	High-level progress update since last engagement meeting (April 2019) – Surveys / Sampling – Baseline refinement – Engagement – Multi-Discipline HRA & Ecology Team Alignment	EW summarised the efforts that had been ongoing since AECOM last met with NE. EW noted that a range of surveys and sampling activities had been ongoing right up to the end of 2019. EW noted that a thorough baseline had been established across the DCO boundary but that some specific areas were being further refined to help advance an understanding of the local ecology. EW explained that AECOM was aware of the key areas of sensitivity, especially with regards to ornithology (Seal Sands, Paddy's Hole, Coatham etc) and were targeting efforts appropriately to those – and other – areas. EW confirmed that engagement was ongoing with various stakeholders including the EA, RSPB, MMO, IFCA. AW suggested that other stakeholders of key interest may be the Teesmouth Bird, INCA and that the WeBS counts may also provide useful baseline information. EW confirmed that engagement with the bird club and INCA was ongoing; RW provided a brief summary of recent contact with INCA who have good local bird information. EW noted that individual specialist leads had been established for each discipline but that the HRA process was also underway and that it was being fed by the individual specialist assessments for each discipline EW asked if NE had any queries regarding the approach being taken or any comments to add? AW noted that the approach seemed entirely sensible. AW explained that NE do not spend vast amounts of time looking at local sites of ecological interest and efforts are more focused on the national designations; AW encouraged engagement with the local stakeholders to help progress this further.
6.	Discipline-specific update: Terrestrial Ecology	RW provided an update on terrestrial ecology and ornithology. RW noted that this is a very large topic and that a lot of engagement / baseline effort had already been undertaken to develop a thorough understanding of the area. RW noted that an RSPB data request is due to be made today and that a meeting has also been scheduled for next week (which EW has been leading) with RSPB. RW explained that the core basis of the Preliminary Ecological Appraisal was an extensive phase 1 ecological survey which covered area throughout the DCO boundary s it became available. RW explained that the study area includes several designated sites, including the recent extensions to local SPA / Ramsar. AW/JP noted that this is now formally part of the SPA / Ramsar and is no longer a "pSPA" / "pRamsar" / extension and those references no longer exist). RW thanked NE for the confirmation, this was a question for today. RW also explained that a key area of interest with regards to the areas which the extension cover are seaward / riverine extends which are principally an area of interest for foraging (especially Tern). RW explained the key receptors which are being considered. These are primarily:

No.	Agenda Item	Notes

- Habitats – SI, marshy and dune grasslands, open mosaic, scattered patchy woodland
- Small common lizard population
- Breeding barn owl
- Terrestrial invertebrates
- Birds – breeding assemblage in environs of SSI site; water birds/shore birds within wider environment and coastal habitats

RW explained that the slides also include reference to GCN / Water vole (surveys and sampling are ongoing – initial indications suggest not present).

IC reiterated that Coatham dunes / Coatham marsh were also principal areas of interest.

RW reiterated that his understanding was that the SSSI had now been consolidated (i.e. the 6+ previous individual sites had been brought into the single designation).

AW queried how coverage of the DCO boundary was being achieved? RW confirmed that a wide area of the boundary had been covered by ecological survey to date but that this was, as suggested, focused on key areas of sensitivity or activity (i.e. the main generation / CCP site, for example). AW asked how some of the extreme extends of the pipeline boundary were being considered? RW explained that these were generally regarded as less likely to be as sensitive but were nonetheless being assessed (for these areas of likely lower risk, more existing third party baseline data is being explored, supported by new data if needed). AW suggested that this sounded like a good approach.

RW displayed a series of slides reviewing core areas of interest for ornithology; this included Lapwing, Little Tern, Redshank, Ringed Plover, Sanderling, Sandwich Tern and Shelduck / Teal.

RW explained that further to EWs comments, the general baseline understanding was strong and that AECOM were continuing to refine this as we prepare for PEI and eventually ES/DCO submission.

RW explained key areas of interest as part of the current assessment for construction. Noise disturbance to pSPA/pRamsar (particularly Coatham Dunes and known tern and avocet nesting locations) (STDC site) is a key area of interest whilst noting that the current baseline noise levels at closest part of pSPA/pRamsar are variable, with high noise peaks (e.g. LAmax in representative 15 minute period of 81 dB). RW explained that construction noise peaks will not exceed this, but mitigation may be needed to address construction noise LAeq. RW explained that general disturbance to pSPA, pRamsar (Coatham Dunes/Sands) due to pipeline works in dunes and intertidal zone (currently exploring how impacts could be managed & mitigated – i.e. habitat management planning / seasonal restrictions). RW also explained that temporary habitat loss and possible hydrological effects on pools at Coatham Dunes during pipeline installation if open cut trenching used were being investigated along with examples of successful restoration elsewhere.

RW explained the key areas of focus as part of the operational assessment; as had been discussed earlier, nitrogen deposition to Coatham Dunes and to known historic tern nesting locations, as well (at much lower level) to North York Moors SAC is being considered and that approaches to minimising emissions being investigated. RW reiterated RLs earlier comments that ongoing dialogue with NE. needed to determine sensitivity to N deposition. RW explained that noise disturbance to pSPA, pRamsar (Coatham Dunes and known tern nesting locations) – operational noise levels same as, or lower than, baseline at both day and night. Visual disturbance (e.g. lighting) was being considered. RW explained that fish/invertebrate (prey) entrainment due to water intake was being assessed although that HY may say more about this later. Lastly, the effects of discharge of water (quality, erosion, temperature) were being investigated.

No.	Agenda Item	Notes
		EW noted that AECOM was well aware of the Sensitive Dune complex along Coatham Sands where the intended crossings for the water corridor and CO2 transport corridor were. EW noted that several recent crossings have adopted successful habitat mitigation and management plans; this includes the Breagh Gas Pipeline (a 20" gas pipeline running parallel to a ~3" monoethylene glycol pipeline) and the Central Area Transmission System (CATS) (a 36" gas trunkline). EW noted that AECOM's approach to crossing was to draw on lessons learned (Inc. successful approaches for translocation). Key interests were (and are now likely to include) Marram, scarce orchids, purple milk-vetch and less meadow-rue. EW explained that historically, lifting, potting and removal to a site-based nursery followed by translocation back to site post-installation was successful. EW noted that through case studies of these works and an understanding of similar-style landfalls along the North East coast, an approach was being formulated. EW however asked if NE had any further data on this activity? AW explained that detailed habitat mapping was completed for the Breagh crossing to understand exactly where key features were located (this also helped the contractor avoid areas unsuitable for plant so had a dual purpose). AW explained that an access route was carefully planned, a designated route for access and egress was defined and sealed off which assisted with habitat avoidance. Fencing seemed integral from reports at the site. EW asked if NE had any queries regarding the approach being taken for development of the terrestrial assessment and particularly, the approach in mind for Coatham crossings? AW suggested that it seemed thorough and the early crossing investigation work sounded entirely reasonable; AW reiterated that it makes sense to review existing crossings and learn from those approaches. JP queried how the dunes themselves were being considered and encouraged AECOM to assess them as a dynamic feature. HY agreed that they would need to be considered in this manner and that geomorphological effects were considered within the EIA and HRA. All agreed to take early comfort break for lunch.
	Discipline-specific update: Marine Ecology	HY confirmed that her role was leading the marine ecology assessment. HY explained that Baseline Characterisation was focused on Plankton included a Desk-based study and was informed by Environment Agency (EA) monitoring data for the Tees (2012 – 2017 & 2019). HY explained that for Benthic ecology, Phase I and II intertidal survey (10 sites), Biotope mapping & macrofaunal analysis, Subtidal grab survey (23 sites), Biotope mapping & macrofaunal analysis, Intertidal and subtidal sediments (10 sites each), Particle Size Distribution and Sediment chemistry was used to inform baseline. HY explained that baseline for Fish & Shellfish Ecology was supported with a Desk-based study (this itself was underpinned by EA National Fish Populations Database, EA Fish Count Data at the Tees Barrage, MMO annual landings, Cefas spawning and nursery maps, ICES data and Other available data sets and reports (e.g. Teesside OWF). HY explained that for Marine Mammals, the Desk-based study had been supported by General sources - Sea Watch Foundation, Sea Mammal Research Unit (SMRU), UK Cetacean Stranding Investigation Programme – and also Data sets – SCANS I, II and III, Tees Seals Research Programme. As with the other areas of the assessment, other available data sets and reports (e.g. Teesside OWF) were also used where available. HY presented the tables below (pasted for brevity).

No.	Agenda Item	Notes

Impact pathway – construction phase	Approach to assessment in PEIR	Future work potentially required for ES
Habitat / species loss and disturbance	Qualitative	Quantitative / Biodiversity Assessment
Indirect effects from changes to marine water quality	Qualitative Quantitative (dredging effects only)	To be discussed and agreed with the EA
Underwater sound	Quantitative - simple geometric spreading model	Quantitative – Range dependant transmission loss model
Changes in visual stimuli	Qualitative	None currently planned
Invasive non-native species	Qualitative	None currently planned
Collision risk (marine mammals)	Qualitative	None currently planned

Impact pathway - operational phase	Approach to assessment in PEIR	Future work potentially required for ES
Entrapment	Qualitative	To be discussed and agreed with the EA
Thermal effects of wastewater discharge	Quantitative – thermal dispersion modelling	None currently planned
Chemical effects of wastewater discharge	Qualitative	Quantitative – details to be discussed and agreed with the EA

HY commented that there were some areas of overlap between the assessments which had already been noted. HY also explained that there were several other supporting appendices as part of the Marine ecology work (for example, commercial fisheries baseline). HY also noted that there were some areas of the assessment which were are due to be developed further as more information becomes available. In addition, AECOM plan to engage with NE to discuss the application of the biodiversity assessment / Defra metric to the intertidal area.

JP queried if dredging and disposal formed part of the assessment? HY explained that changes to suspended sediment, for example, were to be considered within the assessment but at the time being, this is primarily a qualitative assessment. EW reiterate that we also benefit from an awareness of existing modelling which has been undertaken for sediment dispersion at the Teesside A / Teesside C disposal sites; clearly, a project-specific consideration will be needed but the modelling available to-date publicly indicates no significant effects and that is with modelling for larger volumes.

HY asked if NE had any queries regarding the approach / coverage? No comments from NE.

8.	Lunch	N/A – Taken early.
9.	Discipline-specific update: Freshwater Ecology	NA introduced herself and explained that she is leading the freshwater and aquatics area of the assessment. NA explained that as had been suggested earlier, this area was less well-developed and the desk base study was the primary output thus far. NA explained that for the PEIR, a desk based study will be presented which will assess the potential effects of the Proposed Development on aquatic ecology features in accordance with CIEEM guidelines for Ecological Impact assessment in the UK. NA noted that the Desk Based study was completed December 2019: NA reiterated that as Teesmouth and Cleveland Coast SPA and SSSI support 'a diverse assemblage of breeding birds of sand dunes, saltmarshes and lowland open waters and their margins'. NA explained that Aquatic habitats are supporting habitats for birds and are therefore of value for the designated features of the SPA and will be considered in the Terrestrial Ecology Assessment. NA noted AECOM's understanding that the Tees Valley Biodiversity Action Plan highlights "Rivers and streams" as priority habitats; and priority fish species: salmon (Salmo salar), brown/sea trout (Salmo trutta), European eel (Anguilla anguilla), brook lamprey (Lampetra planeri), sea lamprey (Petromyzon marinus) and river

No.	Agenda Item	Notes
		lamprey (Lampetra fluviatilis). These are all being considered as part of the assessment. NA explained that there is limited existing aquatic data for fish, macroinvertebrates and macrophytes (data sources are mainly ERIC, Tees Valley Partnership, EA data request plus NFPD, MAGIC, JNCC Website (UK Protected Site)). NA provided a summary of Water bodies within 200 m of the Proposed Development; this includes 116 water bodies (ponds, streams and ditches); 23 artificial scoped out, 82 are ponds and 34 are running waterbodies (rivers and ditches). NA noted that The 'Tees Estuary South Bank' (water body ID: GB103025072320) is the only WFD 'river' waterbody includes Dabholm Gut, Main's Dyke / The Mill Race, The Fleet, Kettle Beck and Kinkerdale Beck. The water body is designated as 'Heavily Modified' under the WFD with a Chemical Potential of 'Good' and an Ecological Potential of 'Moderate' NA noted the planned surveys for 2020 (table pasted below for brevity):

Ecology survey	Study Area	Proposed survey date	Proposed method
Fish	Rivers, ditches and ponds within 200 m of the Site. Not including artificial waterbodies, such as water storage ponds	February/March 2020	***Pond*** – eDNA ***River/ditch*** – eFish or a method of netting/trapping
Aquatic macroinvertebrates		March/April 2020	***Pond*** – predictive system of multi metrics (PSYM) methodology ***River/ditch*** – kick/sweep sampled ID to species level and the following analysis: - WHPT, ASPT, CCI, PSI and LIFE
Macrophytes		March/April 2020	***Pond*** – PSYM to record botanical diversity ***River*** – River corridor survey plus LEAFPACS2 ***Ditch*** – Macrophytes to be recorded with 20 m section with a rapid sweep up

No.	Agenda Item	Notes
10.	TNZ Approach to HRA – Matrices – Shadow HRA	JR introduced himself and explained that he was leading the coordination of HRA for the scheme. JR noted that much of what he is doing has already been covered in the earlier slides and therefore his presentation would focus on the HRA process and work to-date. JR noted that a Likely Significant Effects Report was being produced for PEIR; Appropriate Assessment to be produced for DCO application. At this stage AECOM's intention is to consult NE on the LSE report. JR explained that the LSE Report will take account of People over Wind ruling i.e. measures to avoid or reduce harmful effects will only be taken into account in Appropriate Assessment JR explained that in terms of Key European sites, a particular focus is on Teesmouth & Cleveland Coast SPA, Ramsar, pSPA, pRamsar: pSPA, pRamsar (Coatham Dunes) immediately adjacent to main site and will be traversed by pipelines. JR discussed the key construction period impacts being investigated: • Noise disturbance to pSPA/pRamsar (particularly Coatham Dunes and known tern and avocet nesting locations) especially from main site (location of noisiest activities): • current baseline noise levels at closest part of pSPA/pRamsar are variable, with high noise peaks (e.g. LAmax in representative 15 minute period of 81 dB) • Construction noise peaks will not exceed this, but mitigation may be needed to address construction noise LAeq • General disturbance to pSPA, pRamsar (Coatham Dunes/Sands) due to pipeline works in dunes and intertidal zone: most likely addressed by seasonal restrictions on work but this is under investigation

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		• Temporary habitat loss and possible hydrological effects on pools at Coatham Dunes during pipeline installation if open cut trenching used – being investigated along with examples of successful restoration elsewhere • Potential for underwater noise disturbance of porpoise associated with Southern North Sea SAC – being investigated JR explained the key Operational impacts being investigated • Air quality (stack emissions in particular): • nitrogen deposition to Coatham Dunes and to known historic tern nesting locations, as well (at much lower level) to North York Moors SAC • approaches to minimising emissions being investigated • Noise disturbance to pSPA, pRamsar (Coatham Dunes and known tern nesting locations) – operational noise levels same as, or lower than, baseline at both day and night • Fish/invertebrate (prey) entrainment due to water intake – role of physical screens being investigated • Effects of discharge of water (quality, erosion, temperature) – being investigated • Any long term effects on pools of Coatham Dunes due to presence of permanent pipeline – being investigated JR explained that one key area which we would like NE's input on is the pools around Coatham Sands / the dune complex. JR requested that NE discuss / review internally and set provide further information on how they regard the pools and their ecological functionality for the wider site.
11.	Forthcoming engagement and Next Steps – Preliminary Environmental Information (PEI) Consultation – Circulation of preliminary HRA Matrices for comment – Circulation of Shadow HRA for comment – Preparation for DCO submission and Statement of Common Ground (SoCG)	EW summarised forthcoming engagement activities and explained that in the first instance. AECOM is currently undertaking a marine modelling exercise with the support of a specialist supplier. This is specifically focused on thermal modelling and hydrodynamic modelling at the intake, as well as some other aspects of the scheme within the marine environment. EW explained that this is primarily regarded as a key EA theme but with some interest from the MMO also, as the determining authority for the marine licence. Would NE like to be involved in engagement on the outputs from this? AW confirmed that this was mainly a lead EA theme but they would appreciate being kept up to date after updated with the EA. EW explained that a meeting is scheduled with the EA for late March and that NE will be updated on the outcome in due course. EW noted that survey Effort is ongoing to help further refine the baseline for the project; this includes marine, aquatic, ornithology and terrestrial efforts. EW explained that where possible, outputs to be shared via PEIR. EW explained that PEI Consultation (Public consultation through NSIP process) will be commencing ~May 2020. In addition, EW noted that AECOM is undertaking Ongoing Stakeholder Engagement - Throughout 2020, as required (Inc. MMO / EA / NE / RSPB et al)
12.	Open Discussion, Questions and Any Other Business	EW reiterated the meeting objectives and suggested that they had been achieved in that: 1. NE had been brought up to speed with the latest information on the project 2. NE were presented with our approach to EcIA and survey efforts 3. Known areas of sensitivity / project-specific risks and approaches to understand / mitigate them had been flagged 4. NE had been provided with opportunity to discuss / raise any issues with the project and approach (EW noted that this is really the focus of the remainder of the meeting). JP suggested that he and AW engage internally with specialists at NE regarding the air quality queries flagged earlier (regarding the nitrogen deposition matter and the function of Coatham sands etc.).

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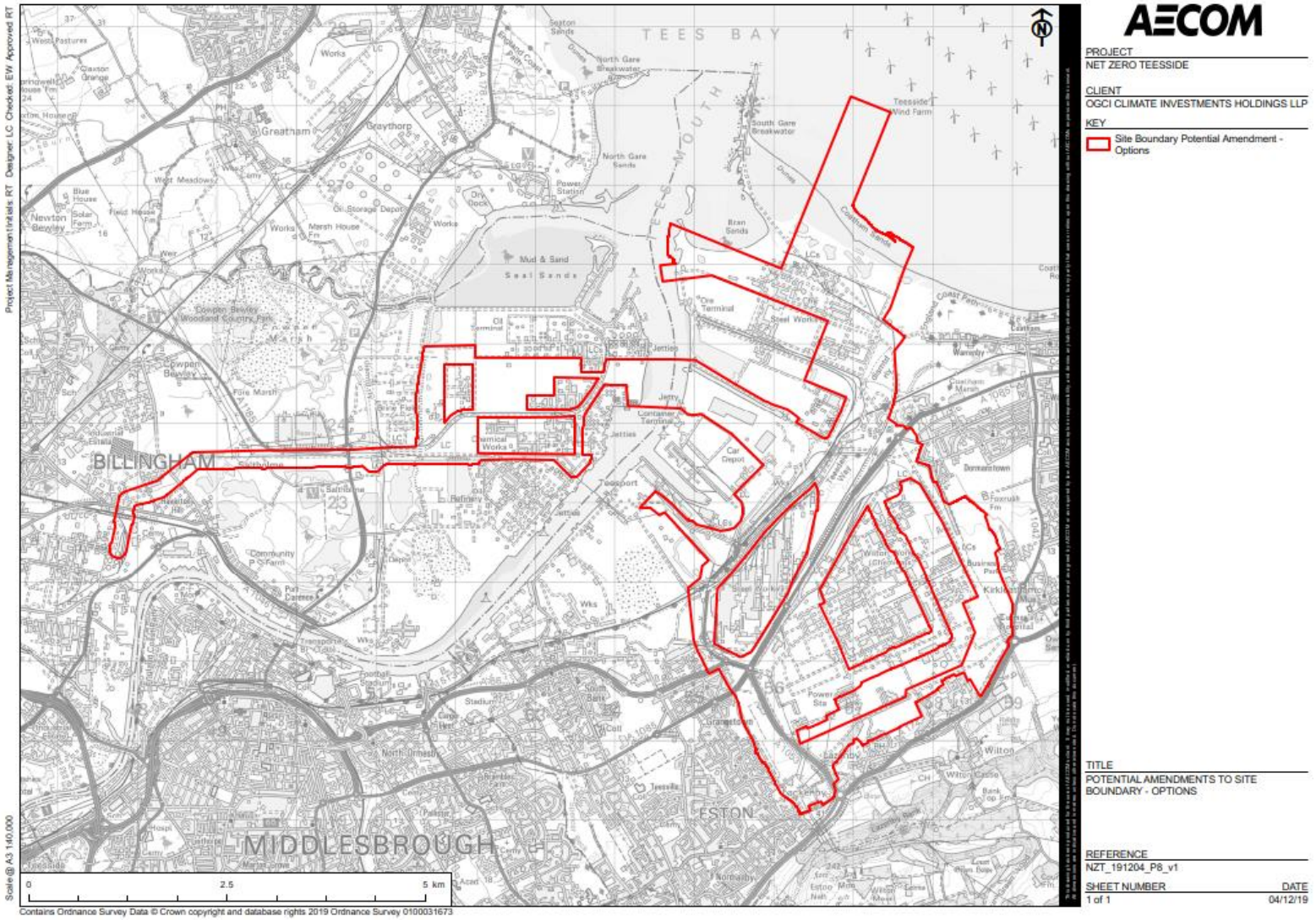
		JP suggested that AECOM should also consider other more distant sites at the LSE stage (inc. the North Sea SAC). JP explained that NE was developing a refined Teesmouth and Cleveland Coast Advice Package and that this would be available soon; the advice on operations is also under review (to refine further) and that this is due in September. As it comes online, JP suggested that it be reviewed. AW suggested that in-combination effects be given thorough consideration within the assessment; AW noted the presence of several projects coming online locally (such as York Potash and other works on the Tees). AW referenced work undertaken by Groundwork within the vicinity of Coatham Sands / the dune complex and suggested that some benefit could be gained from approaching them to understand how they have been working within the dune complex. AW also mentioned that STDC, as part of their SSSI ownership requirement, are exploring habitat management and improvement works along the South Gare and that approaching them to understand any synergies, particularly with regard to habitat improvement, would be beneficial. AW confirmed that he is aware that biodiversity enhancement / net gain is not a formal or legislative requirement as this is a DCO/NSIP case but that it would be good to see what AECOM / the developer can do on this. EW asked that other than these points, do NE have any thoughts on the information presented today and approaches to EcIA? AW stated that the work to-date and approach going forward was entirely sensible, appeared to cover all bases and there were no major omissions. AW reiterated that it would be good to see more in the way of no not loss; was there any more information on this? EW noted that this was an evolving area being investigated by AECOM; a green credits approach may be explored but options are very much being explored. AW suggested that at a strategic level, habitat management in the Tees area is a work in progress and that local engagement with STDC representatives developing habitat improvement projects is recommended. AW also encouraged considering carefully open mosaic habitat and how the importance of it is gauged. AW also reiterated that engagement with INCA (Ian Bond, Robert Woods) should be undertaken to explore no net loss/habitat gain further. AW suggested that a key flag to AECOM was the Coatham Dunes crossing and that this did represent a risk; AW reiterated that NE is not saying it is ruled out (and it has been done before) but that it needs to be planned and thought out very carefully. EW agreed that this is a very sensitive area and it is therefore a priority area of focus for AECOM and that we will seek to engage with NE going forward to develop an ecologically robust approach for the crossing. RW asked if the composition maps which he shared earlier with EW via email could be reviewed; the composition maps were discussed with NE. AW confirmed he had not seen them before but they could be useful (discussions with RSPB were recommended, as well as the bird club, who may be better-placed to discuss their merit). AW raised a housekeeping matter and confirmed that if there was to be further pre-application engagement throughout 2020, the DAS contract would need to be updated. IC suggested that this would be discussed with RL and that we will get back to NE but it shouldn’t be an issue. EW asked if there was any further AOB; no further comments. EW thanked all those for attending and contributing toward a positive meeting. Meeting closed.

Annex 01 - Indicative Red Line Boundary



Meeting Minutes

Meeting name
Net Zero Teesside (NZT) – Natural England Update Meeting

Meeting date
14 December 2020

AECOM project number
60559231

Subject
Natural England - Stakeholder Update Meeting

Time
11:00 – 13:30

Additional information
Appendix A – Meeting Slide Deck
Appendix B – Benthic/Intertidal Sampling Note
Appendix C – Air Quality Summary Note
Natural England DAS Ref: 2845

Attendees
Sarah Wilford (SW), BP / Net Zero Teesside
Ed Walker (EW), AECOM
Ian Campbell (IC), AECOM
Richard Lowe (RL), AECOM
Helen Watson (HW), AECOM
Rachel Huxham (RH), AECOM
James Riley (JR), AECOM
Andrew Whitehead (AW), Natural England
Josh Parker (JP), Natural England

Natural England Meeting Agenda – 14 December 2020

Agenda Item	Minutes	Key Actions
Introductions	• Sarah Wilford - BP / Net Zero Teesside and the NEP (Northern Endurance Partnership) • Ed Walker – AECOM, supporting Ian and Richard on the DCO/EIA • Ian Campbell – AECOM, coordinating the EIA/DCO • Richard Lowe – AECOM, leading the EIA/DCO • Helen Watson – AECOM, Air Quality specialist working alongside Richard and Rachel to undertake the AQ modelling for NZT • Rachel Huxham – AECOM, Air Quality specialist • James Riley – AECOM, leading the HRA for NZT • Andrew Whitehead - Natural England, Senior Adviser however role has recently changed so acting as the Biodiversity Lead for NE. For the foreseeable, will be providing input into the NZT project from NE though • Josh Parker - Natural England, Marine Adviser	
Project Update	RL confirmed that Stage II consultation has recently been undertaken and that we are still targeting DCO submission in March 2021. RL confirmed that there are various ongoing technical, engineering, environmental and consenting activities going on in the background as we prepare for this point. For Natural England specifically, the EIA and HRA which we are preparing is particularly relevant. RL confirmed that in terms of recent changes, one aspect which is new is a reduction to red line boundary; specifically, RL confirmed that the project have been working to refine this down in order to reduce the amount of land required within 3rd party ownership; RL explained that in support of this, NZT has been undertaking some targeted stage 3 consultation with affected land interests. RL noted an additional change which is to move to 1 train (previously we had 3); ultimately this is because we want to make sure that 1 can be delivered, as it is a first of a kind, but are leaving some future	

Agenda Item	Minutes	Key Actions
	flexibility and provision to add additional trains in the future if desired. RL noted that NZT has another proposed slight change which we will discuss in further slides. SW noted that it is worth mentioning the broader context surrounding the project and how it is strategically developing its vision. It has recently been formally announced that Net Zero Teesside will collaborate with Zero Carbon Humber (ZCH) who are looking to capture CO_2 from a number of industrial sources and then also export the CO_2 captured to Endurance store. SW explained that this is the collaboration where NZT are looking to work together taking CO_2 from both Humber and Teesside for storage in Endurance field. SW explained that this is the future vision of the eastern side of the country.	
Engagement to-date / Stage II Consultation Responses	EW provided a summary of recent engagement with Natural England focusing on agreement of scope for ecological surveys and ongoing impact assessment: • July 2017 – Agreement on the Scope of Ecological Assessment / designated sites / surveying • September 2017 - Agreement on the Methodology, Scope and Survey specifications • March 2019 – EIA Scoping • April 2019 – Review of scoping and NE responses / summary of Ecological surveys to-date and initial findings / next steps • February 2020 – Survey Programme Update • April 2020 – COVID-19 Discussions / Agreement on the position regarding COVID-19 and survey programme; EW clarified that discussion had taken place with Natural England regarding the potential impact of COVID-19 rules and government regulation. EW explained that an amended programme of surveys had been agreed with Natural England although as soon as there was further flexibility, we sought to undertake further surveys • September-November 2020 – SSSI Assent Applications for Water and Geotech surveys / supporting calls JP raised a clarification question on the marine and terrestrial elements of the project; does NZT still have a marine interface? EW confirmed that there are some elements of the NZT DCO/EIA scope being discussed today which have involvement with the marine environment; for example, the potential intake in the River Tees and outfall in the Tees Bay, as well as the CO_2 export pipeline down to mean low water. EW explained however that there are additional offshore marine works associated with the separate consenting for the NZT transportation and storage elements of the project; these are being progressed under separate consenting regimes. RL further explained that these separate marine works will be considered under offshore regulations and separate consenting; this is progressing at a slightly different timescale to the DCO/EIA for NZT being discussed today.	
Progress Update	EW provided a summary of key Natural England responses during Stage II consultation and the suggested next-steps: • Natural England review of Appropriate Assessment	**1.** AECOM to facilitate Natural England to review Appropriate

Agenda Item	Minutes	Key Actions
• Review of Stage II responses • Ongoing survey programme • Potential alternative outfall location (technical consideration and MMO engagement)	• Development of Environmental Management Plan and Restoration Scheme and inclusion in final Environmental Statement / DCO application • Survey programme to continue to help inform Environmental Statement / DCO application • To be considered fully in Landscape and Visual Impact Assessment within final Environmental Statement / DCO application • Engagement to continue up-to DCO application including HRA Review, Natural England discretionary input into Environmental Management Plan / Biodiversity Strategy where possible and ultimately SoCG RL clarified that the examination will be starting Q3 2021; wherever we will be doing virtual hearings or in person is to be confirmed however we expect Natural England's input to be required during this process; we want to do as much as possible to reduce risk and the need for involvement from Natural England to help with resource efficiency. AW confirmed that Natural England in agreement with this approach and they try to avoid going to hearings as much as possible; aiming for maximum agreement as early as possible is beneficial and engagement so far on this project has been very good. EW continued to provide a summary of surveys since the last engagement meeting; EW explained that COVID-19 did present some challenges, as did access through 3rd party land. Notwithstanding, EW clarified that surveys resumed around May 2020 and most recently, this included: October to December: Water Sampling / Geotechnical Surveys September: Barn Owl / Bat Surveys (Static Surveys, Emergence Surveys, Dusk Surveys) August: Bat Surveys (Static Surveys, Emergence Surveys, Dusk Surveys) July: Bat Surveys (various) / Electro-fishing / Terrestrial Invertebrates / Ornithology (various) / Reptile Survey June: Ornithology (various) / Botanicals / Reptile Surveys / GCN / Invertebrates May: Ornithology (various) / Fish eDNA [See **Appendix A, Slide 9** for further information]. EW confirmed that NZT see this, and all previous survey work, to be an appropriate baseline in support of a robust DCO application however we welcome NE's thoughts on this? AW confirmed that this all looks thorough and robust and that Natural England will be happy to work with the project to formalise going	Assessment in early 2021 **2.** AECOM to share draft Environmental Management Plan(s), where available, ahead of DCO Submission in 2021 **3.** AECOM to work with Natural England to prepare and develop SoCG in 2021 **4.** AECOM to share technical note with Natural England regarding Benthic/Intertidal Sampling position

Agenda Item	Minutes	Key Actions

forward toward Statement of Common Ground. AW queried if any additional survey effort had flagged the need for EPS licencing etc; AW raised a query on findings due to reference to Letters of No Impediment?

EW explained that thus-far, no additional surprises have been found; can Ian confirm? IC confirmed that this is the case.

EW provided a brief update on programme:

- Stage II consultation completed (Summer 2020)
- Reviewing and actioning key comments / feedback
- Ongoing technical stakeholder engagement throughout winter 2020 (key next steps discussed later)
- Submission planned for ~March 2021

EW continued to explain the potential for a southern outfall option which we would like to discuss with Natural England and which we have been discussing with the MMO. EW noted that the location for a new potential outfall option is slightly further to the south of the original outfall and within the same or similar corridor to the CO_2 export pipeline [see **Appendix A, Slide 11**]. EW noted that this addition is as a result of various ongoing technical investigations and also presents the opportunity to potentially have one crossing through the Coatham area (as opposed to the original two) so is seen to be environmentally beneficial.

RL noted that there is some uncertainty regarding the outfall to the north and a technical survey has not yet been undertaken and there is some uncertainty around long term usage. To keep flexibility for PEIR, flexibility for complete replacement was sought; however, since then, have been considering that it would make sense to use the same corridor the CO_2 export (i.e. NZT trying to reduce environmental effects). RL explained that we will keep both corridors to allow maintenance of the existing outfall however if we had to replace it, we would seek to pursue the southern option. RL explained that we may not be able to resolve this issue before DCO submission; flexibility for option of either or may be included in DCO application (either reuse or new outfall to the south – not both developed in parallel).

EW provided a summary of the 2019 sampling that had been undertaken in support of the original outfall location [see **Appendix A, Slide 12** and **Slide 13** for further information]; EW explained that this campaign had led to the identification of two key biotopes and that these were suspected to be homogeneous throughout the Tees Bay. EW noted that this prediction was verified with the sensitivity undertaken through review of 2010 Entek UK Limited data gathered for the Teesside Wind Farm – this also points toward two key biotopes. EW noted that given the current weight of evidence which suggests the two potential outfall locations are characterised by the same material, NZT do not intend to obtain additional sampling. EW explained that this position had been presented to and discussed with the MMO; EW asked if Natural England had any thoughts about this, perhaps particularly Josh as Marine Adviser?

JP stated that the sampling looks good and that this is not surprising for the area; JP noted that in his experience, the sampling / survey

Agenda Item	Minutes	Key Actions
	work for that area all suggests the sand-type material being distributed along the inshore area with the muddier materials further into the Tees Bay. JP noted that engagement with the MMO is useful and they would also appreciate a copy of the position after the meeting if possible? EW noted that he will look to prepare a short summary or the technical note itself and supply after the meeting [See **Appendix B**]. JP said that this would be useful. EW continued to explain that the benthic/intertidal and sub-tidal sampling was a key consideration however there are some additional points which we feel need to be considered [summarised below].	

Item	Commentary
Cooling Water Modelling	EW noted that although the location of the southern outfall option is slightly different, conditions predicted to be nearly identical at Outfall II. EW explained that as part of the thermal modelling undertaken previously, sensitivity analysis undertaken for original cooling water modelling considered some changes to location of outfall head – this did not alter conclusions.
Benthic / Intertidal	EW reiterated that overall, existing NZT sampling provides good characterisation of the inshore Tees Bay and that a sensitivity has been undertaken using additional data which supports the conclusions from existing sampling.
Fisheries	EW explained that the PEIR conclusions are predicted to be valid for Outfall II but will be re-examined for ES.
Marine Ecology Assessment	EW explained that the PEIR conclusions are predicted to be valid for Outfall II but will be re-examined for ES.
Marine Licensing	EW explained that a key item is a minor addition to the draft DML before circulation to MMO; we are discussing this with the MMO at present.

HRA Update – Overview • Progress since Stage II • Forward-look to Natural England review of HRA	JR introduced an overview of HRA updates since the last meeting and noted that he has been working closely alongside Rachel and Helen who may provide input throughout. JR explained that the LSE report is currently being updated in light of comments received and also further knowledge as the scheme progressed. JR noted that NZT are producing an Appropriate Assessment report; we have undertaken screening and shared this with Natural England previously but as we now want to be considering mitigation, we will need to follow the AA to consider this. JR noted that NZT are doing updated noise modelling (this is being considered for construction and operation – atmospheric noise). JR noted that underwater noise was considered in the PEI Report /	**5.** Natural England to confirm to AECOM why Coatham Dunes (slag deposits) was added to the SPA **6.** Natural England to confirm position to AECOM regarding the critical load threshold of 10-15 kgN/ha/yr owing to calcareous habitats **7.** Natural England to confirm position on

Agenda Item	Minutes	Key Actions
	Stage II consultation and will be assessed by the Marine Ecology disciplines for the Environmental Statement; the wider HRA will include reference to this topic. JR explained that in much of the area around the project site, birds are habituated to variable noise environment arising from industrial frontage; additionally, although the pipeline runs past Salthome reserve; there is a high likelihood that the pipeline could be attached to the racks above ground as opposed to subterranean. JR noted that although there is unlikely to be any digging, there will still be some form of construction which we will consider. JR explained that for these key reasons, there is unlikely to be construction disturbance at Salthome – and elsewhere – arising from the pipeline construction. JR explained that we don't fully know the requirements but there may be a need for noise mitigation (possibly operational arising from the compressor which is a noisier operation); NZT will be considering mitigation levels throughout the project to reduce levels further where needed. JR explained that NZT is using noise contour maps to help present and visualise the potential noise effects from the project; we consider this to be a useful method of presentation. JR explained that regarding the thresholds being used, birds should generally adapt to sound unless it is above the 70db threshold which we understand is the relevant standard level for this area. JR explained that however, we are aware that some Natural England officers are not keen on relying on this; as a result, we are also looking at what the relative change might be compared to the existing environment. JR noted that there is no formal metrics for birds but 3dB(A), 5dB(A) and 10dB(A) relative change levels are considered to be appropriate; JR asked if Natural England have specific guidance or thresholds which they want to use? AW stated that the thresholds and steps discussed seem appropriate and what we normally expect to see in an assessment; there are other parts of the country where we talk about 55db but the 70db is used for the Tees and Humber area. AW explained that regarding the 3dB(A), 5dB(A) and 10dB(A) relative change levels are appropriate and what we normally utilise. RL asked if noise contours are needed and useful for Natural England? AW said yes please. JP explained that the HRA section so far had focused on the impacts from noise and construction around the main development site but were there additional considerations of the wider environment and designations, such as the Southern North Sea SAC (especially Harbour Porpoise) and specifically considering in-combi effects? EW explained that this designated site and feature – Harbour Porpoise – was considered in PEI Report and we will consider it at ES. EW noted that there is a significant distance between the project and this specific site but that it would still be assessed; regarding in-	lack of significant effect on Terns from Nitrogen Deposition owing to factors discussed during meeting and summarised in technical note **8.** Natural England to share early-outputs on conservation advice package with AECOM, particularly for Roosting Redshank, where available **9.** Natural England to consider Nitrogen Deposition further and specifically with relation to third-party development when considered together with NZT; Natural England to respond to AECOM to confirm position on this topic **10.** AECOM to provide a summary note for Natural England on Nitrogen Deposition and key questions for review/discussion with colleagues; Natural England to review **11.** AECOM to provide summary position on Biodiversity Management for Natural England review / onward discussion ahead of DCO submission

Agenda Item	Minutes	Key Actions
	combination, we did provide some qualitative assessment of this within the PEI Report and will expand on this for the ES, particularly in terms of the offshore CO_2 pipeline and store. JR reiterated that this designated site has been considered thus far and will be assessed for the ES; JR stated that JP is right to flag additional receptors, such as seals which are particularly important around the Tees Estuary, and that these will be assessed fully in the ES. AW noted that the southern route for the outfall is also across the edge of an additional RSPB designation as well as well as being within the SSSI/Ramsar/SPA. JR agreed and noted that other impacts are under investigation. JR explained that a range of other potential impacts are being further investigated; mitigation for disturbance during the construction of the CO_2 /outfall route is a key question; we are developing / reviewing mitigation and considering a winter restriction for the area – we would need to consider how this aligns with programme. Because the red line boundary for the project is in an area designated for overwintering birds – would Natural England require an overwintering restriction condition? AW explained that for winter working in this area, Natural England would normally look at a winter working condition (typically from 1 November to 31 March). JR explained that there is also the matter of restoration and where possible improvement, where this is technically and practically achievable, in relation to the crossings. JR explained that habitat management under development by an AECOM colleague and we will discuss this further in the HRA – we plan to restore / improve the pipeline as necessary. JR noted that one thing that we also discussed in PEIR was the pools / legacy pools in the slag heap areas; we have colleagues undertaking hydrogeological investigations into these areas and several surveys have been undertaken so far. JR explained that for much of this area, the 'pools' themselves are no longer actually serving as pools; from our ongoing investigations, we understand that there will not be a negative effect on the pools but we will discuss this further in the Appropriate Assessment. IC explained that the preliminary conclusion from the water team is that they are rainwater fed; Owen is on the call and may want to add a little more? OT explained that as Ian notes, we have an ongoing investigation into waterbodies but the majority are dry / been succeeded into a wetland habitat type as opposed to being a 'pool'; we will be preparing inputs for the ES to detail this further. JR explained that colleagues have undertaken surveys and prepared mapping for the area so we understand the area well. JR noted however that we understand that the slag heaps alongside Coatham Dunes has been specifically added to the SPA/Ramsar; could NE clarify why it was added? JR suggested that this doesn't look like it has been included as suitable habitat for turns and is largely	

Agenda Item	Minutes	Key Actions
	scrubbed land with very limited waterbodies / no pools. JR reiterated that we will consider it in Appropriate Assessment but wanted to understand why it was included? AW said that we would guess it is has been included for overwintering birds; JP added that this area has potentially been added for Roosting Redshank? JR said that this is useful to know; we will continue to consider on the assumption that this area is included but would appreciate if Natural England can confirm after the meeting? AW yes no problem. JR explained that the other issue which has been under investigation is air quality and in particular, nitrogen deposition; surveys undertaken by colleagues suggest that areas of deposition on Coatham Dunes are within the SSSI but crucially, the slag deposits are not “sand dunes” in terms of the condition of a feature within the SSSI. JP explained that may be linked and should still be considered in assessment, even if it is not providing that specific supporting feature? JR agreed and reiterated that the HRA/ES will continue to consider this wider area but for the purposes of critical loads and understanding air quality impacts specifically, we do not consider that this area is “sand dunes” in the sense of the SSSI features; we would appreciate Natural England confirmation after the meeting if possible? AW yes we can look into this for you. JR explained that in terms of nitrogen deposition, the PEIR used a critical load range of 8-10kgN/ha/yr however as we have now established that the vegetation is calcareous, a higher threshold is considered to be appropriate [see **Appendix A, Slide 17**]. JR explained that we are therefore going to be assessing it on this critical load (10-15 kgN/ha/yr) unless you have other thoughts? This will be explained in the report. AW stated that this seems reasonable and it will be useful to see further details in the HRA; we may also engage with our central air quality specialists to see if they have any insights. JR thanked AW for this and confirmed that a response back to clarify and agree this would be most helpful. JR noted that as was established in PEIR, the wintering birds interest feature not susceptible to Nitrogen deposition. JR explained that the main potential effect is then the impact on Tern population however the critical load system has been developed for habitats as opposed to birds. JR explained that we are using the habitat critical load (10 kgN/ha/yr) as a proxy; the critical load was developed in relation to the preservation of botanical characteristics however, given this is an SPA and a proxy being used, we believe that there should be some flexibility around how this is discussed in the HRA. We think that the SPA seems to be of low susceptibility even where the dose from the scheme exceeds 1% of the critical load.	

Agenda Item	Minutes	Key Actions
	JR stated that furthermore, we have been in ongoing discussion with INCA regarding the Tern nesting locations and monitoring sites however these are distanced from the project. As the 1% critical load is itself not likely to be a significant effect and in addition, as the current and historic tern locations are distant from the scheme, we believe that it highly unlikely that there is going to be a significant effect arising from N deposition on the Tern sites. Does Natural England concur? JP noted that yes you have correctly identified the Tern monitoring locations which are quite some distance from the project and unlikely to be sensitive to this issue. AW this seems reasonable and we will engage with our air quality colleagues to discuss the detail after today. JR explained that in-combination effects have been considered; we will discuss in a moment. JR introduced slides [see **Appendix A**, **Slide 18**] showing our isopleths; we have been refining down our critical loads; each of the contours presented represents a critical load (note there are no isopleths beyond 3%). JR noted that overall, Air Quality and N deposition unlikely to be a significant effect on the SPA but welcome Natural England's thoughts? JP agreed that the key consideration for this effect would likely be Tern and the Little Tern; JR comfortable from a tern perspective as the locations of tern nesting sites are distant, as discussed earlier. JP noted another consideration which is the dune system and how it supports the waterbirds assemblage; would n deposition have an impact on the supporting habitat - for example redshank. JP noted that Natural England have been developing the conservation advice package for the site; JR said that this is interesting, we would be interested in any outputs from this if available. JR thanked JP for this and reiterated that in the PEIR / HRA screening, we considered wider effects and the ES will continue to consider wider potential effects on waterbirds assemblage. JR confirmed however that the only birds triggered by n deposition through APIS is the Terns rather than wintering birds. RL introduced discussion on the potential cumulative impacts with other schemes. RL noted that this is an important point for us to consider how we present this in the DCO – we would like to agree a position with Natural England now or in the near future as we approach DCO submission. RL explained that what we have seen in the past though is changes in Natural England personnel or involvement of a new/additional central team triggering a change in position; we would like to avoid this if possible. RL explained that a key step is defining and agreeing where we apply these thresholds that we have been discussing today and why it is robust; we need to get agreement on this. RL explained that we would like to agree this very soon as it relates to the levels of mitigation which are applied at an engineering level and this takes substantial time and effort. RL stated that with this in mind, we would appreciate Natural England's thoughts today or after the meeting on agreeing a position.	

Agenda Item	Minutes	Key Actions
	JR explained that based on the tern nesting locations, NZT will be well below 1% of critical load; the remaining assessment of potential effects, including on wider habitats, is presented in PEIR and will be updated for the ES. JR explained that however, as Richard has noted, another key consideration is the in-combi and cumulative matter. JR noted that in considering cumulative impacts, we have considered the Redcar Energy Centre – Natural England have reviewed this application, which is a Town and Country Planning Application rather than DCO and have commented on this and didn't appear to have a problem. JR explained that his application had predicted a ~16% deposition rate yet that there was not a significant effect and no adverse effect on the SPA / SSSI; Natural England appear to have accepted this (consultation letter not raised this as a concern). JR reiterated that although this is a TCPA not a DCO, this would seem to suggest that Natural England is in agreement with our approach / assessment of low significance (i.e. particularly based on what we have presented and discussed today in terms of the much lower levels of potential deposition on areas within the SPA/SSSI/Ramsar). We would however welcome Natural England's thoughts? AW explained that may have been a time lag for APIS particularly in terms of the decommissioning of SSI and steelworks facilities in this area which may have been favourable for the application. AW also noted that at this location, the wind direction takes the plume over bran sands rather than Coatham specifically; with this being intertidal and inundated twice daily, the deposition issue is also insignificant; the nesting sites for Tern are quite some distant up the coast as we discussed earlier. RL explained that as mentioned earlier, the potential in-combination effects are creating some concerns at the moment and specifically, when considering those arising from NZT in combination with other projects; specifically, although NZT is not predicted to create a significant air quality issue through N deposition as discussed today, the concern is related to additional third party projects being developed by others which when considered in combination with NZT, may have a significant effect. RL clarified that although we are aware of Natural England's current agreement with / responses to the TCPA Redcar application, we are all aware of the extremely robust assessment process and high levels of scrutiny associated with the DCO process. RL explained that with this project in mind, and the higher levels of N deposition against thresholds predicted by that project, we need to be confident that there is not going to be an in-combination issue ahead of DCO being submitted. RL asked if there was an opportunity for Natural England to consider the in-combination topic further particularly in light of third party projects with much higher levels of potential deposition than NZT? RL reiterated that although NZT levels of deposition are far lower (i.e. 3% and below, as presented earlier), what we want to avoid is a situation whereby at examination, our low additional levels of deposition when considered against background levels of deposition from other projects (which are much higher) created an in-combination issue. RL asked if there is an opportunity to consider the in-combi of NZT with TCPA third party projects imminently? As this will be examined throughout rigorous DCO, need to ensure approach robust.	

Agenda Item	Minutes	Key Actions
	AW yes Richard, we understand the issue and will go back and look through the details of the project and possibly discuss with our central air quality team who may be best placed to advise on this one. RL noted that the REC TCPA application determination is going through this week so there may be limited time to consider this; if Natural England could look at this swiftly, that would be very helpful? AW okay thanks Richard – we will take a look after the meeting. JR noted that looking forward, we are keen to agree this position on air quality and N deposition with Natural England; we had included it in our PEIR and Natural England had not flagged any concerns but we would like to formalise this? AW acknowledged this and suggested that after the meeting, it would be useful for AECOM to share a brief summary of the matter and it can be discussed internally within Natural England before confirming back to you. JP raised another question; the SPA extension does include additional species (such as Avocet) although we don't think that these species are likely to use the area adjacent to the project; we don't think that this is going to be an issue for the project but you should include consideration in the ES/HRA. JR noted this and agreed; these changes were flagged in January and these additional features were included in the PEIR; APIS not been updated for these species however so it would be very useful to get NEs thoughts on this? JP yes there are some issues with APIS in terms of coverage and completeness for all species so we will be happy to discuss any gaps with you further after the meeting. JR noted this and reiterated that where there are no thresholds or quantitative standards, we will continue to assess qualitatively in the HRA.	
Biodiversity Enhancement	RL explained that we have been consider the biodiversity enhancement topic for some time and are looking to achieve a net gain where we can; we know that this is not required as yet but will be seeking it where feasible and NZT wish to seek it as a best practice (we are also aware of the potential emergence of BNG into the NSIP process so want to ensure we are covered for all eventualities). RL explained that we are aware of the work that Teesworks have been doing at a strategic level across the Teesside area; we are broadly supportive of this and have been keen to ensure alignment but the measures for enhancement have not yet been confirmed which makes things somewhat challenging at the moment. RL noted that we're conscious that timeframes for enhancement are not aligned (specifically, the level of detail not available from Teessworks to support our application window); for this reason, we have some divergence in terms of the technical details of any measures to ensure no net loss / enhancement although will be attempting to keep aligned as far as possible. RL explained that what we are now	

Agenda Item	Minutes	Key Actions
	progressing is a calculation of net loss and our opportunities for localised enhancement within our RLB. Considering some specific examples, RL identified that laydown areas are under discussion; in RLs experience, the construction laydown can be given back for landscaping and potential biodiversity management / enhancement. RL explained that NZT is looking at a number of measures which could be employed but interested in getting Natural England's views on this now so we can maximise opportunity for what we can do. RL noted that the aspiration for the project is as a minimum no net loss but beyond this, enhancement where achievable. AW explained that he is part of the group looking at the Teesworks strategy; baseline calcs have been undertaken although Natural England don't believe that NZT is included in this. AW noted that the Environment Agency have a number of projects under development locally; this includes barriers to tidal ingress throughout the wider tees area. AW also explained that the rivers trust are also doing an intertidal habitat creation scheme locally; they have also been given recent funding for seagrass reintroduction; they have 4 potential sites for deployment and are in the process of seeking Marine Licence applications. AW summarised that there are a few opportunities here and Natural England would be happy to support further exploration in coming weeks. RL asked if these were all Publicly available? AW explained that the Rivers Trust project is public and that the seagrass project is under application with the MMO; AW not sure regarding the Environment Agency projects. RL asked how we can progress this further; we are seeking to progress this matter as soon as possible to understand how we can get a way forward with enhancement; RL suggested that we provide details on potential losses within our RLB and how we will offset and/or manage enhancement. Should we encounter a situation where enhancement not feasible, how will NE handle this? AW explained that at this stage, enhancement is not a requirement of DCO; Natural England would support enhancement fully and this would be great however failing this, we would be accepting of a no net loss position. RL noted that we will need to go away and consider if we cannot support enhancement within our RLB, we would likely seek enhancement via 3rd party projects (perhaps via s106 agreement). RL explained that we need to move this forward after Christmas once we have progressed this further internally to understand losses and opportunities within our red lime boundary. RL explained that one aspect which we would like to consider further with Natural England is regarding crossings of the dunes; can anything be done to enhance the area of the crossings post-restoration?	

Agenda Item	Minutes	Key Actions
	AW noted that this is something Natural England have discussed with STDC before however this has been more focused on reducing the number of adhoc footpaths / access routes to enable re-establishment. RL thanked AW for this and noted that we will consider this further.	
Key Next Steps • Planned Surveys • Natural England review of HRA • Preparation for Statement of Common Ground	EW provided a summary of key next steps; in the first instance, this is an ongoing programme of surveys which are primarily geotechnical / engineering in focus as opposed to ecological although we will keep Natural England informed. EW explained that we understand there will be Assent requirements; EW thanked AW for the ongoing support with Assents for the SSSI and reiterated that we will seek to provide advance warning of the next surveys planned. IC explained that there are intrusive surveys planned in the new year (on beach but also within the dunes); will this be the same process as before? IC explained that a tracked rig or similar equipment will be used to take cores, as well as other investigative actions. AW noted that process-wise, this will be the same or similar; Natural England would likely want to know more information about the operations and equipment, however. IC explained that there are no likely requirements for trial pits at the moment but more likely to be a competitor rig; this is a small track-mounted drilling rig. EW reiterated that due to timescales involved, the project is very keen to reach technical agreement on a number of key topics which have been discussed today and in particular, air quality and HRA matters. RL reiterated this and explained that air quality is a key next step for agreement; need to be submitting HRA mid-Jan so if we can formalise a position on this before then so that we can demonstrate to PINS that we are aligned, that would be ideal. AW noted that in terms of the critical load question, can AECOM provide a note summarising this? RL Yes, certainly. EW Take action to do this.	**12.** AECOM to prepare and provide details for Natural England review as part of the SSSI Assent / Consent process for ongoing geotechnical surveys within / adjacent to Coatham Dunes **13.** AECOM to prepare summary note on Critical Loads for Natural England review [aligned with previous **Action No. 10**]
Open Discussion, Questions and Any Other Business	EW introduced the Q&A / Open discussion and reiterated that although discussions with Natural England will continue on specific topics and things like SSSI Assents, this will be the last planned formal engagement meeting of this type ahead of DCO submission; with this in mind, we would very much welcome Natural England's thoughts and comments on the materials presented today. AW asked for confirmation that open-cut was being taken forward as the worst-case? EW noted that due to a number of ongoing technical factors, open-cut is likely to be the worst-case; IC noted that there may be some opportunity to go deeper, below potential UXO risks, negating some	

Agenda Item	Minutes	Key Actions

of the risk, however this was a work-in-progress. SW clarified that this was indeed something which is being explored but for the purposes of the EIA, we have adopted very much the worst-case which includes open-cut through the Coatham area. RL confirmed that this is the case and that although there may be opportunity for avoiding open-cut, i.e. by going deeper using HDD techniques, in the event that we need to use open-cut due to, for example UXO risks, we need to have consent to do that work.

AW asked if more clarity can be provided on the project still being in 2 parts? RL clarified that there are two separate aspects of NZT; there is the DCO which we are discussing today which focuses on the onshore elements of the project and some working down to mean low water (whilst noting that the outfall actually goes slightly further seaward). RL clarified that the additional work further offshore, i.e. for the CO_2 route and store, is being progressed under a separate consenting regime and that further details on the emergence of that project will be available in due course.

AW asked if a grid Connection was included within this project?

EW clarified that yes, we have connection corridors for electricity within our red line boundary. RL noted that the Todd Point connection under consideration and currently referenced in PEIR.

JP asked what would happen if offshore aspect not viable?

SW reiterated that there is a project team dedicated to ensuing that this is viable, stable project ahead of FID. SW explained that the project team is working closely with OGA / TCE to ensure that this is assessed and consented appropriately. SW explained that this current period is about building up a secure, feasible project which be able to capture CO_2 from industry and power generation which will be able to be transferred to a store. SW reiterated that this is not a 1st of a kind globally; this has been done elsewhere worldwide and BP have some experience of this. SW surmised that these factors mean there are high levels of confidence around the multiple aspects aligning successful.

JP noted that we have talked a lot about Air Quality and HRA but were there any other forms of AQ impact?

JR: We have also been undertaking modelling and detailed assessment for NOX and Ammonia but these, and nitrogen, are the key focus for ecology; the specific topic of N deposition was a key focus for discussion today given importance of agreeing critical loads. RL explained that Amines potentially created also and these have degradation products; they are all being assessed from an environmental effects on ecology perspective.

EW asked if there were any further questions? [No further questions or queries] EW thanked all in attendance for a productive meeting; we will share a note in due course which will include some key technical questions and a summary of actions.

[**Meeting closed – 13:09**]

Appendix A – Slide Pack

Net Zero Teesside

Natural England Update Meeting

14 December 2020
11:00 – 13:30

Net Zero Teesside

Introductions and Agenda

Net Zero Teesside

- Introductions
- Project Update
- Natural England agreement to-date / Stage II Consultation responses
- Progress Update
- HRA - Overview
- HRA – Technical Discussion (Air Quality)
- Biodiversity Enhancement
- Key Next Steps
- Open Discussion, Questions and AOB

Introductions

Project Update

Engagement to-date

Net Zero Teesside

July 2017 – Engagement Meeting

- Agreement on the Scope of Ecological Assessment / designated sites / surveying etc.

September 2017 – Correspondence

- Agreement on the Methodology, Scope and Survey specifications

March 2019 – EIA Scoping

- The ‘scoping in’ of specific sites and receptors / key approach to EIA and EcIA set out
- Discussion on possible open-cut techniques for the CO_2 pipeline route

April 2019 – Engagement Meeting

- Review of scoping and NE responses / summary of Ecological surveys to-date and initial findings / next steps

Engagement to-date

Net Zero Teesside

February 2020 – Engagement Meeting

- Survey Programme Update

April 2020 – COVID-19 Discussions

- Discussions and correspondence regarding impact of COVID-19 on survey schedule
- Agreement on the position regarding COVID-19

September-November 2020 – SSSI Assent

- Applications for Water and Geotech surveys / supporting calls

Stage II Consultation Responses

Net Zero Teesside

Topic	Response	Suggested Next-Steps
HRA	*Natural England notes that a Likely Significant Effect Screening Assessment has been undertaken in line with the requirements of the Habitats Regulations* [...] *Based on the information available to date Natural England agrees with the conclusions of this assessment*	Natural England review of Appropriate Assessment
Environmental Management	*The proposal will directly impact the Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI)* [...] *We note and welcome the commitment to ensure that a fully detailed Environmental Management Plan and Restoration Scheme, will be developed and implemented to ensure no long-term detriment to the designated site interest features*	Development of Environmental Management Plan and Restoration Scheme and inclusion in final Environmental Statement / DCO application
Protected Species / Standing Advice	Based on the information provided Natural England advises that the proposal has the potential to impact species protected by UK and EU legislation. Please refer to the standing advice for further guidance on the information that may be required in terms of survey and mitigation requirements.	Survey programme to continue to help inform Environmental Statement / DCO application; Standing Advice to be reviewed - thank you.

Stage II Consultation Responses

Net Zero Teesside

Topic	Response	Suggested Next-Steps
Landscape	*All proposals however should complement and where possible enhance local distinctiveness and be guided by Redcar and Cleveland Council's landscape character assessment where available, and the policies protecting landscape character in the adopted local plan.*	To be considered fully in Landscape and Visual Impact Assessment within final Environmental Statement / DCO application
Landscape and Biodiversity Strategy / Enhancement	*Natural England notes and welcomes the commitment the production and implementation of a Landscape and Biodiversity Strategy setting out biodiversity enhancement proposals and the habitat management prescriptions necessary to deliver these, and we would be happy to work with the applicants to develop this.*	Development of Landscape and Biodiversity Strategy and inclusion in final Environmental Statement / DCO application
Engagement / SoCG	*Natural England has welcomed the opportunity to engage at an early stage for this development, to help ensure that all environmental factors have been taken into account, and we are happy to continue with this engagement throughout the remainder of the application being finalised* […]	Engagement to continue up-to DCO application • HRA Review • Natural England discretionary input into Environmental Management Plan / Biodiversity Strategy where possible • SoCG / Letters of No Impediment

Progress Update

Net Zero Teesside

Surveys

- Challenges of COVID-19 discussed in April 2020
- Some short-term restrictions for site-surveys (access also a challenge due to 3rd party landowner concerns at some locations)
- Notwithstanding, surveys resumed ~May 2020
- Most recently, this includes:

Survey Period	Details
October - December	Water Sampling / Geotechnical Surveys
September	Barn Owl / Bat Surveys (Static Surveys, Emergence Surveys, Dusk Surveys)
August	Bat Surveys (Static Surveys, Emergence Surveys, Dusk Surveys)
July	Bat Surveys (various) / Electro-fishing / Terrestrial Invertebrates / Ornithology (various) / Reptile Survey
June	Ornithology (various) / Botanicals / Reptile Surveys / GCN / Invertebrates
May	Ornithology (various) / Fish eDNA

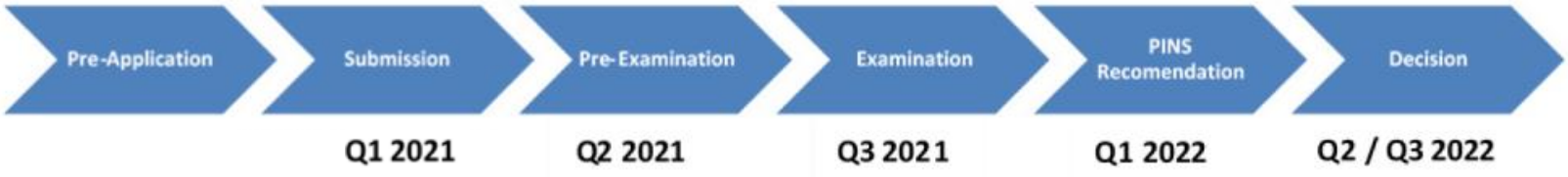
- Baseline ecological data considered appropriate in support of a robust DCO application; welcome NE thoughts

Progress Update

Net Zero Teesside

Programme

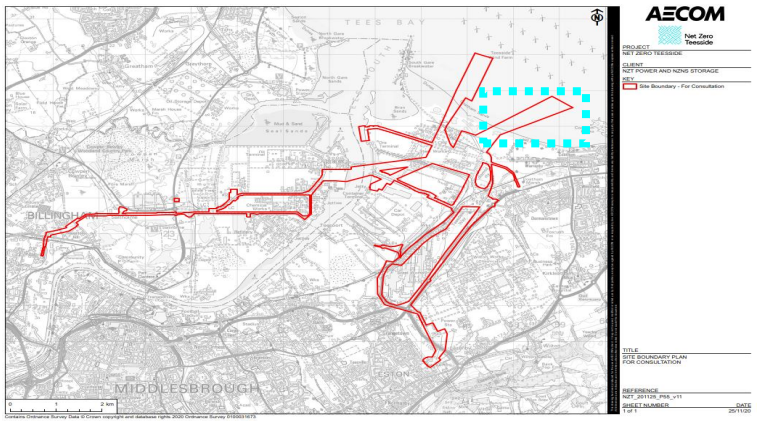
- Stage II consultation completed (Summer 2020)
- Reviewing and actioning key comments / feedback
- Ongoing technical stakeholder engagement throughout winter 2020 (key next steps discussed later)
- Submission planned for ~March 2021



Progress Update

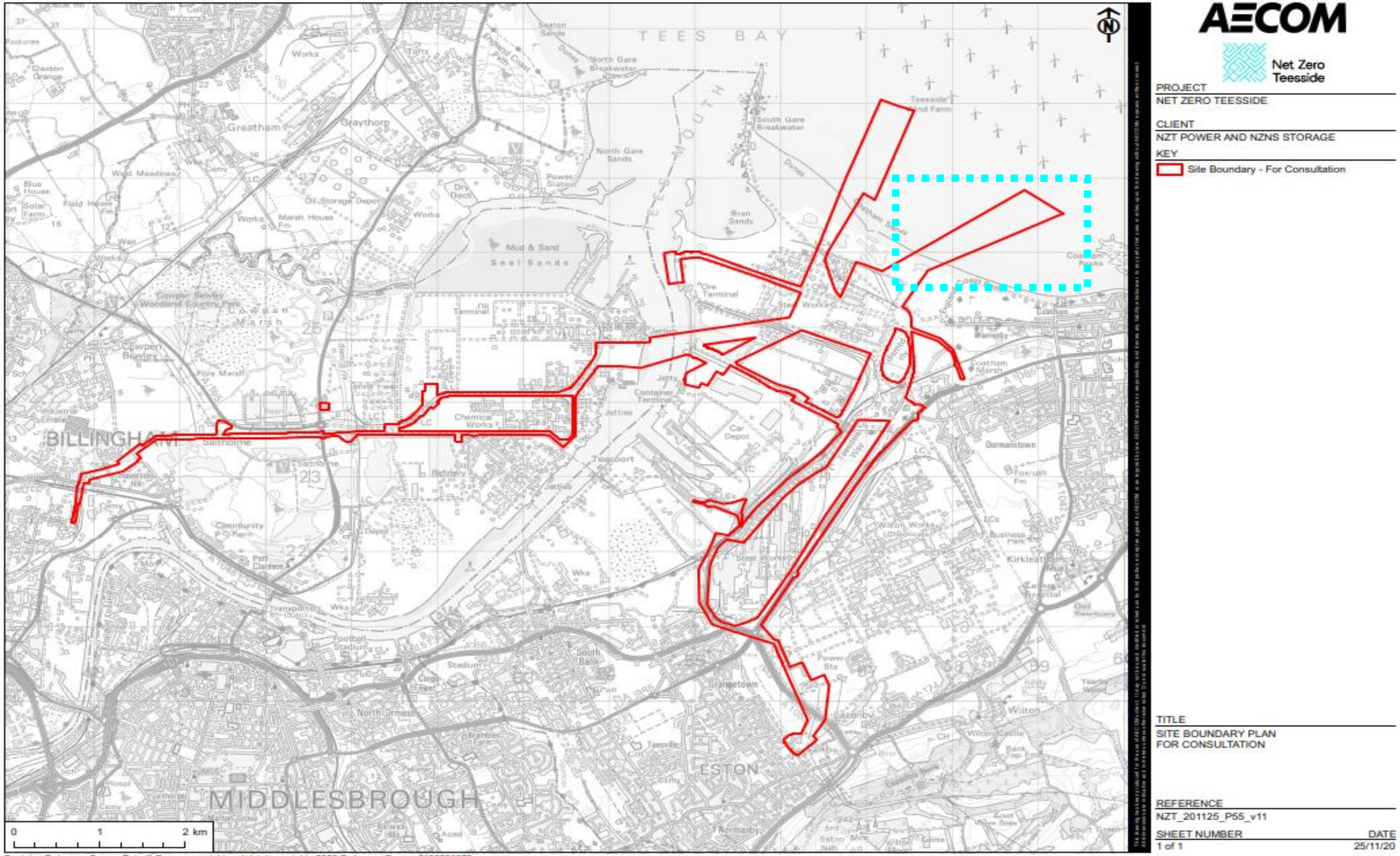
Potential Alternative Outfall Location

- Potential for alternative outfall solution highlighted
- This is as a result of various ongoing technical, economic and planning assessment
- New potential outfall – “Outfall II” – located alongside existing CO_2 corridor
- The works associated with Outfall II are expected to be identical to those assessed under a full replacement scenario in PEIR
- Key considerations related to this potential addition are considered in the next slide and supplemented with specific technical considerations later today



Progress Update – Indicative Outfall Option

Net Zero Teesside



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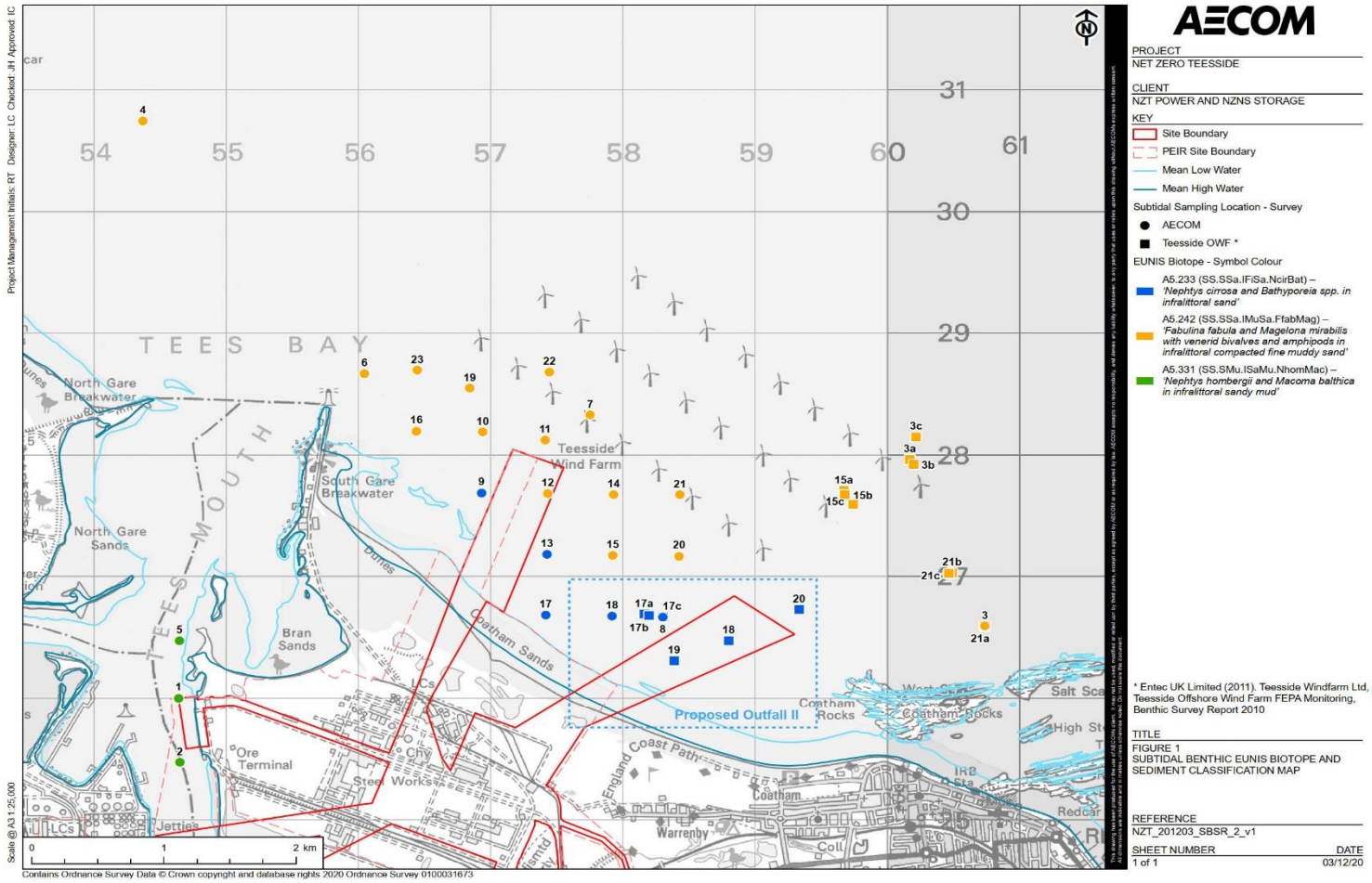
Progress Update – Indicative Outfall Option

Net Zero Teesside



Progress Update – Indicative Outfall Option

Net Zero Teesside

Potential Alternative Outfall Location

- Key considerations related to this potential addition summarised below

Item	Commentary
Cooling Water Modelling	• Conditions predicted to be nearly identical at Outfall II • Sensitivity analysis undertaken for original cooling water modelling considered some changes to location of outfall head – did not alter conclusions
Benthic / Intertidal	• Overall, existing NZT sampling provides good characterisation of the inshore Tees Bay • A sensitivity has been undertaken using additional data – discussed in more detail later today
Fisheries	• PEIR conclusions predicted to be valid for Outfall II but will be re-examined for ES
Marine Ecology Assessment	• PEIR conclusions predicted to be valid for Outfall II but will be re-examined for ES
Marine Licensing	• Key item is a minor addition to the draft DML before circulation to MMO

- Outfall option has been discussed through engagement meeting with the MMO and subject to ongoing review/assessment

Habitats Regulations Assessment - Overview

Net Zero Teesside

Progress

- Likely Significant Effects Report being updated
- Appropriate Assessment Report being produced to include standard mitigation (e.g. to protect water quality) but also…
- To include updated noise modelling – now unlikely to be construction disturbance of Saltholme reserve during pipeline construction as pipe attached to existing feature
- Details of any proposed noise mitigation such as the potential need for noise fence at PCC site near the pools of the SPA.
- Thresholds being used: noise contour maps to consider a) whether the 70 dB threshold will be exceeded and b) what the relative change is compared to existing noise levels. Existing evidence indicates a very variable existing noise environment

Habitats Regulations Assessment - Overview

Net Zero Teesside

Other impacts being further investigated:

- Mitigation for disturbance of the birds of the Teesmouth SPA through installation of the CO_2 export pipeline. Likely to recommend a winter restriction on working within the SPA. What are Natural England's thoughts on winter working in this area?
- Habitat Management Strategy being developed for the open cut trenching works through Coatham Dunes
- Hydrogeological study suggests that CO_2 pipeline installation wont have an adverse hydrological effect on the pools of Coatham Dunes as surface water fed

Can Natural England confirm why Coatham Dunes (slag deposits) was added to the SPA. We have assumed due to wintering bird interest in the pools?

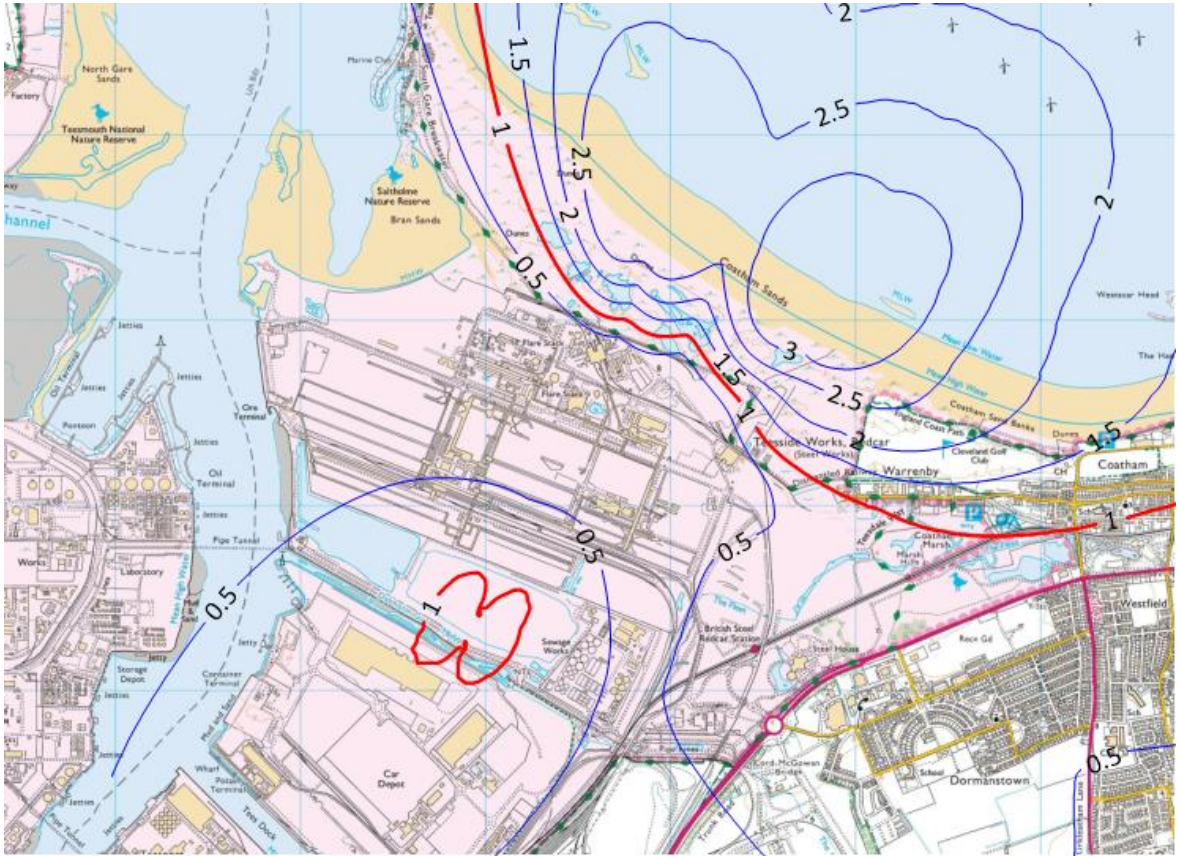
Nitrogen Deposition on Coatham Dunes (Teesmouth & Cleveland Coast SPA)

- The area is within the SSSI as well, but inspection suggests the slag deposits are not the SSSI feature ‘sand dunes’. Can Natural England confirm?
- PEIR used Critical Load range for acid dunes (8 – 10 kgN/ha/yr) but now established the vegetation is calcareous so a 10 – 15 kgN/ha/yr Critical Load range is considered more appropriate.
- Main HRA issue to assess is any effect on tern nesting sites. For the assessment of impact, the sand dune Critical Load has been used as a proxy. However, in practice the suitability of an area for nesting terns will be less tied to the specific Critical Load and precise botanical effects and more to do with coarse habitat structure, which is often dictated mainly by direct management.
- Therefore the tern interest of the SPA seem to be of low susceptibility even where the dose due to the scheme exceeds 1% of the Critical Load.
- Does Natural England concur?

Habitats Regulations Assessment – Technical Discussion (AQ)

Net Zero Teesside

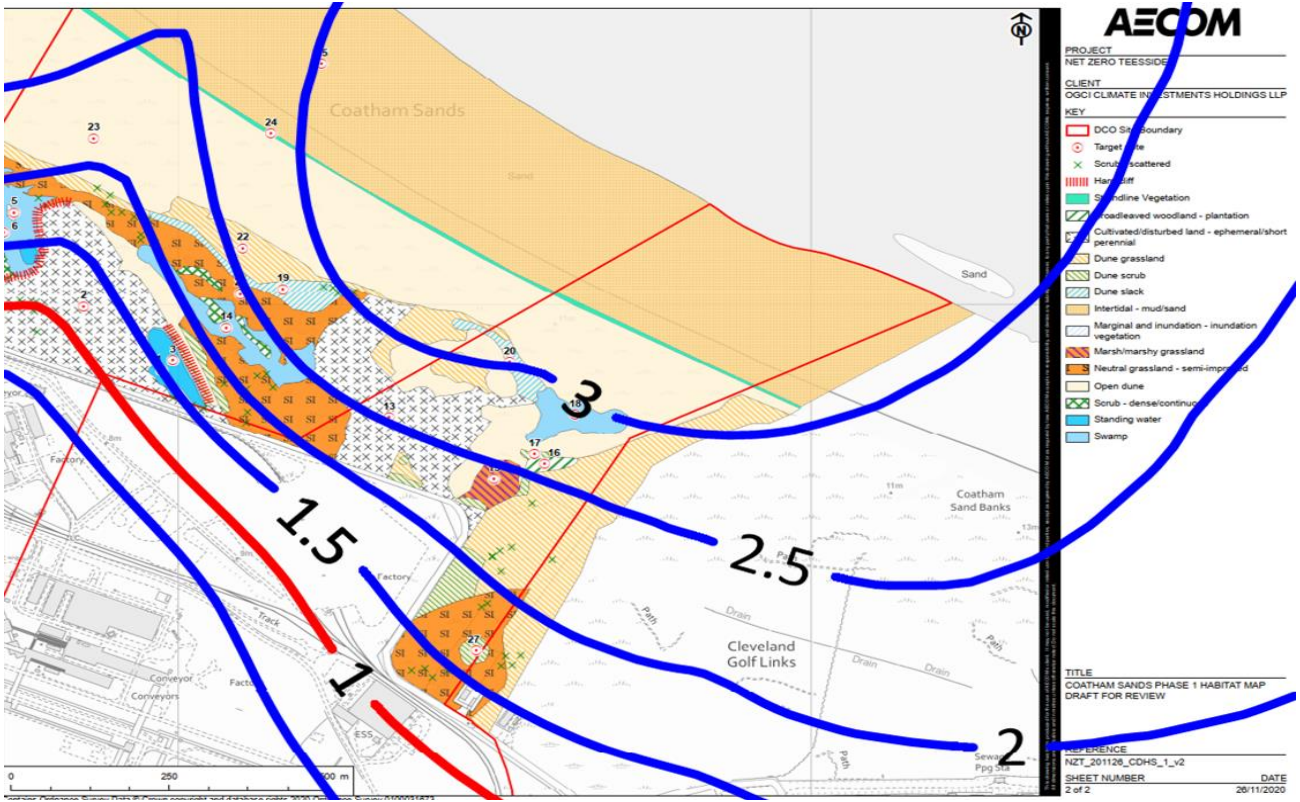
Isopleths of Proposed N-Deposition as a Percentage of the Critical Load



Habitats Regulations Assessment – Technical Discussion (AQ)

Net Zero Teesside

Isopleths of Proposed N-Deposition as a Percentage of the Critical Load



Habitats Regulations Assessment – Technical Discussion (AQ)

Net Zero Teesside

Cumulative Impacts with Other Schemes

- Proposed Development predicted to have a maximum impact of just over 3% of the minimum Critical Load, on the SPA, but actual dune habitats areas experience impacts between 1.5% and 3%.
- Other schemes requiring consideration are:
- Redcar Energy Centre (adjacent to the west of the NZT site)
  - Maximum impact on SPA predicted to be 16% of the Critical Load
  - Figures suggest this reduces to 4% at the point of maximum impact for the NZT scheme
- Grangetown Prairie ERF (5 km Southwest)
  - Maximum impact on SPA predicted to be 9.4% of the Critical Load (although used Lower Critical Load of 8 kgN/ha/yr)

These Critical Load impacts were forecast and Natural England did not object. Can we assume Natural England agrees susceptibility of the impacted area is low?

Biodiversity Enhancement

- Ongoing investigation into potential for Biodiversity Enhancement
- Interactions with wider Teesside area (i.e. any strategic opportunity)
- Timeframe for further details

Key Next Steps

Net Zero Teesside

Planned Surveys

- Ongoing geotechnical/engineering investigation ahead of DCO submission – continued SSSI Assent requirements (?)

Technical Agreement

- Critical Loads
- Cumulative and in-combination assessment
- Habitat Management

Review of HRA

- Natural England review of HRA (planned for circulation in January 2021)

SoCG / Letters of No Impediment

- Plan to circulate a draft SoCG in New Year

Open Discussion | Questions | AOB

Thank You

Appendix B – Benthic and Intertidal Sampling Note

AECOM Infrastructure & Environment UK Limited
3rd Floor, Portwall Place
Portwall Lane
Bristol BS1 6NA
United Kingdom

[redacted]

Project name: 60669231
Project ref: Teesside Net Zero

To:
Sarah Errington, Marine Management Organisation

Date:
17th December 2020

CC: Ian Campbell, AECOM

Memo

In July 2020 a Preliminary Environmental Information (PEI) Report, in support of the DCO planning application process for the Net Zero Teesside (NZT) project, was submitted to the Planning Inspectorate. The PEI Report formed part of the basis of a second (Stage II) consultation for the project during the pre-application phase of the DCO application process. Prior to this Stage II consultation, technical engagement has taken place with a range of consultees and interested parties, including engagement with the MMO in March 2019, September 2019, February 2020 and August 2020.

Formal responses to the Stage II consultation have now been received and will be addressed in the Environmental Statement. However, since the submission of the PEI Report, a potential design change related to the Water Connection Corridor has been identified; specifically, this includes the potential to relocate the Water Discharge Corridor into the eastern end of Coatham Sands bay in a location to the south east of the current proposal.

The new potential location for the outfall, referred to as 'Outfall II' may present benefits to the wider environmental performance of the NZT project. Outfall II would allow for the easy replacement of the existing steelwork if it is in poor condition. Additionally, by selecting a Water Discharge Corridor within proximity to the proposed CO_2 export pipeline, there are opportunities to streamline works, minimising potential disturbance to the area.

The works associated with Outfall II are expected to be comparable to those which have already been assessed under the full replacement scenario for the current Water Discharge Corridor in the PEI Report. However, the new location would have the added benefit of requiring only corridor of activity through the designated dunes and foreshore of the Teesmouth and Cleveland Coast SPA/Ramsar site. The potential extension to the existing red line boundary is shown in Figure 1.

It is evident that the Zone of Influence (ZoI) is likely shift to the east and therefore consideration to this new area should be addressed; key topics of potential interest are intertidal and subtidal benthic baseline surveys, thermal modelling and fisheries assessment(s).This technical note is primarily focused on the topic of subtidal benthic ecology with the remaining considerations forming part of a planned engagement meeting with the MMO in December 2020.

Subtidal benthic ecology surveys were undertaken in December 2019 in order to outline the key benthic receptors as part of the NZT project benthic ecological baseline characterisation study (see Appendix 14D submitted with the PEI Report). The study area and grab station locations were defined on the basis of the proposed location of the Water Discharge Corridor (Outfall I, at the time) and the predicted ZoI of potential effects arising from the development. The survey area encompassed an area from Long Scar (7 km to the north) to Redcar Sands (7 km to the south) and up to 7.5 km offshore to the northeast (Figure 1). Within this area a total of 23 sampling stations were included within the subtidal benthic survey design from which triplicate grab samples were collected. The majority of the sampling stations were located in the Tees Bay within the vicinity of the original Water Discharge Corridor (Outfall I). The PEI report study also included data from the 2010 Teesside Offshore Wind Farm (OWF) survey (Entec UK Ltd, 2011) as three stations (6, 7, and 8) fell directly within the study area.

The 2019 survey sampling stations did not extend into the newly proposed and amended red line boundary encompassing Outfall II. There are, however, several stations from the 2010 Teesside OWF benthic grab survey that do encompass this area (see Figure 1 below); in line with the recommendations of the International Maritime

Organisation (IMO) Sampling Guidelines (IMO, 2005) and wider high-level positions from the MMO regarding marine baseline development, historical data on physical, chemical and ecological properties of material can be used to help inform the consenting process for future development. The data from 16 OWF grab samples (Figure 1) show that the biotopes at these stations are consistent with those found in the 2019 survey - either '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233; SS.SSa.IFiSa.NcirBat) or '*Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand' (A5.242; SS.SSa.IMuSa.FfabMag), distributed depending on water depth gradients and mud content.

Thus, the data show these two biotopes are consistently distributed across the bay and that the benthic communities observed in 2019 are comparable to those observed in 2010 (details of the analysis undertaken are provided below). Therefore, we recommend that no further primary data collection would be required and that the currently available benthic data are suitable for the completion of an impact assessment for the proposed Outfall II location.

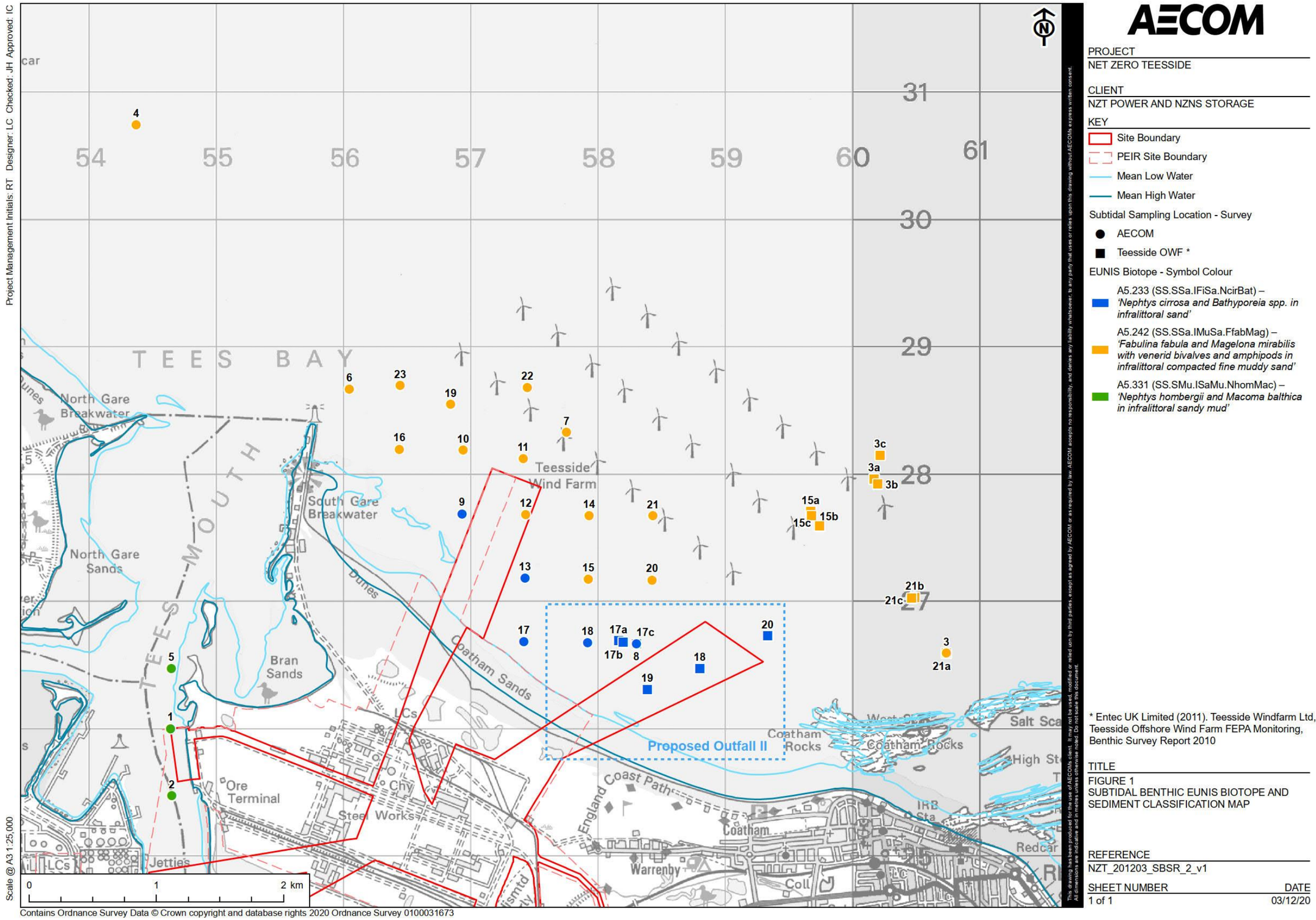
We would welcome a discussion regarding this topic at the earliest opportunity; to help with forward planning for this meeting, please find attached a draft agenda alongside this technical note.

Yours Sincerely,

Ed

Edward Walker MEI MIEMA CEnv MIMarEST CMarTech MCIWEM C.WEM
AECOM **|** Senior Environmental Consultant, Environment and Planning
[redacted]

Figure 1. Teesside OWF and Teesside Net Zero subtidal benthic sampling stations and EUNIS biotope classifications



* Entec UK Limited (2011). Teesside Windfarm Ltd, Teesside Offshore Wind Farm FEPA Monitoring, Benthic Survey Report 2010

TITLE
FIGURE 1
SUBTIDAL BENTHIC EUNIS BIOTOPE AND SEDIMENT CLASSIFICATION MAP

REFERENCE
NZT_201203_SBSR_2_v1

SHEET NUMBER
1 of 1

DATE
03/12/20

Analysis of additional Teesside OWF data

Sediment Composition

The major sediment fractions at each OWF benthic grab station are presented in Figure 2. The particle size analysis (PSA) data has been summarised and classified as per the Folk (1954) classification system (as described in Table 1). There was little variation between the OWF stations, all being dominated by a high content of sandy sediments (63 µm - 2 mm), with a generally low mud content (sediment <63 µm). Only station 21C had a sediment composition containing gravel (sediment ≥2 mm), representing 11.2% of the total sediment fraction. Overall, sand represented the highest sediment fraction across all stations (>90%), excluding station 21C (sand = 75.8%). The classification of most stations was 'sand', whilst station 21C was classified as 'gravelly muddy sand'.

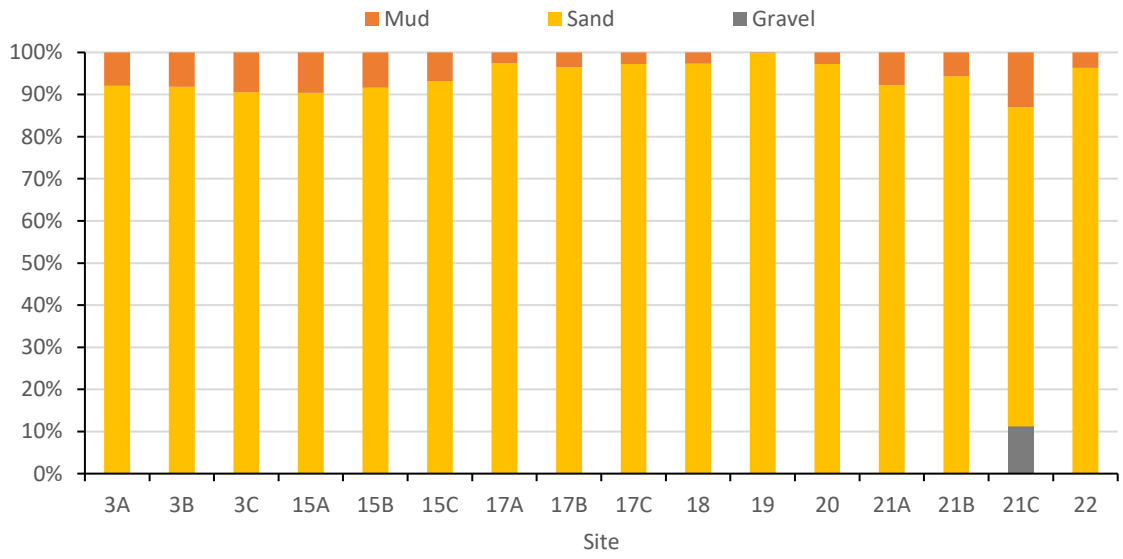


Figure 2. Major sediment fractions (%) at each OWF grab sampling station considered

Table 1. Summarised OWF PSA data as classified by Folk (1954)

Station no.	Folk and Ward Description	Folk and Ward Sorting	Mean µm	Mean phi	Sediment Classification	Modified Folk
3A	Very Fine Sand	Poorly Sorted	105.2	3.765	Sand	S
3B	Very Fine Sand	Poorly Sorted	106.2	3.767	Sand	S
3C	Very Fine Sand	Poorly Sorted	114.7	3.785	Sand	S
15A	Fine Sand	Poorly Sorted	149.8	3.435	Sand	S
15B	Very Fine Sand	Poorly Sorted	139.4	3.429	Sand	S
15C	Very Fine Sand	Poorly Sorted	127.7	3.475	Sand	S
17A	Fine Sand	Well Sorted	186.4	2.682	Sand	S
17B	Fine Sand	Well Sorted	183.1	2.753	Sand	S
17C	Fine Sand	Moderately Well Sorted	171.1	2.832	Sand	S

Station no.	Folk and Ward Description	Folk and Ward Sorting	Mean µm	Mean phi	Sediment Classification	Modified Folk
18	Fine Sand	Well Sorted	178.0	2.769	Sand	S
19	Fine Sand	Well Sorted	189.6	2.534	Sand	S
20	Fine Sand	Well Sorted	189.2	2.685	Sand	S
21A	Very Fine Sand	Poorly Sorted	134.9	3.471	Sand	S
21B	Very Fine Sand	Moderately Sorted	132.7	3.366	Sand	S
21C	Fine Sand	Very Poorly Sorted	327.6	3.120	Gravelly Muddy Sand	gmS
22	Fine Sand	Well Sorted	177.8	2.809	Sand	S

Macrobenthic communities

Across all OWF benthic grab stations, a total of 114 species were recorded, with *Chaetozone* cf. *christiei* and *Magelona johnsti* being the most commonly encountered species recorded. For the OWF benthic grab stations considered within this memo, the average abundance recorded was 517.5 individuals/m^2. The key species characterising each of these stations and contributing to similarity in infaunal multivariate cluster groups is outlined below.

The species richness (total number of species, S) and diversity (Shannon diversity index, H') at each OWF benthic grab station is presented in Figure 3. Species richness ranged from 4 to 34 species, whilst species diversity ranged from H' = 1.034 to H' = 2.945. This was comparable to the range of species richness and diversity recorded during the Teesside Net Zero subtidal benthic surveys (S = 8 to S = 37; H' = 1.275 to H' = 2.854). Species richness and diversity was highest at the OWF benthic grab station 3C, but was lowest at station 19.

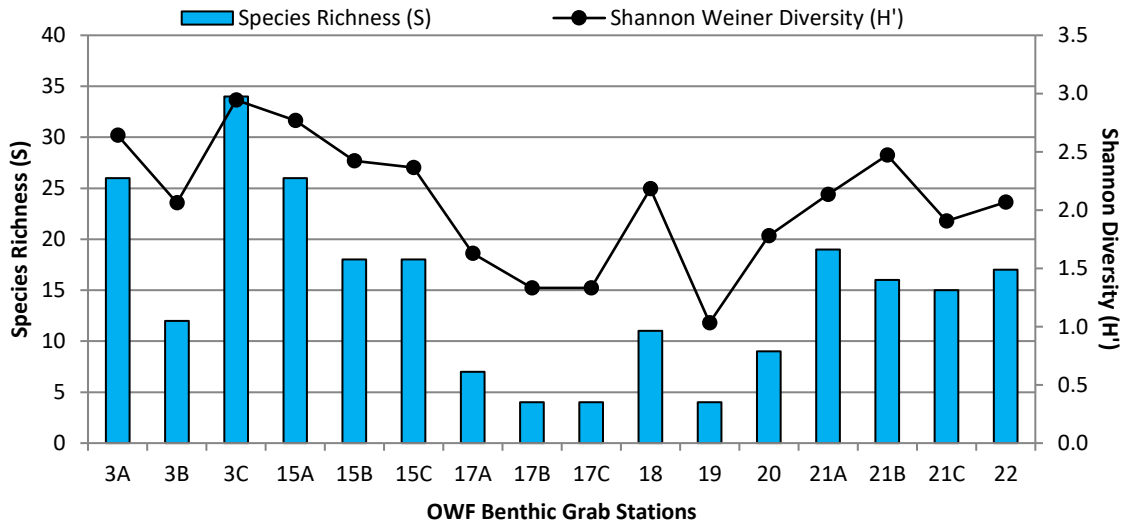


Figure 3. Species richness (S) and Shannon diversity index (H') recorded at each OWF benthic grab station considered within this memo

Priority Species and INNS

The OWF benthic grab surveys recorded a number of individuals and colonies of *Sabellaria spinulosa.* This species forms biogenic reefs which is an Annex 1 habitat under the Habitats Directive, as well as being a priority UK BAP habitat. Of the OWF benthic grab stations considered within this memo, *Sabellaria spinulosa* was recorded at station 21C only, with a total of 25 individuals. Overall, the results of the OWF benthic surveys concluded that the abundance of *Sabellaria spinulosa* was not great enough to represent biogenic reef. No other species of conservation importance were found during the OWF benthic survey, all species were considered common to the Teesside area and in UK waters.

Biotope Classifications

Multivariate analysis of the OWF benthic grab stations, was undertaken by Entec UK Ltd to determine the clustering of stations with a similar community composition, and to assign different biotope classifications.

Five discrete groups (A – E) were identified using cluster analysis and a SIMPROF test. Of these, groups A and B were considered as two distinct clusters, representing the majority of the grab samples. Groups C, D, and E correspond to three grab samples and do not include the stations considered within this memo. SIMPER analysis was used to identify the species which contribute to within group similarity, and how these characterise each group. The results of this analysis[1], including which stations (considered in this memo) comprise each group, is presented in Table 2. *Nephtys cirrosa* contributed the highest to the within group similarity of Group A, representing 47.04%. In Group B, both *Chaetozone* cf. *christiei* and *Magelona johnsti* accounted for the highest within group similarity, representing 13.00% and 11.80%, respectively.

Table 2. OWF infaunal multivariate cluster groups and the results of the SIMPER analysis*

Group	Stations	Species	Contribution to Similarity (%)
A	17 (A, B, C), 18, 19, 20	*Nephtys cirrosa*	47.04
		Bathyporeia elegans	16.56
		Echinocardium cordatum	6.29
		Nemertea indet.	5.18
B	3 (A, B, C), 15 (A, B, C), 21 (A, B, C), 22	*Chaetozone* cf. *christiei*	13.00
		Magelona johnsti	11.80
		Bathyporeia elegans	7.11
		Echinocardium cordatum	6.32

*top four species contributing to similarity presented

Each OWF infaunal multivariate cluster group was assigned a biotope classification, based on the composition of the species assemblage at each station and abiotic factors, such as the composition of substrate. Each biotope is based on codes outlined within the EUNIS habitat classification system (EEA, 2012). A description of each biotope is provided in the 'Biotope Descriptions' section, whilst a habitat classification map of each station is presented in Figure 1.

Group A was classified as '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233; SS.SSa.IFiSa.NcirBat), which is synonymous with sediment that has a high content of sand, with little to no fractions of mud ('infralittoral fine sand'). The stations comprising group A (such as 18 and 19) were found in the shallow inshore area which is characterised by moderate to high exposure and sediments possessing a low clay/silt content, characteristic of this biotope. The amphipod *Bathyporeia* sp. and polychaete *Nephtys cirrosa* are typical of this biotope and dominated the abundance of these stations.

In contrast, group B was classified as '*Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand' (A5.242; SS.SSa.IMuSa.FfabMag). This biotope is typically found in less exposed areas compared to the biotope A5.233, 'extending from the extreme lower shore down to more stable circalittoral zone at about 15-20 m' (EEA, 2019). The stations of group B were located in most cases, in slightly deeper waters and were less exposed, exhibiting a higher percentage of silt/clay. Due to the higher content of mud for this biotope, a greater dominance of venerid bivalves is expected.

The two biotopes identified (A5.233 and A5.242) qualify as habitats of principal importance being listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and belong to the UK BAP priority habitat type, 'subtidal sands and gravels'. These are also representative of the Annex I habitat 'sandbanks slightly covered by sea water all the time'. However, these habitats are not a qualifying feature of any nearby designated site.

Biotope Descriptions

A5.233 - Nephtys cirrosa and Bathyporeia spp. in infralittoral sand

MHCBI: SS.SSa.IFiSa.NcirBat

[1] The SIMPER analysis was undertaken for all OWF grab sampling stations, not just those considered within this memo.

Stations: 17 (A, B, C), 18, 19, 20. Depth Range: 0 – 30 m

Descriptions: Characterised by *Nephtys cirrosa* and *Bathyporeia* spp. (and sometimes *Pontocrates* spp.), found from the shallow sublittoral to at least 30 m depth. This biotope occurs within well-sorted medium and fine sands which are subject to physical disturbance, such as wave action. Compared to less disturbed biotopes, the faunal diversity is reduced, consisting of more actively-swimming amphipods.

A5.242 - Fabulina fabula and Magelona mirabilis with venerid bivalves and amphipods in infralittoral compacted fine muddy sand

MHCBI: SS.SSa.IMuSa.FfabMag

Stations: 3 (A, B, C), 15 (A, B, C), 21 (A, B, C), 22. Depth Range: 0 – 20 m

Descriptions: Communities are dominated by venerid bivalves such as *Chamelea gallina* and may be characterised by a prevalence of *Fabulina fabula* and *Magelona mirabilis* or other species of *Magelona (e.g. M. filiformis).* Other taxa which are commonly recorced include: the amphipod *Bathyporeia spp.* and polychaetes such as *Chaetozone setosa, Spiophanes bombyx* and *Nephtys spp..* This biotope is typically found in stable, fine, compacted sands and slightly muddy sands in the infralittoral and littoral fringe.

Discussion

The sediment content of the 2019 Teesside Net Zero subtidal benthic stations in Tees Bay, consisted of predominantly sand, with a generally low mud and gravel content. The classification of these stations was ‘slightly gravelly sand’, ‘slightly gravelly muddy sand’, and ‘sand’. This conforms with the high content of sand recorded in the additional 16 OWF benthic grab samples considered within this memo.

The Teesside Net Zero stations in Tees Bay were classified as either the biotope ‘*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand’ (A5.233; SS.SSa.IFiSa.NcirBat) or ‘*Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand’ (A5.242; SS.SSa.IMuSa.FfabMag). In general, the stations in the shallow inshore area, where the level of exposure is considered to be greater (apparent from the lower sediment content of mud), were determined to be the biotope A5.223. The stations located in slightly deeper waters, where the sediment content of mud was higher and as such the number of venerid bivalves were also, were classified as A5.242. These two biotopes were also recorded at the OWF benthic grab stations considered within this memo, demonstrating the same association between water depth gradients and mud gradients from the shore and the biotope assigned (see Figure 1). It was noted in the OWF benthic survey report that, although small scale spatial variations between grabs were recorded, ‘in terms of the specific macro-faunal assemblage’, these variations were not sufficient to change the biotope classifications (Entec UK Ltd, 2011).

References

Entec UK Limited (2011). Teesside Windfarm Ltd, Teesside Offshore Wind Farm FEPA Monitoring, Benthic Survey Report 2010.

European Environment Agency (EEA). (2012). EUNIS habitat classification. [Online]. Available from: https://eunis.eea.europa.eu/index.jsp [Accessed: 01/12/2020].

European Environment Agency (EEA). (2019). Infralittoral muddy sand. [Online]. Available from: https://eunis.eea.europa.eu/habitats/595 [Accessed: 01/12/2020].

International Maritime Organisation (IMO). Sampling of Dredged Material – Guidelines for the Sampling and Analysis of Dredged Material Intended for Disposal at Sea 2005.

Appendix C - Air Quality Summary Note

AECOM Limited
5th Floor, 2 City Walk
Leeds LS11 9AR
United Kingdom

T: +44 (0)113 391 6800
aecom.com

Project name:
Net Zero Teesside

Project ref:
60559231

To: Natural England
Andy Whitehead
Josh Parker

From:
Richard Lowe, James Riley and Helen Watson

Date:
16th December 2020

Memo

N-Deposition Impacts from the NZT Proposed Development

Introduction

This memo has been prepared to inform Natural England on the proposed impacts associated with nutrient nitrogen deposition (N-Deposition) from the emissions of Nitrogen Dioxide (NO_2) and Ammonia (NH_3) from the Net Zero Teesside (NZT) Proposed Development. It summarises the discussions held on N-Deposition during a meeting held with Natural England on 14th December 2020.

Initial assessments carried out for the PEI Report, indicated that the impacts associated with NO_2 and NH_3 emissions from the Carbon Capture Unit (CCU) absorber stack could have the potential to result in detrimental impacts on the Internationally Designated Teesmouth and Cleveland Coast Special Protection Area and Ramsar (Teesmouth SPA), which lies adjacent to the northeast boundary of the Proposed Development.

The original assessment was based on three power and carbon capture units (or trains), however only one is now proposed. Therefore, the predicted impacts have reduced as a result, although it is considered that the impacts at the closest part of the SPA are unlikely to be below the 1% of the Critical Load threshold used by Natural England and the Environment Agency to demonstrate insignificance.

Assessment Process

The following are relevant key extracts from Natural England guidance for the assessment[1]:

- Paragraph 5.26 states that '*An exceedance* [of the critical level or load] *alone is insufficient to determine the acceptability (or otherwise) of a project'.* So, the fact that the critical level for oxides of nitrogen (NO_x) or critical load for nitrogen are already exceeded is not a legitimate basis to conclude that any further NO_x or nitrogen (no matter how small) will result in an adverse effect;
- Paragraph 4.25 states that '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect'.*

[1] 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Version: June 2018'. http://publications.naturalengland.org.uk/publication/4720542048845824. It is noted that this was initially written for road traffic, but the basic principles quoted apply to all sources.

The APIS website details Critical Loads applicable for each designated European site, which enables the sensitivity of each interest feature present within the site to be assessed. Scrutiny of the website for the Teesmouth SPA identifies that:

- The only species for which APIS suggests adverse effects may occur due to elevated NO_x or nitrogen deposition is the nesting terns and avocets[2]; and
- No species are identified as being adversely affected by changes in SO_2 concentrations or acidification.

At high concentrations, NO_x can be directly toxic to vegetation, but its main importance is as a source of nitrogen, which is then deposited on adjacent habitats[3]. APIS identifies that negative effects of NO_x in the atmosphere (as distinct from its role in nitrogen deposition) are most likely to arise in the presence of equivalent concentrations of sulphur dioxide (SO_2). APIS indicates that background SO_2 concentrations at the Teesmouth SPA are very low (a maximum of 2 µg/m^3) compared to a critical level for SO_2 of 20 µg/m^3. Since the SO_2 concentrations are so low, no synergistic effect with NO_x is expected.

The Teesmouth SPA is designated for breeding tern and avocet, and for passage/ wintering waterfowl and waders. Therefore the direct toxicity effects of NH_3 on vegetation are likely to be less ecologically important to the site than the role of NH_3 in nitrogen deposition. In any event, there is no part of the Teesmouth SPA where total NH_3 concentrations (including from the Proposed Development) are forecast to exceed the 3 µg/m^3 critical level of relevance for the general protection of vegetation.

Sensitivity of the Teesmouth SPA

The ongoing works have identified that the habitat feature within the part of the Teesmouth SPA where the maximum impact occurs, is less sensitive to N-deposition than presented in the PEI Report. At PEI Report stage the most stringent Critical Load Class for N-Deposition impacts was determined from the APIS website[4] to be Coastal Stable Dune Grasslands – acid type, with a Critical Load range of 8 – 10 kg N/ha/yr.

Further consideration of the habitat type present in the area where the highest impacts from the CCU absorber stack are predicted to occur, has identified Coastal Stable Dune Grassland – calcareous type, with a Critical Load range of 10 – 15 kg N/ha/yr, as a more appropriate Critical Load range to apply. The N-Deposition impacts presented in this memo, have therefore been compared to the lower value in this Critical Load range (i.e. 10 kg N/ha/yr).

Project Ecologists have confirmed that the sensitivity of the Teesmouth SPA, in the vicinity of where the highest impacts from the CCU stack emissions occurs, is likely to be low given that some of this area comprises the old slag heaps from the steel works and some of the area is subject to tidal washing.

Dispersion Modelling of Ammonia Emissions

Investigative modelling has been carried out to determine the predicted N-deposition impacts at the Teesmouth SPA. The maximum predicted N-Deposition that occurs anywhere on the SPA represents 3.5% of the lower Critical Load for calcareous dunes.

Isopleths of the impacts associated with the Proposed Development are presented in Appendix A, first showing the isopleths over the wider area, and then zoomed into the habitat areas adjacent to the Proposed Development site. The 1% isopleth line has been coloured red in these figures.

The second isopleth figure shows that the area of peak impact occurs on intertidal mud and sand habitat type and would therefore be subjected to frequent tidal washing. As such, the area of peak impacts would be less sensitive to the effects of nitrogen from depositional sources.

In addition, this area is not used by nesting terns or nesting avocet, but mainly by wintering redshank using the pool(s) at high tide. APIS does not identify wintering redshank (or any of the wintering birds for which the SPA is designated) as being sensitive to nitrogen deposition impacts on their broad habitat.

It is understood from the Natural England meeting on 14th December 2020 that avocet nest at Saltholme Reserve which is approximately 5km southwest from the CCU absorber stack. At this location, the dose due

[2] The SRCL for this SPA hasn't actually been updated to include the avocet feature but their sensitivity can be discovered by looking at other sites designated for the species
[3] For example, the APIS website states that *'It is likely that the strongest effect of emissions of nitrogen oxides across the UK is through their contribution to total nitrogen deposition…'*
http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm
[4] www.apis.ac.uk

to the Proposed Development is forecast to be approximately 0.2% of the relevant Critical Load (20 kgN/ha/yr that for littoral sediment), and total nitrogen deposition is forecast to be below the minimum Critical Load at that location.

The main common tern breeding location is also at Saltholme Reserve, while the little tern colonies are at Crimdon Dene and Seaton Carew. The main habitat type (e.g. the dune system) in this area is calcareous influenced. Therefore, a minimum critical load of 10 kgN/ha/yr is appropriate. At these locations the dose due to the Proposed Development is forecast to be <0.5% of the calcareous dune Critical Load. Moreover, in practice the suitability of an area for nesting terns will be less tied to the specific Critical Load and precise botanical effects and more to do with coarse habitat structure, which is often dictated mainly by direct management. Therefore, the tern interest of this SPA would seem to be of low susceptibility even if the dose due to the Proposed Development exceeded 1% of the Critical Load.

Therefore, the only location where a) the relevant critical load will be exceeded and b) the nitrogen dose due to the Proposed Development is greater than insignificant, is at Coatham Dunes. That location does not support any nitrogen-sensitive SPA birds.

Cumulative Impacts

Further consideration is also required on the issue of cumulative impacts. The Redcar Energy Centre proposed to be built on the land to the west of the NZT plant will also have emissions of NO_2 and NH_3 that will lead to nitrogen deposition on the Teesmouth SPA. The Planning Application for this development is due to be determined imminently and therefore the cumulative impacts will need to be considered in the final NZT ES; in fact, their application should have assessed and included the contribution from NZT as well, based on our published PEI report.

The air assessment that was submitted with the Redcar Energy Centre planning application, indicated that the maximum N-Deposition on the Teesmouth SPA could be up to 16% of the Critical Load, although this peak impact occurs approximately 1km northwest of the area of peak impact associated with the NZT Proposed Development. It is anticipated that the impact from the Redcar Energy Centre at the location of peak impact from NZT will be approximately 4% of the Critical Load. This would therefore lead to an 'in combination' effect of up to 7.5% of the Critical Load, albeit at a location does not support any nitrogen-sensitive SPA birds.

At the common tern breeding location at Saltholme Reserve and the little tern colonies are at Crimdon Dene and Seaton Carew the 'in combination' effects would be significantly lower, with those of the NZT being insignificant.

Nevertheless, consideration needs to be given on how we reconcile the predicted impacts of the Redcar Energy Centre and the NZT Proposed Development in terms of the cumulative assessment.

Issues to Agree with Natural England

As a result of the ongoing work, and in order to finalise assessments for the DCO application, we would like agreement with Natural England on:

- The use of the Critical Load range of 10 – 15 kg N/ha/yr for Coastal Stable Dunes – Calcareous Type to assess impacts at the location of the maximum impact.
- Agreement that the sensitivity of the Teesmouth SPA, in the vicinity of where the highest impacts from the CCU stack emissions occurs, is likely to be low, based on the Natural England acceptance of the Redcar Energy Centre planning application predicted levels of impact.
- The main HRA issue for the SPA is the tern nesting sites, and therefore impacts at other locations in the SPA are less of a concern. Should compliance of the 1% insignificance threshold therefore only apply to these locations?
- We need to consider cumulative impacts with the adjacent Redcar Energy Centre and agree the approach to determining the significance of the cumulative effects. Is it reasonable to assume that these should only be considered at the tern nesting sites, based on the above? This is an important point for us to agree with Natural England as we envisage that both the Applicant and Natural England will jointly be asked questions on the significance of cumulative effects in the NZT DCO examination.

Appendix A

Figure 1: Isopleths of N-Deposition as a Percentage of the Critical Load for a 110m Stack (no reheat, ammonia emission of 1mg/Nm^3)

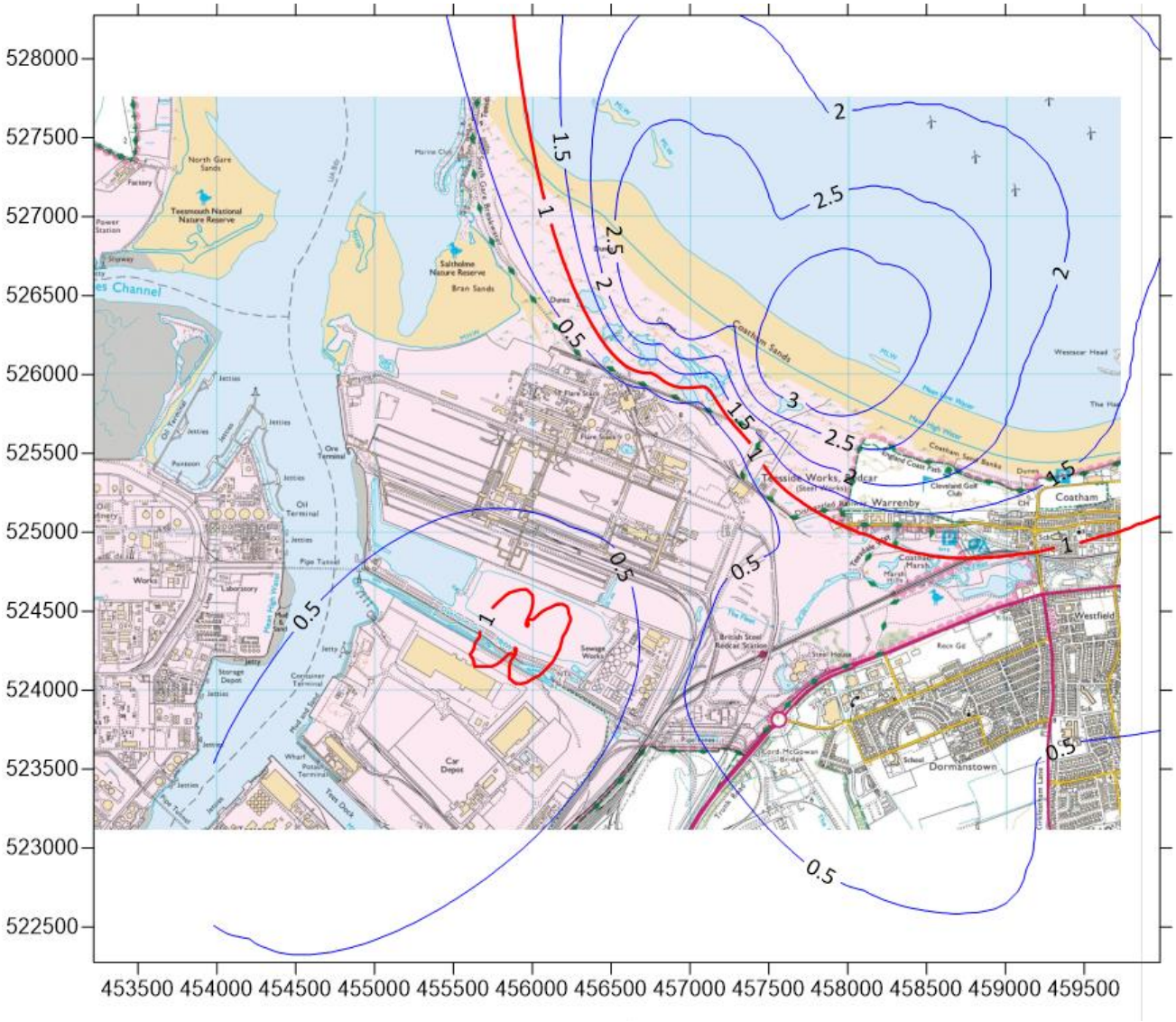


Figure 2: Isopleths of N-Deposition as a Percentage of the Critical Load for a 110m Stack (no reheat, ammonia emission of 1mg/Nm^3) Zoomed in on Habitat Types