South Industrial Zone

Supplementary Environmental Statement
September 2020

Volume 2 – Supplementary Environmental Statement

South Industrial Zone Supplementary Environmental Statement (September 2020)

Submitted to Redcar and Cleveland Borough Council (application ref. R/2020/0357/OOM)

South Tees Development Corporation

LICHFIELDS

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Contents

1.0 Introduction and Background

Purpose of Document

1.1 This Supplementary Environmental Statement ('SES') (September 2020) has been submitted on behalf of the South Tees Development Corporation ('STDC') to provide additional information to the Environmental Statement ('the ES', July 2020) for the proposed development of up to 418,000sqm (gross) of general industry and storage or distribution facilities with office accommodation, HGV and car parking and associated infrastructure at the South Industrial Zone in South Tees ('the site'). The planning application reference is R/2020/0357/OOM. The site falls within the administrative boundary of Redcar and Cleveland Brough Council ('RCBC').

1.2 The purpose of this SES is to set out the results of additional environmental technical surveys that were ongoing at the point the planning application was submitted to RCBC and to respond to queries and requests for additional information made throughout the application's statutory consultation period. The submission comprises 'further information' as defined by Regulation 25 of the Town and Country Planning (Environmental Impact Assessment ('EIA')) Regulations 2017 and the Town and Country Planning and Infrastructure Planning (EIA) Regulations which came into force on 01 October 2018 (hereafter referred to as 'the EIA Regulations'). The Town and Country Planning (Development Management Procedure, Listed Buildings and Environmental Impact Assessment) (England) (Coronavirus) (Amendment) Regulations came into force on 14 May 2020 (hereafter referred to as 'the Coronavirus Regulations') and Regulation 17 provides an update to Regulation 25 of the EIA Regulations.

Structure of Document

1.3 This SES is structured as follows:

1 **Section 1.0** (this section): sets out the context to the SES and the need, scope and structure of the technical assessments. It also provides information on technical methodologies and the availability of the document and updates, were relevant to the EIA process. It covers those matters addressed in Chapter A of the ES (July 2020);

2 **Section 2.0**: sets out information on the site, the development and the request for further information to inform the EIA;

3 **Sections 3.0 to 6.0**: include the results of further technical assessments;

4 **Section 7.0**: provides an update to the mitigation, monitoring and compensation measures and the assessment of cumulative effects;

5 **Section 8.0**: includes a summary and conclusion to the SES;

6 **Section 9.0**: includes a list of abbreviations; and

7 **Section 10.0**: provides references.

1.4 This SES is also supported by technical appendices and a standalone Updated Non-Technical Summary ('NTS').

ES (July 2020)

1.5 The ES (July 2020) accompanied an outline planning application submitted to RCBC (planning application reference number. R/2020/0357/OOM), which was validated on 10 July 2020. The description of the development for the application is as follows:

"Outline planning application for demolition of existing structures on site and the development of up to 418,000sqm (gross) of general industry (Use Class B2) and storage or distribution facilities (Use Class B8) with office accommodation (Use Class B1), HGV and car parking and associated infrastructure works. All matters reserved other than access"

1.6 The proposals are supported by a series of development parameters, including those relating to development zones, maximum building parameters and access. The EIA has been undertaken based on these parameters.

1.7 All matters other than access into the site remain reserved for consideration by RCBC at a later date and subsequent reserved matters applications will be required to be submitted to the Council to bring forward development in accordance with the defined parameters. These applications will be submitted on a phased basis once future occupiers for the site are known.

1.8 The application is currently pending a decision by STDC. The statutory consultation period for the application finished on 28 August 2020.

SES (September 2020)

1.9 Since the submission of the planning application in July 2020, the additional environmental surveys that were ongoing at the point of submission have now been completed. These related to transport and biodiversity and ecology and the information required was set out within Chapter O (Mitigation, Monitoring and Compensation) of the ES (July 2020). The applicant and the EIA project team have also reviewed the comments made by consultees and third parties during the application's statutory consultation period and have sought to address the comments and matters raised.

1.10 The applicant is also taking the opportunity to address planning-related matters and a standalone Consultation Response Document is being produced in respect of these. This is separate to the EIA process as it responds to matters that are not of relevance to the EIA.

1.11 As a result of this review process, one additional parameter has been added to the development to retain the road and rail corridor that is located within the eastern part of the site. No other amendments have been made to the proposed development and the existing parameters as set out within Chapter B of the ES (July 2020) remain the same.

1.12 This SES (September 2020) is an addendum to the ES (July 2020). Its purpose is to identify, where relevant, the extent of any additional or amended environmental effects not previously identified by the ES (July 2020) which arise from the requirement to consider additional survey results and statutory consultee comments. To the extent that they exist, this SES (September 2020) also describes any additional or amended measures proposed to prevent, reduce and, where possible, offset any significant or amended adverse effects on the environment.

Scope and Structure of the ES and SES

Environmental Statement

1.13 The findings of the EIA were set out in the ES (July 2020) which comprised three volumes:

- Volume 1: Non-Technical Summary;
- Volume 2: Main Technical Assessments; and
- Volume 3: Figures and Appendices to the Technical Assessments.

1.14 The scope of the EIA covered the following matters:

1 Transport;

2 Biodiversity and Ecology;

3 Noise and Vibration;

4 Air Quality;

5 Waste Management and Flooding;

6 Ground Conditions and Remediation;

7 Socio-economic;

8 Waste and Materials Management;

9 Climate Change;

10 Landscape and Visual Impact; and

11 Below Ground Heritage.

1.15 The ES (July 2020) was informally scoped with RCBC and statutory consultees prior to its submission.

Supplementary Environmental Statement

1.16 The scope and content of this SES (September 2020) has been drawn from ongoing technical surveys at the point at which the planning application was submitted to the Council and on those comments received during the statutory consultation period of the application.

1.17 Following analysis, it has been determined that additional information is required as part of this SES in respect of the following technical matters:

1 Transport (updating Chapter C of the original ES);

2 Biodiversity and Ecology (updating Chapter D of the original ES);

3 Air Quality (updating Chapter F of the original ES); and

4 Below Ground Heritage (updating Chapter M of the original ES).

1.18 These technical matters are set out in sections 3.0 to 6.0 of this SES (September 2020). Where additional information is supported by new or updated technical appendices this is clarified in each technical section and these documents are appended to the SES (September 2020).

1.19 There is not a requirement to submit additional information in relation to other environmental matters. These matters remain unchanged from the ES (July 2020) and relate to: noise and vibration; water management and flooding; waste and materials management; ground conditions and remediation; socio-economic; climate change; and landscape and visual impact.

1.20 Separate to the technical matters, additional information is also submitted in respect of the following matters:

1 Cumulative Effects (updating Chapter N of the original ES); and

2 Mitigation, Monitoring and Compensation (updating Chapter O of the original ES).

Cumulative Effects

1.21 The ES (July 2020) contained an assessment of the direct and indirect cumulative impacts of the proposed development on surrounding schemes and sensitive receptors, and on the interrelationship with each technical assessment. A summary of the cumulative sites that were included in the original ES was provided at Paragraph A3.10 and associated Table A3.2 of the July 2020 ES.

1.22 Since the submission of the July 2020 ES three of the applications have been approved. In addition, one additional scheme has been identified. This is the proposed development by STDC at the Metals Recovery Area, Teesside (application reference. R/2020/0465/FFM). This application boundary falls within the site boundary for this planning application. This additional scheme has therefore been added to the cumulative assessment scope and has been considered in a latter section of this SES. Details of the scheme are set out in Table 1.1 below. An updated scope of the cumulative assessment is provided at Appendix 1.1.

Table 1.1 Cumulative Schemes

Address	Reference Number	Current Known Status	Description of Development
Materials Handling Area, South Bank	R/2020/0465/FFM	Awaiting determination	Demolition of existing buildings/structures and engineering operations associated with ground remediation and preparation of land for development.

1.23 Cumulative assessment matters are discussed further in Section 7.0 of this SES (September 2020).

Structure of the SES

1.24 The SES is also supported by a separate Updated Non-Technical Summary ('NTS'). This is presented as a standalone document for ease of reference and supersedes Volume 1 of the July 2020 ES.

1.25 The overall structure of this submission is the same as the ES (July 2020):

- Volume 1: Non-Technical Summary;
- Volume 2: Main Technical Assessments; and
- Volume 3: Figures and Appendices to the Technical Assessments.

Structure of Technical Assessments

1.26 Each of the technical matters scoped in to this SES (September 2020), apart from biodiversity and ecology, adopt the following structure:

1 About the Author;
2 Response to Consultee Comment;
3 Updated Policy Context;
4 Updated Assessment Methodology and Significance Criteria;
5 Updated Baseline Conditions;
6 Updated Potential Effects;
7 Additional Mitigation and Monitoring Measures;
8 Updated Residual Effects; and
9 Summary and Conclusions.

1.27 The Biodiversity and Ecology section adopts the same structure as that used within the ES (July 2020). This is in line with the most recent Chartered Institute of Ecology and Environmental Management ('CIEEM') guidance.

The EIA Team

EIA Co-ordination

1.28 This SES (September 2020) has been co-ordinated by Lichfields, which is accredited with an Institute of Environmental Management and Assessment ('IEMA') EIA 'Quality Mark'.

1.29 Katie Brown, a Practitioner Member of IEMA has co-ordinated the SES (September 2020); she also co-ordinated the original ES that was submitted in July 2020. Liz Evans, also a Practitioner member of IEMA with over 12 years' experience in project managing EIA projects, has reviewed the submission in accordance with IEMA guidelines and the EIA Regulations. Both are also accredited members of the Royal Town Planning Institute.

Competency of the Team

1.30 Regulation 18(5) (a) of the EIA Regulations requires the developer to ensure the ES is prepared by competent experts.

1.31 A signed statement from the applicant was provided in the ES (July 2020) confirming that the ES had been prepared by persons with sufficient expertise to ensure the completeness and quality of the ES (July 2020). The team which has prepared this SES (September 2020) remains unchanged from that which prepared the ES, thus meeting the requirements of Regulation 18 (5) (a) of the EIA Regulations.

EIA, Significance, Methodology, Processes and Difficulties

1.32 The effects of individual environmental matters will be classified by reference to a common list of EIA significance criteria, comprising: -

1 Substantial[1] beneficial

2 Moderate[2] beneficial

3 Minor[3] beneficial

4 Neutral/negligible

5 $Minor_3$ adverse

6 $Moderate_2$ adverse

7 $Substantial_1$ adverse

1.33 These criteria were used within the ES (July 2020).

1.34 Amendments to any methodologies and processes, and any difficulties associated with the supplementary environmental information provided in this SES (September 2020) are stated, where relevant, within the technical sections (sections 3.0 to 7.0) of this document. The amendments should be read in conjunction with the information provided in the ES (July 2020).

[1] Substantial - considerable effects (by extent, duration or magnitude) or of more than local significance or breaching identified standards or policy

[2] Moderate - limited effects which may be considered significant

[3] Minor - slight, very short or highly localised effects

1.35 There have been no difficulties in preparing this SES (September 2020) that were not previously identified.

Availability of Document

1.36 Given the current COVID 19 pandemic, in accordance with the 'EIA Regulations 2017 (as amended)' as amended by Part 4 Regulation 17 of The Town and Country Planning (Development Management Procedure, Listed Buildings and Environmental Impact Assessment) (England) (Coronavirus) (Amendment) Regulations 2020, this SES (September 2020) and information on the planning application and ES (July 2020) can be viewed on RCBC's website using the following information:

- Website: https://www.redcar-cleveland.gov.uk
- Planning application reference: R/2020/0357/OOM.

1.37 It will not be possible at this time to view this information at RCBC's offices. However, should you require a paper or electronic (CD Rom) copy of the full SES (September 2020), please contact RCBC. The applicant will liaise with RCBC and may be able to provide a CD or paper copy. Reasonable copying and printing charges will be applied to the paper copy and a CD is free of charge.

1.38 All comments should be made to RCBC.

2.0 The Site, Scheme Proposals and Further Information

The Site, Surroundings, Sensitive Receptors and Background to the Development

2.1 No changes are required to Section B2.0 of the July 2020 ES, which describes the site location and references the Site Location Plan at Appendix A1.

2.2 There have also been no changes to the site or its surroundings discussed within Section B3.0 of the July 2020 ES, however, additional potential sensitive receptors have been identified as a result of additional environmental surveys from that described within the ES (July 2020). These relate to air quality and transport and include:

- Residential properties between South Bank and Middlesbrough; and
- Road users and driver delay the wider strategic road network in Middlesbrough.

2.3 The summary list of sensitive receptors that is provided at Paragraph B3.16 of the July 2020 ES should therefore be amended to also include the above receptors.

2.4 An updated sensitive receptors map is included at Appendix 2.1 of this SES (September 2020), which supersedes the sensitive receptors plan provided at Appendix B3 of the July 2020 ES.

2.5 The background to the development as summarised within Section B4.0 of the July 2020 ES remains unchanged.

Amendments to the Proposed Development

2.6 One additional development parameter is proposed for the proposed development. This is the retention of the existing road and rail corridor in the east of the site and it responds to a comment made by a third party during the statutory consultation period. The Parameters Plan and Indicative Masterplans have been updated accordingly and these are included at Appendix 2.2 of this SES (September 2020). No other changes have been made to the development and the detailed description of development provided within Section B5.0 of the ES (July 2020) remains the same.

2.7 Two new access drawings are also provided with this SES (September 2020). These are more detailed versions of those provided in Appendix B of the ES (July 2020) and supersede these versions.

2.8 There are no amendments to the construction methodology included within the ES (July 2020) (see Chapter B, Section B6.0).

Policy Context

2.9 To the extent that it is relevant to the process of EIA, the ES (July 2020) includes a brief summary of planning policy to establish the context in which the proposed development has been brought forward. It includes reference to the National Planning Policy Framework ('NPPF, 2019), RCBC's Local Plan (May 2018) and relevant technical policies.

2.10 Since the submission of the ES (July 2020) there have been no policy updates and the information provided in Section B7.0 of the original submission remains the same.

Consideration of Alternatives and Design Evolution

2.11 No further alternative development options or design evolution has been undertaken that would require consideration. No changes or additional information is therefore proposed to those discussed within Section B8.0 of the July 2020 ES.

Consultee Comments and Requests for Clarification and Further Information

2.12 The statutory consultation period associated with the planning application ended on 28th August 2020. Table 2.1 below provides a summary of the consultee comments received during this period and sets out where there has been a need to provide further clarification or environmental information of relevance to the EIA.

2.13 Where there has been a need to submit further information, this is provided in the technical sections of this SES (sections 3.0 to 6.0).

2.14 It should be noted that there has been no formal request for "further information" from RCBC under Regulation 25 of the EIA Regulations and the submission of this SES has been done on a voluntary basis. Notwithstanding this, the applicant and the project team have engaged with Officers at the Council and with statutory consultees to understand the nature of the requests and the scope of the further work required. Reference is made to these discussions, where relevant, in Table 2.1 below and in the associated technical sections.

Table 2.1 Summary of Consultation Comments and Relevance to SES (September 2020)

Consultee	Summary of Comment	Further information / clarification required in SES?	Summary Response
Marine Management Organisation	Any works within the marine area require a licence from the Marine Management Organisation. It is down to the applicant themselves to take the necessary steps to ascertain whether their works will fall below the Mean High Water Springs mark.	No	No works are being undertaken to the River Tees as part of the proposed development.
Northern Powergrid	Provides plans which show the location of known Northern Powergrid apparatus in the area. The ground cover must not be altered either above the cables or below overhead lines. No trees should be planted within 3m of existing underground cables or 10m of overhead lines. All apparatus is legally covered by a wayleaves agreement, lease or deed or alternatively protected under the Electricity Act 1989. Should any alterations / diversions be necessary to allow the works to be carried out, costs can be provided to the applicant.	No	Once the details of future occupiers of the proposed development are known and reserved matters applications are being prepared these comments will be considered and the buildings designed accordingly. This outline planning application seeks approval for a set of maximum development parameters.

Consultee	Summary of Comment	Further information / clarification required in SES?	Summary Response
Natural England	No objection, subject to the appropriate mitigation being secured: 1. A condition to ensure further Habitats Regulations Assessments are undertaken for any reserve matters applications that come forwards once further detail on construction methodology and likely development is known. 2. A Construction Environmental Management Plan ('CEMP') should be prepared in advance of any works on site commencing as described in the Habitats Regulations Assessment document. All mitigation measures described in the Habitats Regulation Assessment should be implemented in full.	No	Further information on the conditions provided within the separate Consultation Response Document.
Ramblers Area Footpath Secretary	No objection and no comments raised.	No	N/A
Public Rights of Way	The Teesdale Way historic trail runs along the opposite side of the railway line along the southern boundary of the site. This should not be affected by the development proposals and therefore there are no PROW objections.	No	N/A
Natural Heritage Manager	No objection and no comments raised.	No	N/A
Lead Local Flood Authority	No objection. Comments on the compliance with planning policy and on the wording of a planning condition if alterations are to be carried out on Holme Beck and Knitting Wife Beck.	No	N/A
Conversation & Listed Building Conservation	No objection. The proposal to mitigate the loss of relatively low significance industrial archaeology by recording features uncovered during ground work and photogrammetric recording of remaining above ground structures is considered to be sufficient.	No	N/A – noting that the response is supportive of the approach used within the ES (July 2020).
Middlesbrough Borough Council	No objection. Comments received on the survey area. The Highways Officers have advised that any modelling for the development should be assessed within Middlesbrough Council's strategic Aimsun model to provide an assessment of the potential impact of the A66 and the Trunk Road.	Yes	See Sections 3.0 and 5.0 of this SES (September 2020)

Consultee	Summary of Comment	Further information / clarification required in SES?	Summary Response
Northumbrian Water ('NW')	No objection. Requests a condition requiring a detailed scheme for the disposal of foul and surface water from the development prior to the commencement of development. Identifies a number of assets across the boundary of the site that may be affected by the proposed development. NW do not permit a building over or close to apparatus.	No	Comments are addressed within a separate Consultation Response Document.
Highways England ('HE')	Recommends that permission not be granted for a certain period until further assessments have been undertaken. The applicant and its technical team have engaged with HE to understand the nature of its comments and its requests for clarification and further information.	Yes	See Section 3.0 of this SES (September 2020).
Cleveland Police	No objection. Recommends contact is made for any advice and guidance relating to designing out opportunities for crime to occur in the future.	No	N/A
Lead Local Flood Authority	No objection. Confirms the ES (July 2020) takes into account climate change and given the predicted sea level rise it would be appropriate to restrict any development to a minimum ground floor level of 5.79m AOD. Suggests planning conditions to require the submission of a surface water drainage scheme and surface water management plan.	No	N/A – noting that the response is supportive of the approach taken in the ES (July 2020). Matters relating to conditions are addressed in the separate Consultation Response Document.
Business Growth	Support the planning application and the proposed development. RCBC is keen to maximise the local context in terms of local employment opportunities and supplier opportunities. Request discussions on how this can be maximised through training programmes.	No	Matters relating to planning obligations are addressed in the Consultation Response Document.
Stockton Borough Council	No objection and no comments.	No	N/A
North East Archaeological Research Ltd	Supports the proposed development and agrees with the recommendations in the ES (July 2020), except for the remains of the blast furnaces from the South Bank Iron Works.	Yes	Matters are addressed in Section 6.0 of this SES (September 2020).

Consultee	Summary of Comment	Further information / clarification required in SES?	Summary Response
	Further information required on the conclusion on pre-historic remains. There should be appropriate recording of the foundations of identified heritage assets of local / regional importance, and of 20th century structures. There should be some attempt to assess deeply buried layers of prehistoric interest, and thereafter the archaeological monitoring of deep excavations in areas where any deposits of pre-historic interest may survive. A condition requiring a written scheme of investigation for archaeological work.		
Network Rail	No objection. Provides a number of comments on its assets and the construction and operation of the proposed development.	No	N/A
Engineering Team, Highways (RCBC)	No objection regarding access arrangements providing the roundabout to the west being newly created.	No	N/A
Environmental Protection (RCBC) Air Quality	No objection. The ES (July 2020) acknowledges sensitive receptors defined as properties, schools and hospitals but does not include nearby commercial operations. Suggests conditions requiring a CEMP and the control of proposed mitigation measures.	Yes	See Section 5.0 of this SES (September 2020).
Environmental Protection (RCBC) Noise	No objection. Recognises that it is an outline planning application and the design of future occupiers is unknown. This will be determined at the detailed planning stage. States there has been no consideration within the assessment for nearby commercial operators. Proposes conditions requiring a CEMO and a further noise assessment.	No	Clarification on these matters is provided in the separate Consultation Response Document. The same has been approach taken to sensitive receptors as with air quality (see section 5.0 of this SES (July 2020).
Environmental Protection (RCBC) Contamination	No objection. Satisfied that the information submitted in the ES (July 2020) covers the requirement of a standard contamination planning condition. Suggests further investigations are required, including: • Survey of asbestos; • Monitoring and assessment of ground	No	Additional surveys are ongoing and will be submitted at the reserved matters stage of the planning process.

Consultee	Summary of Comment	Further information / clarification required in SES?	Summary Response
	gas regime across the site; • Assessment of soil quality with regards to potential contaminants of concern in specific areas where data is limited (i.e. the Metal's Recovery Area); • Assessment of groundwater quality; and • Assessment of geotechnical properties of the underlying ground to inform foundations and infrastructure design. Proposes a condition requiring a CEMP.		
Environment Agency ('EA')	A formal consultation response is yet to be received, however the applicant and its technical team have had a conference call with the EA to discuss the proposed development. Clarity was sought on the proposed compensation measures and how they would be secured through the grant of planning permission.	Yes	See Section 4.0 of this SES (September 2020).
British Steel	Request that existing access arrangements through the site be retained in order for its business to operate in its current form.	No	No requirement for information within this SES (September 2020), however the planning drawings have been updated accordingly.
MGT Teesside Limited	Supportive of the proposed development and requests consideration is given to efficient ways for heat and power to be provided to end users of the development.	No	N/A

3.0 Transport

(ES Chapter C)

3.1 This section of the SES has been prepared by Arup on behalf of STDC. It sets out the results of additional transport surveys and provides new and updated information in order to address consultee comments, where necessary and relevant to the EIA. It identifies any new or altered significant effects which could arise as a result of the additional surveys and comments received, from that presented within Chapter C of the ES (July 2020). Where the assessment has not changed it is referenced accordingly.

3.2 This section of the SES is supported by the following new or updated appendices:

1 **Appendix 3.1**: Transport Assessment ('TA') Addendum.

About the Author

3.3 The author of this Chapter is a Chartered Transport Planning Professional ('CTPP') with over 17 years' experience in undertaking transport assessments for Environmental Statements.

3.4 This technical assessment has been reviewed by an Associate Director at Arup who is a Chartered Engineer (CEng) and Chartered Environmentalist (CEnv) with 30 years of experience.

Response to Consultee Comments

3.5 Following the submission of the TA for planning application R/2020/0357/OOM, feedback was received from Highways England ('HE') and the neighbouring local authority Middlesbrough Council ('MC') requesting additional assessment of the transport network. The areas of additional assessment were as follows:

- MC requested that development trips be run through the Middlesbrough Transport Model which is maintained by Fore Consulting;
- HE requested further details on the distribution of traffic, expanding the distribution and assignment to the west to include the Strategic Road Network (SRN) in that direction. Additional information on traffic distribution is provided in the separate TA Addendum; and
- HE requested that the impact on the Greystones Roundabout be assessed.

3.6 The TA Addendum (Appendix 3.1 of this SES (September 2020)) provides additional analysis to address these requests. With regards to the environmental assessment, the additional scope provides the opportunity to widen the area covered by the assessment of driver and bus user delay to include the Middlesbrough area that is included within the Middlesbrough Transport Model. Effects on severance, amenity and safety in the extended study area have not been assessed as the additional assessment does not provide the necessary information to enable an informed assessment of effects to be undertaken. Analysis on these aspects remains as per the results set out within the ES (July 2020).

Updated Policy Context

3.7 There has been no update to the information provided within Section C2.0 of the July 2020 ES (July 2020).

Updated Assessment Methodology and Significance Criteria

3.8 The methodology and significance criteria are the same as those outlined in the ES (July 2020) (see Section C3.0). In terms of significance the transport assessment looks at the magnitude of change and the sensitivity of receptors. It should be noted that, as with the original ES (July 2020), moderate and substantial effects are considered to be 'significant'.

3.9 Committed developments are included in the Middlesbrough Transport Model and therefore cumulative effects have been accounted for in the main assessment. This includes the additional cumulative assessment site identified in Table 1.1.

3.10 In addition to the Middlesbrough Transport Model, a LinSig model of the Greystones roundabout has been developed to inform the assessment of driver delay through the junction.

3.11 The assumptions and limitations are the same as those outlined in the ES (July 2020) (see Paragraphs C3.15 to C3.18).

Updated Baseline Conditions

Existing Baseline Conditions

3.12 There has been no update to the information provided within Section C4.0 of the July 2020 ES. It should be noted, however, that the study area for the assessment of driver delay has been extended to incorporate the Middlesbrough area covered by the Middlesbrough Transport Model.

3.13 The Middlesbrough Transport Model is divided into several subnetworks. Subnetwork 2 covers the A171 Cargo Fleet Lane corridor from the A66 Cargo Fleet Lane roundabout in the north to the A171 Cargo Fleet Lane / B1380 High Street / Sunnyfield roundabout in the south. This is the area closest to the South Tees development and is the focus of the additional assessment. However, the assessment also covers subnetwork 1 – Central Middlesbrough and subnetwork 4 – Ormesby Road from the A1085 Longlands Road to the B1380 Ladgate Lane.

Receptor Sensitivity

3.14 The receptors in the additional assessment of transport effects are the junctions that will be used by car and freight drivers in the Future Baseline. The sensitivity of the additional receptors covered by the Middlesbrough Transport Model and the assessment of Greystones Roundabout is summarised in Table 3.1; this should be read alongside the receptors sensitivity table at Table C4.2 as the table below supplements rather than supersedes it

Table 3.1 Receptor Sensitivity (to be read alongside Table C4.2 of the July 2020 ES)

Link	Sensitivity	Reason
Greystones Roundabout	High	Junction on the SRN
Riverside Park Road / Ironmasters Way	Medium	Junction on a route which provides access to Riverside Park Industrial Estate
Newport Interchange	High	Interchange junction of A1032 and A66
Hartington Interchange	High	Interchange junction of A66 and B1272 – provides access into Middlesbrough town centre
West Terrace / Cromwell Street	Low	Minor access route / residential area

A66 / Borough Road	High	Junction provides access into Middlesbrough town centre via Borough Road
A171 Cargo Fleet Lane / B1380 High Street / A171 Sunnyfield	Medium	A171 is a main distributor route through Middlesbrough
A171 Cargo Fleet Lane / A1085 Longlands Road	Medium	A171 is a main distributor route through Middlesbrough
A171 Cargo Fleet Lane / Cranmore Road	Medium	A171 is a main distributor route through Middlesbrough
A66 / A171 Cargo Fleet Lane	High	Interchange junction of A66 and A171
A171 Cargo Fleet Lane / College Road	Medium	A171 is a main distributor route through Middlesbrough
A171 Cargo Fleet Lane / South Bank Road	Medium	A171 is a main distributor route through Middlesbrough
Ormesby Road / A1085 Longlands Road / Kings Road	Medium	A085 is a main distributor route and provides east-west connections between Middlesbrough and Redcar and Cleveland

Future Baseline Conditions

3.15 There has been no update to the information provided within Paragraphs C4.11 and C4.12 of the ES (July 2020).

Updated Potential Effects

Embedded Mitigation

3.16 The ES (July 2020) set out details of embedded mitigation, relevant to transport, at Paragraphs C5.1 and C5.2. No changes are proposed to this and no additional embedded mitigation measures are proposed as part of this SES (September 2020).

During Construction

3.17 This is an outline planning application and the end users of the development site, and therefore specifics of construction, are not known at the time of writing. As such, construction traffic has not been included in the assessment and no changes are proposed to Paragraphs C5.3 to C5.5 of the July 2020 ES.

During Operation

3.18 The additional assessment considers driver and bus user delay on the network covered by the Middlesbrough Transport Model and the assessment of the Greystones roundabout. No changes are proposed to the description of other potential effects, including severance, pedestrian and cyclist amenity or accidents and safety.

3.19 To determine the significance of driver and bus user delay, values of delay have been extracted from the model results.

3.20 Table 3.2 sets out the degree of change in delay forecast at each of the key junctions with the addition of development traffic. A copy of the results on which this is based is contained within the TA Addendum (Appendix 3.1). This table should be read alongside Table C5.3 of the ES (July 2020).

Table 3.2 Average Driver Delay (seconds) During Operation (to be read alongside Table C5.3 of the ES (July 2020)

Location	Receptor Sensitivity	Description of potential effect	Magnitude of change	Effect significance
Greystones Roundabout	High	Greatest increase in delay of 3 seconds in the AM peak. No material impact in PM peak.	Negligible	Minor adverse
Riverside Park Road / Ironmasters Way	Medium	Greatest increase in delay of 2 seconds in the AM peak, and 3 seconds in the PM peak.	Negligible	Minor adverse
Newport Interchange	High	Greatest increase in delay of 5 seconds in the AM peak, and 1 minute in the PM peak on the A66 SB off-slip.	Moderate	Moderate adverse
Hartington Interchange	High	Greatest increase in delay of 19 seconds in the AM peak, and 2 seconds in the PM peak.	Minor	Moderate adverse
West Terrace / Cromwell Street	Low	Greatest increase in delay of 6 seconds in the AM peak, and 2 seconds in the PM peak.	Minor	Minor adverse
A66 / Borough Road	High	Greatest increase in delay of 31 seconds in the AM peak, and PM peak.	Minor	Moderate adverse
A171 Cargo Fleet Lane / B1380 High Street / A171 Sunnyfield	Medium	Greatest increase in delay of 2 seconds in the AM peak, and 5 seconds in the PM peak.	Negligible	Minor adverse
A171 Cargo Fleet Lane / A1085 Longlands Road	Medium	Greatest increase in delay of 1 minute in the AM peak, and 1min16 seconds in the PM peak.	Moderate	Moderate adverse
A171 Cargo Fleet Lane / Cranmore Road	Medium	Greatest increase in delay of 1 minute in the AM peak, and 2 minutes in the PM peak.	Moderate	Moderate adverse
A66 / A171 Cargo Fleet Lane	High	Greatest increase in delay of 1 minute in the AM peak, and 3 minutes in the PM peak.	Moderate	Moderate adverse
A171 Cargo Fleet Lane / College Road	Medium	Greatest increase in delay of 6 minutes in the AM peak, and 9 minutes in the PM peak due to blocking back from the upstream junction.	Moderate	Moderate adverse
A171 Cargo Fleet Lane / South Bank Road	Medium	Greatest increase in delay of 3 seconds in the AM peak, and 34 seconds in the PM peak.	Minor	Minor adverse
Ormesby Road / A1085 Longlands Road / Kings Road	Medium	Greatest increase in delay of 6 seconds in the AM peak, and 8 seconds in the PM peak.	Negligible	Minor adverse

3.21 The table shows that the proposed development could have a significant moderate adverse (and therefore significant in EIA terms) effect on driver delay at seven junctions within the Middlesbrough area. This is based on a worst-case scenario assessment of the development

traffic without any mitigation implemented. This overall moderate adverse effect reflects the findings of the July 2020 ES as discussed at Paragraph C5.13.

Additional Mitigation and Monitoring Measures

During Construction

3.22 No updates are required to the information provided within Paragraph C6.1 of the ES (July 2020) which confirms that mitigation measures over and above the requirement for a CTMP have not been identified at this stage.

During Operation

3.23 The additional assessment presented above identifies significant effects at locations within the Middlesbrough area. In order to address these effects no additional or amended mitigation measures are required to the information provided within the ES (July 2020) at Paragraphs C6.2 to C6.8. These outline that mitigation will include:

- The development of a Transport Strategy for the STDC Regeneration Masterplan which is expected to include a Car Parking Management Plan, Servicing Management Plan and other Travel Planning measures. The Strategy will include a delivery plan of measures outlining when infrastructure is required to minimise the impact of the development on the surrounding transport networks;
- The potential for traffic to travel through the site on the internal road network and use the Steel House roundabout access located at the eastern extent of the site. This will reduce traffic through the Tees Dock Road junction and minimise the impact at the A66/Tees Dock Road junction.

3.24 There is also the potential for the quayside to be developed providing the opportunity for freight movement by sea. This would reduce freight movements in and out of the site via the highway network. However, for the purpose of the assessment, it has been assumed that all freight traffic travels by road. Chapter A of the ES (July 2020) provided details of this separate application.

Updated Residual Effects

During Construction

3.25 There has been no update to the information provided within the ES (see Section C7.0 of the July 2020 ES).

During Operation

3.26 The additional residual effects of the proposed development are summarised in Table 3.3, which should be read alongside Table C7.1 of the July 2020 ES. In EIA terms, it is not expected that any residual effects will be significant, which is also consistent with the residual effects presented in the July 2020 ES.

Table 3.3: Summary of Residual Effects (During Operation) (to be read alongside Table C7.1 of the July 2020 ES)

Receptor	Potential effect	Mitigation	Residual Effect
Newport Interchange	Moderate adverse	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of	Minor adverse

Hartington Interchange	Moderate adverse	quayside, and Servicing Management Plan, to reduce freight demand on the network. STDC transport strategy to assess if additional mitigation is required on the highway network after travel planning measures are implemented.	Minor adverse
A66 / Borough Road	Moderate adverse		Minor adverse
A171 Cargo Fleet Lane / A1085 Longlands Road	Moderate adverse		Minor adverse
A171 Cargo Fleet Lane / Cranmore Road	Moderate adverse		Minor adverse
A66 / A171 Cargo Fleet Lane	Moderate adverse		Minor adverse
A171 Cargo Fleet Lane / College Road	Moderate adverse		Minor adverse

Summary and Conclusion

3.27 The additional assessment of the environmental effects of the proposed development in respect of transport has covered driver and bus user delay in the extended geographical scope of Middlesbrough.

3.28 A TA Addendum has been prepared which details the transport aspects of the proposed development and the data used in its assessment in detail (see Appendix 3.1).

3.29 The assessment has been undertaken in the context of guidance from the IEMA and in the context of the TA prepared in support of planning application R/2020/0357/OOM.

3.30 The effects, and any residual effects, of the proposed development are summarised in Table 3.4. This table considers the additional receptors to those assessed in the July 2020 ES and the two tables should therefore be read alongside each other.

Table 3.4: Summary of Transport Effects (to be read alongside Table C8.1 of the July 2020 ES)

Receptor	Potential effect	Mitigation Measure	Residual Effect
Greystones Roundabout	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Negligible
Riverside Park Road / Ironmasters Way	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Negligible
Newport Interchange	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction

Hartington Interchange	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
West Terrace / Cromwell Street	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Negligible
A66 / Borough Road	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
A171 Cargo Fleet Lane / B1380 High Street / A171 Sunnyfield	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Negligible
A171 Cargo Fleet Lane / A1085 Longlands Road	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
A171 Cargo Fleet Lane / Cranmore Road	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
A66 / A171 Cargo Fleet Lane	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
A171 Cargo Fleet Lane / College Road	Moderate, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Minor adverse - the mitigation measures should reduce the forecast traffic flows to minimise the impact at the junction
A171 Cargo Fleet Lane / South Bank Road	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the	Negligible

		network	
Ormesby Road / A1085 Longlands Road / Kings Road	Minor, permanent adverse effect on driver delay during operation	STDC transport strategy to outline measures to significantly reduce car travel to the site. Potential of quayside, and Servicing Management Plan, to reduce freight demand on the network	Negligible

3.31 Overall, Table 3.4 shows that the proposed development results in some minor, permanent adverse residual effects during operation. Where adverse effects have been identified, the STDC transport strategy, currently in development, will consider if any additional mitigation at these locations is required once other measures introduced as part of the strategy to reduce car mode share have been considered.

3.32 In EIA terms, it is not expected that any residual effects will be significant. This is consistent with the overall conclusion of the July 2020 ES.

4.0 Biodiversity and Ecology

(ES Chapter D)

4.1 This section of the SES has been prepared by Arup on behalf of STDC. It sets out the results of additional ecological surveys and provides new and updated information in order to address consultee comments, where necessary and relevant to the EIA. It identifies any new or altered significant effects which could arise as a result of the additional surveys and comments received, from that presented within Chapter D of the ES (July 2020). Where the assessment has not changed it is referenced accordingly.

4.2 This section of the SES is supported by the following new or updated appendices:

1 **Appendix 4.1**: Updated UK Habitat Classification (UKHab) Habitat Survey Map (Updated from Appendix D2.1 of ES July 2020);

2 **Appendix 4.2**: Updated Habitat Data Sources Map (Updated from Appendix D 2.2 of ES July 2020);

3 **Appendix 4.3**: Ecoteknica UK Ltd: The Slems Sediment Samples;

4 **Appendix 4.4**: INCA Information Note 20-05: Waterbird Surveys – The Slems; and

5 **Appendix 4.5**: Lichfields: Water Body Sampling – Salinity Test.

About the Author

4.3 The author is an Ecologist at Arup, based in Edinburgh. She has six years of experience in ecological consultancy and is an Associate Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The author holds a BSc Biology and a MSc in Environmental Management.

4.4 The author has extensive experience in ecological survey, impact assessment, and providing mitigation strategies across a range of projects, from small-scale schemes to Nationally Significant Infrastructure Projects (NSIPs).

4.5 This assessment has been reviewed by a Senior Ecologist at Arup who has ten years of experience in ecological assessment and who is a Full Member of CIEEM and Chartered Ecologist (CEcol).

4.6 This assessment has been approved by an Associate at Arup who has over 20 years of experience in ecological assessment, and who is a Full Member of CIEEM and a Chartered Environmentalist (CEnv).

Ongoing Survey Work and Response to Consultee Comments

4.7 At the point the ES (July 2020) was submitted to RCBC ecological surveys remained ongoing at the site to establish its baseline position and to understand the impact of the proposed development. These surveys included:

1 Sampling of intertidal mud within the Slems to determine the suitability for wintering birds; and

2 Further surveys to understand the site's suitability for wintering birds.

4.8 These surveys have now been completed and the results are presented in this section of the SES (September 2020).

Natural England

4.9 A response was received from Natural England ('NE') on 24 July 2020. Their consultation response noted that they have no objection subject to appropriate mitigation being secured to ensure there is no impact to the Teesmouth and Cleveland Coast SPA and Site of Special Scientific Interest (SSSI). In order to mitigate these adverse effects, Natural England stated that the following mitigation measures are required and an appropriate planning condition or obligation is attached to any planning permission in order to secure them:

- A condition should be added to any permission to ensure further Habitats Regulations Assessments (HRA) are undertaken for any reserved matters applications that come forwards once further detail on construction methodology and likely development is known;
- The Construction Environmental Management Plan (CEMP) should be prepared in advance of any works on site commencing as described in the HRA document [1];
- All mitigation measures as described in the HRA [**Error! Bookmark not defined.**]should be implemented in full.

Environment Agency

4.10 The Environment Agency ('EA') has engaged with the applicant on the outline planning application and the proposal.

4.11 Specific measures necessary to mitigate the impacts of the outline development on the Teesmouth and Cleveland Coast SPA and SSSI have been identified through the HRA and will be embedded in the scheme and secured through the use of planning condition (and as explained above, this has been accepted by Natural England).

4.12 Following a meeting between Lichfields, Arup, RCBC and the EA on 12 August 2020, the wording of a suitable condition is being discussed with the EA in respect of ensuring no net loss of habitat / biodiversity value and the feasibility of achieving 10% net gains, (the latter in response to the expected mandatory requirement being set by the Environment Bill coming into effect in Spring 2023). It is expected that the condition will require the final scheme proposals (at reserved matters stage) to demonstrate how the "mitigation hierarchy" (set out at para. 175 of the National Planning Policy Framework) is being applied, prioritising mitigation and compensation on site where feasible.

Updated Policy Context

4.13 There is no update required to the legislation, planning policy and guidance as detailed in section D2.0 of the ES (July 2020).

Updated Assessment Methodology and Significance Criteria

Desk Study

4.14 There are no updates required to this section since the ES (July 2020). Refer to chapter D, section D3.0 of the ES (July 2020).

Field Survey

Habitat Survey

4.15 Updated habitat surveys of select areas of the proposed development site were undertaken by INCA on 11 August 2020 as part of a planning application for the Metals Recovery Area (planning reference. R/2020/0465/FFM). The Metals Recovery Area planning application is

contained wholly within the proposed development site boundary. Following the field survey, INCA updated a number of habitats within the Metals Recovery Area. Habitats were classified using the UKHab system [2], where possible, to assist in undertaking BNG calculations [3] using Defra's Biodiversity Metric 2.0 (BM2.0) [4] [5]. These surveys followed standard methods described in CIEEM Preliminary Ecological Appraisal (PEA) guidance [6] and, where required, also referred to the phase 1 habitat survey methodology [7].

4.16 The condition and ecological connectivity of these habitats, as per the requirements for BM2.0, were also assessed.

4.17 An updated UKHab colour-coded habitats map was produced to include these newly assessed habitats present within the proposed development site.

Invertebrate Sampling

4.18 Sampling of intertidal mud within The Slems was completed in July 2020 by INCA. This survey was undertaken to determine the suitability of the intertidal mud for invertebrates to inform the importance of The Slems for wintering birds, as formal wintering bird surveys (WBS) could not be completed due to the timescales of the planning application submission.

4.19 Samples were taken from the top layer of the mud to an approximate depth of 7.5cm which was considered by INCA to be the primary feeding zone for most wading species.

4.20 These samples were sent to Ecoteknica UK Ltd for testing, where they were processed using a 0.5mm net sieve. All remaining material from the samplers were then sorted to identify any living organisms contained within the mud. The results were provided by Ecoteknica UK Ltd on 19 August 2020 and are provided in Appendix 4.3.

Passage Bird Surveys

4.21 A series of passage bird surveys of The Slems were completed in July and August 2020 by INCA (Appendix 4.4). The primary purpose of the passage surveys was to ascertain whether redshank (*Tringa totanus*), a qualifying feature of the Teesmouth and Cleveland Coast Special Protection Area (SPA), were using The Slems. Five surveys were completed during this period (*Table 4.1*) with surveys timed to coincide with the "key period when passage redshank uses the Tees Estuary"[8].

Water Sampling

4.22 Water samples were collected from the lagoon within The Slems to identify the salinity level of the waterbody that was previously identified as being potentially brackish.

4.23 Three water samples were collected by Lichfields on 24 June 2020. These samples were collected from varying locations below the surface of the water within the waterbody.

4.24 The samples were tested using a digital salinity tester (HI98319) which met the requirements of ISO 9001. Prior to testing, the salinity tester was calibrated with the manufacturer approved Salinity Calibration Solution. The test was then undertaken in line with the manufacturers testing methodology (Appendix 4.5).

Assessment Methodology

4.25 There are no updates required to section D3.0 of the ES (July 2020).

Characterising Impacts

4.26 There are no updates required to section D3.0 of the ES (July 2020).

Significance of Effects

4.27 There are no updates required to section D3.0 of the ES (July 2020). Refer to section D3.0 of the ES (July 2020).

4.28 The significance of effects and their terminology is based on guidance for Ecological Impact Assessment ('EcIA') and geographic terms of reference. The geographical terms of reference include: international, national, regional, county, local or negligible.

Geographic Terms of Reference

4.29 There are no updates required to section D3.0 of the ES (July 2020).

Assumptions and Limitations

Ecological Surveys

Invertebrate Sampling

4.30 As informed by INCA, due to the instability of the mud surface, samples of the mud could not be collected throughout The Slems. Sampling was restricted to approximately 0.5m from the landward edge [9]. The mud in the areas collected was described as "form[ing] a shelf so that it is more or less level …with no discernible difference at the surface between the mud …collected and the mud further out" (Appendix 4.3).

4.31 Due to the consistency of the mud, INCA noted that using the piper corer was difficult, with the samples varying slightly in size from the required 10cm diameter by 10cm depth.

Water Sampling

4.32 At this time, Arup have not received the comprehensive lab report of the water samples taken within The Slems, however a briefing note (Appendix 4.5) has been provided by Lichfields which outlines the key findings of the digital salinity testing carried out.

Assessment

4.33 Habitat data used in the ES (July 2020) assessment was drawn from field survey data from 2011, 2019, and updated habitat surveys undertaken in June 2020. The majority of the field survey data from 2019 has been updated by INCA, although some areas which represent 2011 data remain. A number of these 2011 areas have since been revisited and updated following a review of habitats for the Metals Recovery Area planning application in the north-east of the proposed development site.

Mitigation and Compensation

4.34 As stated in the ES (July 2020), mitigation for impacts on the SPA and SSSI have been identified in the HRA and will be embedded in the scheme, secured by way of planning condition.

4.35 In order to address the significant residual adverse effects identified in this ES (July 2020) and SES (September 2020), STDC is committed to preparing an Environment and Biodiversity Strategy which confirms the approach to ensuring biodiversity losses are mitigated within the development site first and foremost, and where demonstrated not to be feasible, to be compensated for off-site. This approach has been discussed with the EA, NE and RCBC.

Updated Baseline Conditions

Existing Baseline Conditions

4.36 The ecological baseline conditions described in this section, are updated from the ES (July 2020) and are those conditions existing in the absence of proposed activities. Other baseline information remains the same as the ES (July 2020), see Chapter D, section D4.0.

Designated Sites

4.37 There are no updates required to paragraphs D4.2 to D4.9 of the ES (July 2020).

Habitats

4.38 Habitats within the proposed development site were mapped in accordance with UKHab guidance [2]. The updated UKHab habitat map is provided in Appendix 4.1. Each habitat that has been updated since the ES (July 2020) recorded on the proposed development site is listed below, with the respective UKHab code [2] provided in brackets. Those habitats not listed have not been re-surveyed or updated since the ES (July 2020).

Neutral Grassland (g3c)

4.39 Further to Chapter D, paragraphs 4.18 to 4.20, of the ES (July 2020), the following additional information has now been included in this assessment.

4.40 Following the field survey, INCA identified that the area of broadleaved woodland in the north-east of the proposed development site was an area of 'other neutral grassland' in 'Fairly Poor' condition, consisting primarily of red fescue (*Festuca rubra*) and bramble scrub (*Rubus fruticosus*) [10].

4.41 A small area of neutral grassland was identified within the Metals Recovery Area growing on an embankment of a concrete structure. This area contained red fescue and creeping bent (*Agrostis stolonifera*).

4.42 A strip of neutral grassland along the north-east boundary of the Metals Recovery Area was updated to Sparsely Vegetated Land – Ephemeral/Ruderal.

Broadleaved Woodland (w1g7)

4.43 Further to Chapter D, paragraphs 4.24 and 4.25, of the ES (July 2020), the following additional information has now been included in this assessment.

4.44 As noted in the section 4.39, an area of broadleaved woodland has been reclassified in the north-east of the proposed development site. The second area of broadleaved woodland in the north-west of the proposed development site remains unchanged.

Open Water (r1a6)

4.45 Further to Chapter D, paragraphs 4.28 to 4.34, of the ES (July 2020), the following additional information has now been included in this assessment.

4.46 The waterbody located within the central area of The Slems (Target Note TN3 in Appendix 4.1) was identified as potentially being a saline lagoon. This was due to the presence of saltmarsh and intertidal mud around this waterbody and the associated watercourses, with some tidal exchange within the Lackenby Channel noted during the habitat survey of the proposed development site for the ES (July 2020).

4.47 Following water sampling, it was found that the water within this waterbody was mildly brackish. The initial results are provided in Appendix 4.5.

4.48 During the mud sampling of The Slems, a long-term employee noted to Ian Bond of INCA that the tidal exchange into The Slems has been largely prevented for the past two years after the tidal flap on the Lackenby Channel was repaired. Furthermore, the employee noted the presence of sticklebacks (*Gasterosteus* sp.), eels and terrapins (*Emydidae* sp.) within the watercourses in The Slems which, as an assemblage, supports the conclusion that the waterbody is mildly brackish in nature.

4.49 The very low salinity readings of 4.9ppt to 5.1ppt (Appendix 4.5) indicate that, whilst there is salt tolerant vegetation species currently present, it is highly unlikely that saline tolerant species will continue to diversify and establish within this habitat.

4.50 Following a review of the JNCC "*Guidelines for the selection of biological SSSIs*" for saline lagoons, it is likely that the open water within The Slems does not qualify for selection as a SSSI [11]. The open water area does not meet the selection criteria 1 to 4 as it:

- Does not include the best example of a particular habitat type with its associated communities;
- Does not contain good quality examples of specialised habitats;
- Does not contain habitats or community features of a restricted nature on a national or international basis; and
- Is not believed to contain one or more of the marine species currently considered nationally rare or scarce, including those listed in schedules 5 and 8 of the WCA 1981 (as amended).

The open water does satisfy selection criteria 5 and 6 as it exhibits a salinity gradient and is a large area in extent joined together by nature and man-made connections. However, due to the likely removal of tidal influence, this is not considered sufficient enough to warrant selection as a SSSI saline lagoon.
Intertidal Mud (t2d)

4.51 The sampling of the intertidal mud for invertebrates found no living faunal material in any of the samples collected. The mud samples appeared to be clay like in nature and anoxic (Appendix 4.3).

Sparsely Vegetated Land – Ephemeral/Ruderal (s)

4.52 As noted in section 4.41, a strip of neutral grassland along the north-east boundary of the Metals Recovery Area was updated to Sparsely Vegetated Land – Ephemeral/Ruderal**.**

4.53 This area of sparsely vegetated land is dominated by red valerian (*Centranthus ruber*) with rosebay willowherb (*Chamaenerion angustifolium*) with occasional common ragwort (*Senecio jacobaea*) and a mix of grasses. This area of land is no more than 50% vegetated and in 'Poor' condition.

Protected and Notable Species

4.54 Use of the proposed development site and any nearby features of ecological interest by protected and notable species has been informed by the review of desk study information and the results of updated surveys of the proposed development site undertaken by INCA after the submission of the ES (July 2020). Those species not listed have not been re-surveyed or updated since the ES (July 2020).

Wintering Birds

4.55 The results of the passage surveys completed by INCA are provided in *Table 4.1*. The briefing note from INCA is provided in Appendix 4.4. Counts were not kept of gull species although with the presence of an active tip adjacent to The Slems some gulls are always present and use The Slems either for loafing on the terrestrial areas or bathing in the watercourses.

4.56 No redshank or other waders were recorded during the survey and it was assumed by INCA that the intertidal mud within The Slems provides little foraging opportunities as confirmed by the results of the intertidal mud sampling (Appendix 4.3). Ducks were always present during the surveys, with several species represented in small numbers. Five fish eating species from a variety of taxa were present, with successful fishing observed on one occasion.

Table 4.1: Results of non-breeding passage surveys undertaken by INCA

Species	14/07/20	28/07/20	05/08/20	11/08/20	18/08/20
Mallard (*Anas platyrhynchos*)	5	5	13	12	10
Shelduck	4	3	2	0	0
Teal (*Anas crecca*)	0	0	4	3	4
Gadwall (*Mareca strepera*)	1	0	1	0	2
Little Grebe (*Tachybaptus ruficollis*)	0	0	1	0	0
Grey Heron	1	0	0	0	1
Little Egret (*Egretta garzetta*)	0	0	0	2	0
Moorhen	1	7	0	5	6
Kingfisher (*Alcedo atthis*)	0	1	0	0	1
Cormorant (*Phalacrocorax carbo*)	0	1	0	0	0

4.57 The results of the intertidal mud sampling have confirmed that that The Slems does not support foraging of waterbird species due to the lack of invertebrates within the intertidal mud.

4.58 Within the ES (July 2020) a precautionary approach was taken in the absence of further data, and so The Slems was considered likely to support redshank which is a feature of the Teesmouth and Cleveland Coast SSSI, SPA and Ramsar, and other wintering bird species that contribute towards the SPA and Ramsar wintering waterbird assemblage. With the provision of the invertebrate sampling results and the passage bird surveys, it is now considered that The Slems does not support the foraging of these qualifying species.

Otter

4.59 Following the submission of the ES (July 2020), INCA recorded otter (*Lutra lutra*) spraints within The Slems [12], confirming the presence of otter within the proposed development site.

4.60 As per the ES (July 2020), as otter are present within the ZoI of the proposed development site, possible effects upon otter were considered within the ES (July 2020) assessment. It is considered that otter are of **local** value.

Summary of Baseline

4.61 There are no updates required to this section since the ES (July 2020).

Future Baseline Conditions

4.62 There are no updates required to this section since the ES (July 2020).

Updated Assessment of Effects and Mitigation

4.63 This section of the SES (September 2020) provides additional information based on the additional surveys that have been carried out. This should be read alongside chapter D, section D5.0 of the ES (July 2020) for an assessment of all ecological features.

Avoidance

4.64 There are no updates required to paragraphs D5.2 of the ES (July 2020). Refer to paragraph D5.2 of the ES (July 2020).

Assessment of Effects and Mitigation

Wintering Birds

4.65 The wintering bird assemblage within the proposed development site is likely to feature passerine species and waterbirds within areas of suitable habitat to support these species. The intertidal mud within The Slems is now known not to contain invertebrates. The Slems is therefore likely used primarily for loafing and sheltering of wintering bird species, but not foraging and is unlikely to provide a significant resource for wintering birds.

Construction

4.66 The proposed development does not feature any mitigation to prevent significant effects as a result of construction of the proposed development upon wintering birds. All areas of habitat used by wintering passerines (such as grasslands and OMH) and wintering waterbirds (wetland habitats) will be lost. As a result, **there will be a significant adverse effect on the wintering bird assemblage at the county level.**

Operation

4.67 As the proposed development would result in the loss of habitats that support this ecological feature, the operational phase of the proposed development would not impact upon the wintering bird assemblage. Low numbers of common urban bird species are likely to occur within the operational proposed development.

4.68 Any future management of the proposed development must be aware of the potential presence of nesting birds. Legal protection is afforded to all breeding bird species, their nests, their eggs, and their young through the WCA [**Error! Bookmark not defined.**].

Summary of Impacts, Mitigation and Residual Effects

4.69 *Table 4.2* provides an update to the Wintering Birds row of Table D4 from the ES (July 2020). All other columns of Table D4 from the ES (July 2020) remain unchanged.

Table 4.2: Summary of impacts, mitigation proposed and significance of any residual effects. The data in this table supersedes data from the Wintering Bird column of Table D4 of the ES (July 2020). All other columns of Table D4 from the ES (July 2020) remain unchanged.

Feature	Impact	Characterisation of Unmitigated Impact on the Feature	Effect without Mitigation	Mitigation	Significance of Residual Effects
Wintering Birds	Loss of foraging habitats of passerine and waterbird species	Loss of woodland, scrub, grasslands and OMH habitats resulting in the loss of mostly all passerine and waterbird species present within the proposed development site.	Moderate negative effect at a county level	No mitigation proposed. No habitat enhancement or creation will occur in order to reinstate supporting habitats. Only common urban bird species are likely to used the operational proposed development site.	Moderate negative effect at a county level

Additional Compensation, Enhancement and Monitoring

Compensation

4.70 As detailed in the ES (July 2020), due to the nature of the proposed development site and the practical constraints to providing mitigation within the proposed development, significant residual effects remain which require compensatory measures to alleviate. The approach for this will be detailed in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy, which will coordinate the offsite compensation approach for all applicable developments in the wider STDC site.

4.71 An assessment of each habitat lost within the proposed development site, for which the same habitat type is required in compensation as stated in the BM2.0 guidance, has been undertaken to identify the required habitat area needing to be provided in order to achieve no net loss and to achieve a ten percent net gain. This will then be detailed further in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy.

4.72 A review of the habitats within the proposed development site used by the protected and notable species or species assemblages, where significant residual effects remain, has been undertaken. This review examines the current condition, ecological function and area of the habitats within the proposed development site and considers the habitat requirements of these impacted species. The habitat areas described are not an additional area required above and beyond what is noted for lost habitats. The habitat areas required to achieve no net loss and net gain should be considered alongside the required habitat types for the protected and notable species. For example, a single habitat could be created that achieves a net gain and provides the suitable area and ecological function for a number of protected and notable species.

4.73 The exact extent and location of these compensatory habitats must be agreed with NE and RCBC.

Habitats

4.74 In accordance with the BM2.0 guidance, the following habitats which will be lost from the proposed development site will require compensation of the same habitat type:

4.75 Open mosaic habitat – a total of 58.56 biodiversity units of OMH will be lost as a result of the proposed development. The Environment & Biodiversity Strategy will need to identify 64.416 biodiversity units of OMH in order to achieve a ten percent net gain of this habitat type.

4.76 Lowland calcareous grassland – a total of 34.61 biodiversity units of lowland calcareous grassland will be lost as a result of the proposed development. The Environment & Biodiversity Strategy will need to identify 38.071 biodiversity units of lowland calcareous grassland in order to achieve a ten percent net gain of this habitat type.

4.77 Reedbed – a total of 2.38 biodiversity units of reedbed will be lost as a result of the proposed development. The Environment & Biodiversity Strategy will need to identify 2.618 biodiversity units of reedbeds in order to achieve a ten percent net gain of this habitat type.

4.78 The detail of this will be provided in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy.

Protected and Notable Species

Invertebrates

4.79 The proposed development site has a number of important areas for invertebrates, mostly associated with OMH and areas with an abundance of bird's foot-trefoil (*Lotus corniculatus*) and other invertebrate larval food-plants.

4.80 The invertebrate assemblage includes small heath (*Coenonympha pamphilus*), dingy skipper (*Erynnis tages*) and grayling (*Hipparchia semele*) butterflies, supported by the grassland, sparsely vegetated land and OMH habitat which facilitate the foraging and breeding efforts of the invertebrate assemblage.

4.81 Due to their heightened status, dingy skipper and grayling are considered as individual features. The specific habitat requirements of these two species are further detailed to ensure a suitable habitat is created that considers not only the requirements of the invertebrate assemblage but these two species as well.

Dingy Skipper

4.82 A significant number of dingy skipper (regional importance) were recorded within the proposed development site, primarily within OMH and sparsely vegetated land. The proposed development site was recorded as having a mosaic of habitats that were able to sustain habitats of regional and local importance for dingy skipper.

4.83 Suitable habitat for dingy skipper occurs where foodplants grow in a sparse sward, often with areas of bare ground in sheltered locations suitable for basking. Small areas of tall grasses are also required for shelter. The majority of eggs are laid on the underside of these foodplants. Related plant species such as horseshoe vetch (*Hippocrepis comosa*) and greater bird's-foot-trefoil (*Lotus pedunculatus*) are occasionally used. Female dingy skippers often select foodplants close to bare ground, which provide warm conditions for egg development. Areas that become overgrown become unsuitable for this species [13].

4.84 These areas of OMH, grassland and sparsely vegetated land that provide suitable habitat for dingy skipper are detailed in *Table 4.3*.

Grayling

4.85 An abundance of grayling were recorded within the proposed development site. The population within the proposed development site is considered to be of local importance.

4.86 The main species of grasses used for breeding by grayling include sheep's fescue (*Festuca ovina*), red fescue, bristle bent (*Agrostis curtisii*), and early hair-grass (*Aira praecox*). Coarser grasses such as tufted hair-grass (*Deschampsia cespitosa*) and marram (*Ammophila arenaria*) are occasionally used. Grayling butterfly require habitats that are dry, sheltered and sunny with areas of bare ground [14].

Table 4.3: Habitats within the proposed development site that support the invertebrate assemblage, including the dingy skipper and grayling population. Their area and condition assessment are provided. The data in this table supersedes data from Table D5 of the ES (July 2020).

Habitat Type	Area (ha)	Condition
Urban - Open Mosaic Habitats on Previously Developed Land	1.712	Fairly Good
Urban - Open Mosaic Habitats on Previously Developed Land	1.593	Fairly Poor
Urban - Open Mosaic Habitats on Previously Developed Land	0.698	Moderate

Habitat Type	Area (ha)	Condition
Grassland - Lowland calcareous grassland	2.201	Moderate
Grassland - Other neutral grassland	0.153	Fairly Good
Grassland - Other neutral grassland	1.777	Fairly Poor
Grassland - Other neutral grassland	0.318	Good
Grassland - Other neutral grassland	18.291	Moderate
Grassland - Other neutral grassland	4.668	Poor
Grassland - Modified grassland	15.704	Fairly Poor
Grassland - Modified grassland	1.958	Moderate
Grassland - Lowland calcareous grassland	0.421	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	0.402	Fairly Poor
Sparsely vegetated land - Ruderal/Ephemeral	1.167	Fairly Good
Sparsely vegetated land - Ruderal/Ephemeral	7.794	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	0.896	Poor
Total	59.753	-

4.87 The habitats within the proposed development site range from Poor to Good condition but in general are primarily of Fairly Poor and Moderate condition.

4.88 As the proposed development site is considered to hold some of the most expansive and best quality habitat for these invertebrate species in the Tees Valley, an area of similar and/or better-quality habitat will be required. This habitat will need to have areas of relatively undisturbed open mosaic grassland habitats, with suitable areas of bare ground and foodplants made available. The habitat should contain areas of tall grasses to provide additional shelter resource for these species. These areas of grasses should contain the suitable grass species that are used by grayling.

4.89 It is therefore recommended that the Biodiversity & Environment Strategy provides compensatory habitat of a maximum of 59.753ha suitable for invertebrates. Should an area of suitable habitat be provided of a greater condition, it is likely that a smaller area can be provided in order to ensure no residual significant effect to invertebrates.

4.90 With the creation of this compensatory habitat, there will be no significant residual effect to the invertebrate assemblage, including dingy skipper and grayling, as a result of the proposed development.

Breeding Birds

4.91 As demonstrated by the results of the BBS (Appendix D5 of the ES July 2020), the proposed development site holds opportunities for breeding ground-nesting birds, including skylark (*Alauda arvensis*) and lapwing, which are both Red-listed Birds of Conservation Concern (BoCC), and opportunities for common breeding passerines. Opportunities for breeding waterbirds are present in association with open water and wetland habitats in the south-east of the proposed development site around The Slems.

4.92 It is therefore considered that all areas of the proposed development site, excluding the areas of urban sealed and unsealed surfaces, are considered suitable for breeding birds. This includes all areas of trees, scrub, wetland habitats, grassland and OMH.

4.93 As the breeding bird assessable is made up of a number of species, their specific requirements must be considered to ensure all species present are accounted for in the habitat compensation. These requirements have been broken down into three categories; passerine bird species, ground-nesting bird species and waterbird species.

Passerine Birds

4.94 The breeding passerine species assemblage within the proposed development site includes, but is not limited to, grey wagtail (*Motacilla cinerea*), linnet (*Linaria cannabina*), mistle thrush (*Turdus viscivorus*), dunnock (*Prunella modularis*), meadow pipit (*Anthus pratensis*) and reed bunting (*Emberiza schoeniclus*).

4.95 These passerine species would use a mosaic of habitats to support both their feeding and breeding requirements. Within the proposed development site, these passerine species would use the grassland, sparsely vegetated habitat, OMH, scrub and woodland areas.

Ground-nesting Birds

4.96 The breeding ground-nesting bird species recorded within the proposed development site include skylark (*Alauda arvensis*) and lapwing (*Vanellus vanellus*). Both species would frequent the areas of grassland, sparsely vegetated and OMH. These species prefer large open areas of short grassland, feeding on insects, arable crops and seed producing grasses [15] [16].

4.97 Due to the large open nature of the proposed development site and presence of invertebrate species and grasses, the proposed development site has the capacity to support a small number of breeding territories of both these species.

Waterbirds

4.98 The waterbirds recorded within the proposed development site include mallard (*Anas platyrhynchos*), moorhen (*Gallinula chloropus*), grey heron (*Ardea cinerea*), herring gull (*Larus argentatus*), shelduck (*Tadorna tadorna*) and lesser black-backed gull (*Larus fuscus*). These species were mostly constrained to the wetland areas within The Slems.

4.99 It is now understood that due to the lack of invertebrates within the intertidal mud of The Slems, these areas are most likely used by waterbirds for loafing rather than as a significant foraging resource.

4.100 The habitats that support the entirety of the breeding bird assemblage within the proposed development site, the habitat area and condition assessment are detailed in *Table 4.4*. The data in this table supersedes the data in Table D5 of the ES (July 2020).

Table 4.4 Habitats within the proposed development site that support the breeding bird assemblage, which includes the passerine, ground-nesting and waterbird assemblages. The data in this table supersedes data from Table D5 of the ES (July 2020).

Habitat Type	Area (ha)	Condition
Urban - Open Mosaic Habitats on Previously Developed Land	1.712	Fairly Good
Urban - Open Mosaic Habitats on Previously Developed Land	1.593	Fairly Poor
Urban - Open Mosaic Habitats on Previously Developed Land	0.698	Moderate
Grassland - Lowland calcareous grassland	2.201	Moderate
Grassland - Other neutral grassland	0.153	Fairly Good
Grassland - Other neutral grassland	1.777	Fairly Poor
Grassland - Other neutral grassland	0.318	Good
Grassland - Other neutral grassland	18.291	Moderate
Grassland - Other neutral grassland	4.668	Poor
Grassland - Modified grassland	15.704	Fairly Poor
Grassland - Modified grassland	1.958	Moderate

Habitat Type	Area (ha)	Condition
Grassland - Lowland calcareous grassland	0.421	Moderate
Woodland and forest - Other woodland; broadleaved	0.904	Fairly Poor
Heathland and shrub - Mixed scrub	0.684	Fairly Poor
Wetland - Reedbeds	0.328	Poor
Sparsely vegetated land - Ruderal/Ephemeral	0.402	Fairly Poor
Sparsely vegetated land - Ruderal/Ephemeral	1.167	Fairly Good
Sparsely vegetated land - Ruderal/Ephemeral	7.794	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	0.896	Poor
Total	61.669	-

4.101 The habitats within the proposed development site range from Poor to Good condition.

4.102 It is recommended that the Biodiversity & Environment Strategy provides compensatory habitat of a maximum of 61.672ha suitable for breeding birds. Should an area of suitable habitat be provided of a better condition, it is likely that a smaller area can be provided in order to ensure no residual significant effect to breeding birds.

4.103 As described, any habitat area created should contain a mosaic of scrub, woodland, lowland calcareous, and neutral grasslands, OMH and wetland areas in order to support the requirements of the entire breeding bird assemblage.

4.104 With the creation of this compensatory habitat, there will be no significant residual effect to the breeding bird assemblage, including passerine, ground nesting and waterbirds, as a result of the proposed development.

4.105 Shelduck are a named designated feature of the Teesmouth and Cleveland Coast SSSI, with a small number of breeding pairs within the proposed development site. Shelduck are considered to be a part of the breeding waterbird assemblage within the proposed development site but due to their heightened status, is should be ensured that any habitat created to compensate for the effects to the breeding bird assemblage includes the requirements for this species.

4.106 If the compensatory habitat areas described in *Table 4.4* are created with suitable shelduck ecological features in mind, it is considered that there will be no significant residual effect to the shelduck population within the proposed development site.

Wintering Birds

4.107 As The Slems does not contain a suitable foraging resource for wintering bird species, including those species that contribute towards the Teesmouth and Cleveland Coast SPA and Ramsar wintering waterbird assemblage, mitigation relating to the effect of the loss of intertidal mud specifically in relation to these species is not necessary.

4.108 However, as noted in *Table 4.2*, areas of woodland, scrub, grasslands, OMH and wetland habitats all provide suitable foraging habitat for wintering birds. Their area and condition assessment are detailed in *Table 4.5*. The data in this table supersedes data from Table D5 of the ES (July 2020).

Table 4.5 Habitats within the proposed development site that support the wintering bird population. Their area and condition assessment are provided. The data in this table supersedes data from Table D5 of the ES (July 2020).

Habitat Type	Area (ha)	Condition
Urban - Open Mosaic Habitats on Previously Developed Land	1.712	Fairly Good

Habitat Type	Area (ha)	Condition
Urban - Open Mosaic Habitats on Previously Developed Land	1.593	Fairly Poor
Urban - Open Mosaic Habitats on Previously Developed Land	0.698	Moderate
Grassland - Lowland calcareous grassland	2.201	Moderate
Grassland - Other neutral grassland	0.153	Fairly Good
Grassland - Other neutral grassland	1.777	Fairly Poor
Grassland - Other neutral grassland	0.318	Good
Grassland - Other neutral grassland	18.291	Moderate
Grassland - Other neutral grassland	4.668	Poor
Grassland - Modified grassland	15.704	Fairly Poor
Grassland - Modified grassland	1.958	Moderate
Grassland - Lowland calcareous grassland	0.421	Moderate
Woodland and forest - Other woodland; broadleaved	0.904	Fairly Poor
Woodland and forest - Other woodland; broadleaved	0.001	Moderate
Heathland and shrub - Mixed scrub	0.684	Fairly Poor
Wetland - Reedbeds	0.328	Poor
Sparsely vegetated land - Ruderal/Ephemeral	0.402	Fairly Poor
Sparsely vegetated land - Ruderal/Ephemeral	1.167	Fairly Good
Sparsely vegetated land - Ruderal/Ephemeral	7.794	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	0.896	Poor
Total	61.67	-

4.109 It is recommended that the Biodiversity & Environment Strategy provides compensatory habitat of a maximum of 61.67ha suitable for wintering birds. Should an area of suitable habitat be provided of a better condition, it is likely that a smaller area can be provided in order to ensure no residual significant effect to wintering birds.

Brown Hare

4.110 A significant brown hare population is present within the proposed development site, supported by the grassland, sparsely vegetated land and OMH habitat which facilitate the foraging and breeding efforts of the species.

4.111 Brown hare are most common in open grassland, arable habitats and woodland edges, favouring a mosaic of arable fields, grasses and hedgerows, grazing on vegetation and bark of young trees. Brown hare do not burrow but sit in small depressions on the ground [17].

4.112 The habitats within the proposed development site, their area and condition assessment are detailed in *Table 4.6*. As the woodland areas are considered to be sparse and young in nature with similar ground flora to the surrounding brownfield areas, they are very likely to be used by brown hare for foraging and cover and are therefore included as part of the suitable habitat for brown hare.

Table 4.6: Habitats within the proposed development site that support the brown hare population. Their area and condition assessment are provided. The data in this table supersedes data from Table D5 of the ES (July 2020).

Habitat Type	Area (ha)	Condition
Urban - Open Mosaic Habitats on Previously Developed Land	1.712	Fairly Good
Urban - Open Mosaic Habitats on Previously Developed Land	1.593	Fairly Poor
Urban - Open Mosaic Habitats on Previously Developed Land	0.698	Moderate

Habitat Type	Area (ha)	Condition
Grassland - Lowland calcareous grassland	2.201	Moderate
Grassland - Other neutral grassland	0.153	Fairly Good
Grassland - Other neutral grassland	1.777	Fairly Poor
Grassland - Other neutral grassland	0.318	Good
Grassland - Other neutral grassland	18.291	Moderate
Grassland - Other neutral grassland	4.668	Poor
Grassland - Modified grassland	15.704	Fairly Poor
Grassland - Modified grassland	1.958	Moderate
Grassland - Lowland calcareous grassland	0.421	Moderate
Woodland and forest - Other woodland; broadleaved	0.904	Fairly Poor
Woodland and forest - Other woodland; broadleaved	0.001	Moderate
Heathland and shrub - Mixed scrub	0.684	Fairly Poor
Sparsely vegetated land - Ruderal/Ephemeral	0.402	Fairly Poor
Sparsely vegetated land - Ruderal/Ephemeral	1.167	Fairly Good
Sparsely vegetated land - Ruderal/Ephemeral	7.794	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	0.896	Poor
Total	61.342	-

4.113 The proposed development site contains good quality habitats for these species in an area otherwise surrounded by heavy industry and housing developments. The open area of the proposed development site is generally undisturbed and provides a large foraging resource for a number of brown hare. The next area of suitably large habitat is likely to be south east of the proposed development site on the other side of the A174 where arable fields are present.

4.114 The habitats within the proposed development site range from Poor to Good condition but in general are primarily of Fairly Poor and Moderate condition.

4.115 As the proposed development site is considered to hold some of the most expansive and best quality habitat for this species in the Tees Valley, a large area of similar and/or better-quality habitat will be required. This habitat will need to have large areas of relatively undisturbed open mosaic grassland habitats, with suitable ecological corridors and buffer zones allowing uninterrupted and undisturbed movement of hares. The habitat should contain small areas of scrub and woodland planting to provide additional foraging resource and areas of cover for the species.

4.116 It is therefore recommended that the Biodiversity & Environment Strategy provides compensatory habitat of a maximum of 61.342ha. Should an area of suitable habitat be provided of a better condition, it is likely that a smaller area can be provided in order to ensure no residual significant effect to brown hare.

4.117 With the creation of this compensatory habitat, there will be no significant residual effect to the population of brown hare within the proposed development site.

Summary of Compensation

4.118 In order to eliminate the residual negative effects caused by the proposed development, suitable habitats comprising a mosaic of grasslands, OMH, trees, scrub and wetlands are necessary.

4.119 It should be noted that the habitat requirements and areas described for each species do not have to be considered separately from one another. As many of these species require similar habitats and occupy their own niches within these habitats, an habitats could be created that

support and provide the necessary ecological function for all of these species as well as contributing to the BNG commitment.

Enhancement

4.120 There are no updates required to this section since the ES (July 2020).

Monitoring

4.121 There are no updates required to this section since the ES (July 2020).

Updated Biodiversity Net Gain Assessment

4.122 Due to the amendments INCA provided to the habitat types contained within the proposed development site, the BNG assessment has been updated as part of this SES. *Table 4.7* is updated from Table D5 of the ES (July 2020).

There are no changes to Table D6 of the ES (July 2020) Rivers Metric (*Table 4.8*), however it has been re-included in this document for completeness of the overall BNG assessment.

*Table 4.7 Total valuation of habitats – summary of Biodiversity Net Gain Assessment: **Habitats Baseline**. Note: Habitat names may different from those described in this document based on the habitat name attributed to each habitat in BM2.0. 'Ref. Code' refers to unique individual parcels of land entered into the BM2.0. The data in this table supersedes data from Table D5 of the ES (July 2020).*

Habitat Type	Ref. Code	Area (ha)	Distinctiveness	Condition	Connectivity	Strategic Significance	Habitat Units	Suggested Action
Urban - Open Mosaic Habitats on Previously Developed Land	1	1.712	High	Fairly Good	Medium	Location ecologically desirable but not in local strategy	31.07	Same habitat required
Urban - Open Mosaic Habitats on Previously Developed Land	2	1.593	High	Fairly Poor	Medium	Location ecologically desirable but not in local strategy	17.35	Same habitat required
Urban - Open Mosaic Habitats on Previously Developed Land	3	0.698	High	Moderate	Medium	Location ecologically desirable but not in local strategy	10.13	Same habitat required
Grassland - Lowland calcareous grassland	4	2.201	High	Moderate	Low	Location ecologically desirable but not in local strategy	29.05	Same habitat required
Grassland - Other neutral grassland	5	0.153	Medium	Fairly Good	Low	Area/compensation not in local strategy/ no local strategy	1.53	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	6	1.777	Medium	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	10.66	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	7	0.318	Medium	Good	Low	Area/compensation not in local strategy/ no local strategy	3.82	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	8	18.291	Medium	Moderate	Low	Area/compensation not in local strategy/ no local strategy	146.32	Same broad habitat or a higher distinctiveness habitat required
Grassland - Other neutral grassland	9	4.668	Medium	Poor	Low	Area/compensation not in local strategy/ no local strategy	18.67	Same broad habitat or a higher distinctiveness habitat required
Grassland - Modified grassland	10	15.704	Low	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	47.11	Same distinctiveness or better habitat required
Grassland - Modified grassland	11	1.958	Low	Moderate	Low	Area/compensation not in local strategy/ no local strategy	7.83	Same distinctiveness or better habitat required

Habitat Type	Ref. Code	Area (ha)	Distinctiveness	Condition	Connectivity	Strategic Significance	Habitat Units	Suggested Action
Grassland - Lowland calcareous grassland	12	0.421	High	Moderate	Low	Location ecologically desirable but not in local strategy	5.561	Same habitat required
Woodland and forest - Other woodland; broadleaved	13	0.904	Medium	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	5.42	Same broad habitat or a higher distinctiveness habitat required
Heathland and shrub - Mixed scrub	14	0.684	Medium	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	4.10	Same broad habitat or a higher distinctiveness habitat required
Wetland - Reedbeds	15	0.328	High	Poor	Medium	Location ecologically desirable but not in local strategy	2.38	Same habitat required
Sparsely vegetated land - Ruderal/Ephemeral	16	0.402	Low	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	1.21	Same distinctiveness or better habitat required
Sparsely vegetated land - Ruderal/Ephemeral	17	1.167	Low	Fairly Good	Low	Area/compensation not in local strategy/ no local strategy	5.84	Same distinctiveness or better habitat required
Sparsely vegetated land - Ruderal/Ephemeral	18	7.794	Low	Moderate	Low	Area/compensation not in local strategy/ no local strategy	31.18	Same distinctiveness or better habitat required
Sparsely vegetated land - Ruderal/Ephemeral	19	0.896	Low	Poor	Low	Area/compensation not in local strategy/ no local strategy	1.79	Same distinctiveness or better habitat required
Urban - Artificial unvegetated, unsealed surface	20	20.346	Very Low	N/A - Other	Low	Area/compensation not in local strategy/ no local strategy	0.00	Compensation Not Required
Urban - Developed land; sealed surface	21	187.666	Very Low	N/A - Other	Low	Area/compensation not in local strategy/ no local strategy	0.00	Compensation Not Required
Urban - Vacant/derelict land/bare ground	22	1.095	Low	Moderate	Low	Area/compensation not in local strategy/ no local strategy	4.38	Same distinctiveness or better habitat required
Total Baseline Habitat Units:							385.41	

Table 4.8: Total valuation of habitats – summary of Biodiversity Net Gain Assessment: ***Rivers Baseline.*** *The data in this table is the same as Table D6 of the ES (July 2020).*

River Type	Approximate Length (km)	Distinctive-ness	Condition	Strategic Significance	River Units	Suggested Action
Cleveland Channel – Class 4 – River Naturalness Assessment	1.0	Medium (4)	Moderate (3)	Low potential/ action not identified in any plan (1)	12	Avoid
Lackenby Channel – Class 4 – River Naturalness Assessment	1.0	Medium (4)	Moderate (3)	Low potential/ action not identified in any plan (1)	12	Avoid
Total Baseline River Units:					24	

Summary

4.123 As a precautionary worst-case scenario assumption has been worked to, it has been assumed that all habitats within the proposed development site will be lost as a result of the proposed development. Therefore, without mitigation, **the proposed development is likely to result in a loss of 385.41 biodiversity units.**

4.124 The proposed development site has a baseline of **24 river units**. It is anticipated that **these will be lost** as a result of the proposed development.

4.125 As no mitigation is proposed, offsite compensation is required to achieve a BNG. The approach for this will be detailed in the forthcoming South Tees Regeneration Masterplan Environment & Biodiversity Strategy, which will coordinate the offsite (within the Masterplan boundary, or within the wider Tees Valley) compensation approach for all developments in the wider STDC site.

Summary and Conclusions

4.126 This assessment has considered potential impacts upon ecological features as a result of the proposed development, including potential effects from construction and operation of the proposed development.

4.127 Following the implementation of the recommended compensation, to be detailed as part of the South Tees Regeneration Masterplan Environment & Biodiversity Strategy, no significant residual effects upon protected and notable species are anticipated.

4.128 **Without mitigation or compensation, significant residual effects upon ecological features are still anticipated**. Of note, effects at a regional level will occur in relation to invertebrates, and at a county level in relation to OMH, high-value wetland habitats, and brown hare.

4.129 Residual impacts anticipated as a result of the proposed development without mitigation or compensation are:

1	OMH –	negative effect at a county level;
2	Lowland Calcareous Grassland –	negative effect at a county level;
3	Broadleaved Woodland –	negative effect at a local level;
4	Open Water –	negative effect at a local level;
5	Saltmarsh –	negative effect at a regional level;
6	Intertidal Mud –	negative effect at a county level;
7	Reedbed –	negative effect at a regional level;
8	Invertebrates –	negative effect at a county level;
9	Dingy Skipper -	negative effect at a regional level;
10	Grayling -	negative effect at a local level;
11	Breeding Birds –	negative effect at a county level;
12	Shelduck –	negative effect at a county level;
13	Wintering Birds –	negative effect at a county level; and
14	Brown Hare –	negative effect at a county level.

4.130 Defra's BM2.0 was used to assess the anticipated loss and gain of biodiversity units associated within the proposed development. It is anticipated that significant biodiversity net loss will result as a consequence of the proposed development, largely due to the lack of any habitat being retained or enhanced.

4.131 Mitigation and compensatory measures will be implemented in order to mitigate the residual impacts anticipated as a result of the proposed development on biodiversity value. This mitigation and compensation will be identified within the emerging South Tees Regeneration Masterplan Environment & Biodiversity Strategy and this will ensure biodiversity losses will be mitigated within the development site first and foremost and, where demonstrated not to be feasible, to be compensated for off-site. This approach has been discussed with the EA, NE and RCBC.

5.0 Air Quality

(ES Chapter F)

5.1 This section of the SES has been prepared by Arup on behalf of STDC. It provides new and updated information in order to address consultee comments, where necessary and relevant to the EIA. It identifies any new or altered significant effects that could arise as a result of the comments received, from that presented within Chapter F of the ES (July 2020). Where the assessment has not changed it is referenced accordingly.

5.2 This section of the SES is supported by the following new or updated appendices:

1 **Appendix 5.1**: Consultation undertaken with the EHO as part of the ES addendum;

2 **Appendix 5.2**: Details of the modelled road network, updated for the ES addendum;

3 **Appendix 5.3**: Modelled operational results including the A66; and

4 **Appendix 5.4**: Modelled operational results including the A66 and the cumulative impact from the ERF.

About the Author

5.3 The author is an air quality consultant at Arup, based in Newcastle Upon Tyne. She has five years' experience in air quality consultancy, is an associate member of the Institute of Air Quality Management (IAQM) and is an associate member of the Institute of Environmental Sciences (IES). The author holds a BSc degree in Meteorology and Climate Science and an MSc in Hydrology and Climate Science.

5.4 The author has extensive experience in air quality modelling and assessment and providing mitigation measures across a range of projects, ranging from small scale schemes up to large scale Environmental Impact Assessments (EIA).

5.5 This assessment has been reviewed by a Senior Consultant at Arup who has over 14 years of experience in air quality consultancy. He is a Chartered Environmentalist (CEnv), Chartered Scientist (CSci) and a Full Member of the IAQM.

5.6 This assessment has been approved by a Director at Arup who has over 30 years of experience in air quality, odour and environmental assessment.

Response to Consultee Comments

5.7 Consultation has been undertaken with the Environmental Health Officer (EHO) at RCBC to agree the methodology.

5.8 During the original ES, the EHO raised a number of points that have been discussed and addressed in this SES (September 2020):

- As the proposed development has the potential to generate large increases in traffic volumes, the EHO has requested that the assessment include the A66 through Middlesbrough, as small annual increases in nitrogen dioxide (NO_2) have been observed at a diffusion tube monitoring site on the A66 towards Middlesbrough. This is particularly relevant as RCBC is currently developing a joint strategy to cover both RCBC and Middlesbrough Council areas. At the time of the assessment presented in the July 2020 ES, traffic data for the A66 through Middlesbrough was unavailable for the year of this assessment. However, it has been proposed to the EHO that this data shall be obtained, and

a further assessment carried out once traffic data is available at that location, which is presented within this SES (September 2020).

- Clarification was requested around the inclusion of the nearby Energy Recovery Facility (ERF) site known as 'Prairie' as a committed development in the cumulative assessment. Arup advised that as emissions and design data were unavailable at the time of writing the assessment presented in the July 2020 ES, it could not be included as part of the original submission. It was therefore proposed to the EHO that the Prairie site will also be included within this SES (September 2020) as the EHO has provided the necessary data.

5.9 Additional consultation was undertaken with the EHO to agree the methodology proposed for this SES (September 2020) and to address the points raised in previous consultation. At the time of writing, no further responses have been received.

5.10 Middlesbrough Council has also been contacted to obtain their most recent air quality monitoring data, since the modelled road network has been extended into the Middlesbrough authority area.

5.11 A copy of the additional consultation with the RCBC EHO is provided in Appendix 5.1 of this SES (September 2020).

5.12 RCBC's EHO commented on the original ES (July 2020). outline planning application during its statutory consultation period and raised a comment on the potential for impacts on nearby commercial receptors due to construction or demolition. The commercial properties surrounding the site are not considered to be sensitive to dust deposition, as per type guidance definitions in the Institute of Air Quality Management Construction dust guidance. The guidance does not include industrial uses as receptors, and so these were not considered further in the construction dust assessment (provided in the original ES (July 2020)). However, medium mitigation measures have been recommended for the proposed development, which is considered to be conservative and should prevent any potential adverse nuisance impacts. The original ES (July 2020) notes that the recommended mitigation measures should be included within the Construction Environment Management Plan (CEMP) for the proposed development.

Updated Policy Context

5.13 There has been no change to the relevant policy or guidance since the original ES (July 2020). The air quality standards relevant to this study remain as those outlined in the ES. Table 5.1 sets out the EU air quality limit values and national air quality objectives for NO_2, PM_{10} and $PM_{2.5}$. This is an addition Table to those presented within the ES (July 2020) and it should be read alongside those within Chapter F. Other pollutants have been screened out of this air quality assessment, since they are not likely to cause exceedances of their respective standards.

Table 5.1 Air quality standards

Pollutant	Averaging period	Limit value / objective
Human health		
Nitrogen Dioxide (NO_2)	Annual mean	40µg/m³
	1-hour mean	200µg/m³ [1]
Fine Particulate Matter (PM_{10})	Annual mean	40µg/m³
	24-hour mean	50µg/m³ [2]
Very Fine Particulate Matter ($PM_{2.5}$)	Annual mean	25µg/m³
Natural environment (ecological receptors)		
Oxides of nitrogen (NOx, as NO_2)	Annual mean	30µg/m³

[1] not to be exceeded more than 18 times a year (99.79th percentile)
[2] not to be exceeded more than 35 times a year (90.41th percentile)

Updated Assessment Methodology and Significance Criteria

5.14 The SES (September 2020) assessment includes consideration of the A66 in Middlesbrough and emissions from the proposed Grangetown Prairie Energy Recovery Facility (ERF).

Assessment Methodology

5.15 This SES (September 2020) assessment methodology remains unchanged from the original ES (July 2020).

Methodology of Operational Traffic Assessment

5.16 No change is proposed to the methodology of Operational Traffic Assessment presented from Paragraph F3.23 of the July 2020 ES. Below is set out the specific methodology associated with the inclusion of the Grangetown Prairie ERF and the A66 within the assessment.

Grangetown Prairie ERF

5.17 The Grangetown Prairie ERF (formally described as the Prairie EfW (Energy from Waste) facility) is located at land East of John Boyle Road and West of Tees Dock Road, Grangetown. The outline application was granted in July 2020.

5.18 The proposed ERF facility would process municipal solid waste and falls under the Industrial Emissions Directive (IED). The IED outlines Emission Limit Values (ELVs) for emissions to air from waste incineration facilities.

5.19 The air quality assessment for the proposed ERF has used the ELVs and the more recent (and more stringent) Best Available Technique - Associated Emission Levels (BAT-AEL), to determine the emission rates for each pollutant, for use within the dispersion model. Concentrations for each pollutant have then been predicted at discrete receptors and across a cartesian grid. The maximum predicted concentration (or percentage of the assessment level) on the grid has been presented in the report [ref] for each pollutant. Those relevant to this study, NO_2, PM_{10} and $PM_{2.5}$ have been included in the assessment. To do this, a conservative (pessimistic) approach has been used whereby the maximum predicted concentration for the relevant pollutant, for the year with the maximum predicted concentration, from the ERF modelled grid, has been applied to the total predicted concentration at each receptor. This is an extremely pessimistic approach, and therefore represents a worst-case scenario. The maximum predicted concentrations from the proposed ERF are outlined in Table 5.2. The annual mean concentrations listed below have been added to the predicted concentrations for the roads modelling.

Table 5.2 Maximum predicted concentration

Pollutant	Averaging period	Maximum concentration (µg/m^3)
PM_{10}	Annual mean	0.4
PM_{10}	24-hour mean (90.4th %ile)	0.9
$PM_{2.5}$	Annual mean	0.1
NO_2	Annual mean	2.1
NO_2	1-hour mean (99.8th %ile)	17.8

5.20 The assessment of cumulative effects of this scheme are included within section 4.0 of this SES (September 2020)

A66 traffic assessment

5.21 Operational air quality impacts from the proposed development could arise because of traffic changes on the local road network. The assessed road network for this SES (September 2020) has been extended to include the A66 in Middlesbrough.

5.22 The traffic data were provided by the Arup transport team (see Chapter C of the original ES (July 2020) and the transport section of this SES (section 3.0)). The traffic data consists of 24-hour AADT flows for all vehicle types and the percentage of these which are Heavy Goods Vehicles (HGVs) for each road link. The data provided includes vehicle speeds on each road, which were used in this air quality assessment, with the exception of road links recognised as junctions, where modelled speeds were assumed to be 20kph following Defra's LAQM.TG16 guidance.

5.23 A detailed assessment of operational traffic has been carried out following the same methodology as presented in the original ES from paragraph F3.23 onwards with only minor updates, noted in the paragraphs below. A summary of the methodology is provided in Table 5.3.

5.24 Since the original ES (July 2020), Defra have released a new version of the Emission Factor Toolkit (EFT) (version 10.0) and new background concentrations.

5.25 The dispersion model (ADMS or Atmospheric Dispersion Modelling System) used to carry out the assessment has also been updated to a new version since the completion of the original ES (July 2020); this new version (version 5.0) has therefore been used in this SES (September 2020).

5.26 Sensitivity testing with the use of the new EFT, Defra backgrounds and ADMS model has been carried out and is reported with the results.

5.27 Potential impacts on air quality during operation have been modelled using 2019 vehicle emissions and 2019 background concentrations throughout, which represent a conservative (pessimistic) scenario of future emission rates, accounting for the lack of real-world improvement in road vehicle emissions observed currently. The road emissions were calculated in the EFT with a fleet mix described as 'urban (not London)'.

5.28 The model setup is as per the original ES (July 2020) from paragraphs F3.8 to 3.15.

Table 5.3 Air quality model and assessment parameters

Parameter	Details
Model used	ADMS Roads (Atmospheric Dispersion Modelling System) atmospheric dispersion model (version 5.0).
Assessment scenarios	The traffic assessment scenarios for operation can be summarised as follows: • Baseline scenario (using 2018 traffic volumes, considered to be representative of 2019, and using 2019 emission factors); • Do-Minimum (DM) scenario, including committed developments, which is the operational year without the proposed development (using 2028 traffic volumes and 2019 emission factors); and • Do Something (DS) scenario, which is the operational year including the operational vehicles for the proposed development (using 2028 traffic volumes and using 2019 emission factors).
Meteorological data	The meteorological data used in this assessment were the same as that in the original ES, namely 2019 data measured at Teesside International Airport (previously known as Durham Tees Valley Airport) meteorological station.
Monin-Obukhov length	A minimum Monin-Obukhov length of 30m has been used in the assessment. It is suggested in ADMS-Roads that this length is suitable for "Mixed urban/ industrial" (as described in ADMS). This is considered representative of the study area.
Surface roughness	In this assessment, the general land use in the local study area can be described in the model as "Parkland, open suburbia" with a corresponding surface roughness of 0.5m.
NOx to NO_2 Conversion	The spreadsheet calculator provided by Defra has been used for NOx to NO_2 Conversion in this assessment. The most up-to-date version being version 8.1, August 2020.

5.29 The modelled road network is shown in Figure 5.1 and details of the modelled roads and the traffic data used are provided in Appendix 5.2. Figure F5.1 supersedes the modelled road network presented in Figure F3.2 of the July 2020 ES.

Figure 5.1: Modelled road network

Sensitive Receptors

5.30 The traffic modelling was undertaken to calculate predicted pollutant concentrations at sensitive receptor locations. Sensitive receptors are defined as those residential properties/schools/hospitals that are likely to experience a change in pollutant concentrations and/or dust nuisance due to the construction or operation of the proposed development. A desk-top study was undertaken to identify the sensitive receptors near the proposed development.

5.31 In addition to the receptors identified in the original ES (July 2020), additional receptors have been included in this SES (September 2020) assessment along the A66 up to the A19. Details of the sensitive receptors used in this assessment are shown in Table 5.4 and their locations are shown in Figure 5.2. The new receptors are R15 through to R23. The remaining receptors presented in Table 5.4 and Figure 5.2 are those included within the original ES (July 2020). As this table includes all sensitive receptor locations it supersedes Table F3.1 of the July 2020 ES.

5.32 Residential receptors have been modelled at a height of 1.5m or increments of 3m above this for additional stories, and ecological receptors have been modelled at ground level.

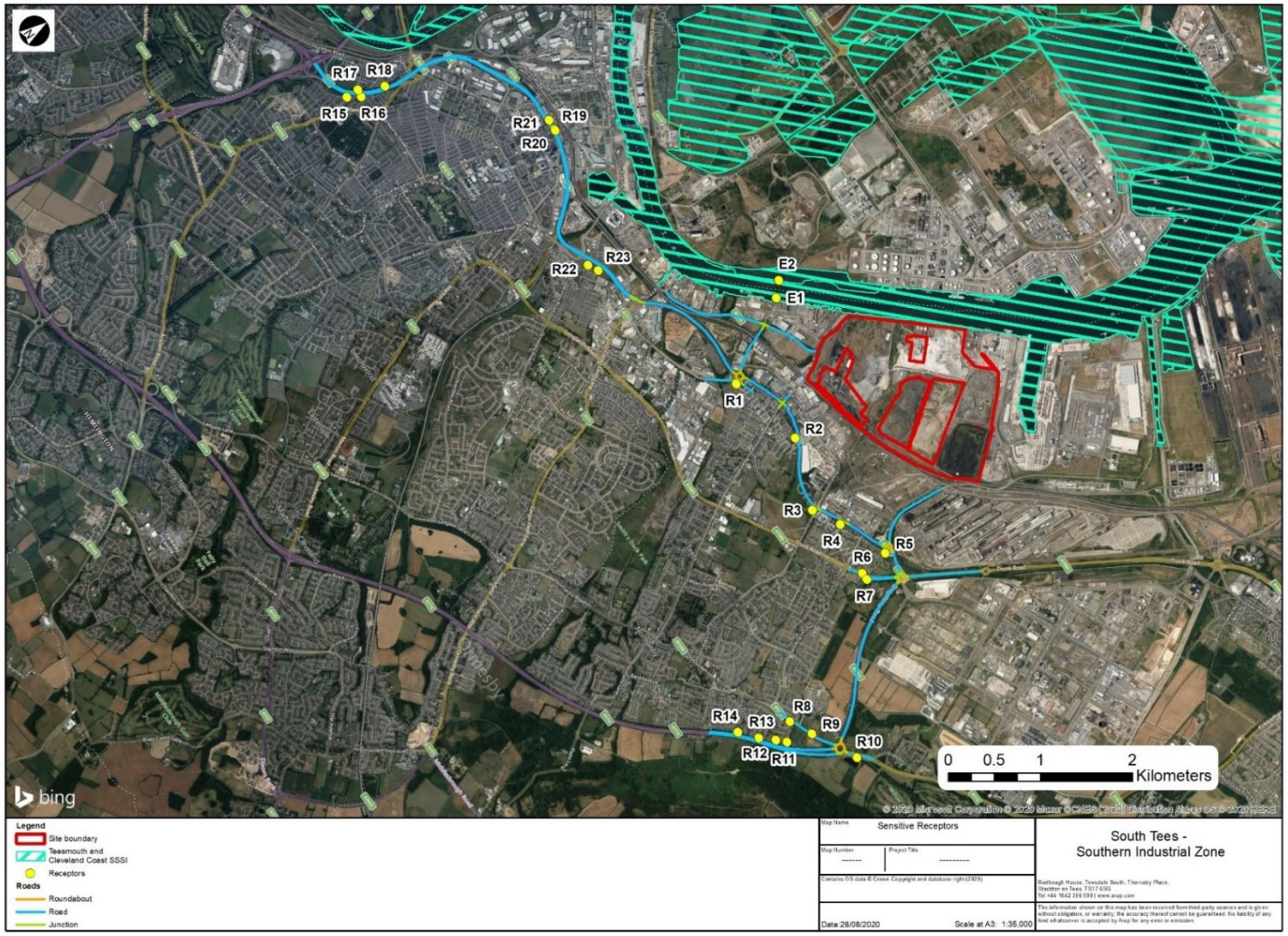
5.33 The original ES included two diffusion tube monitoring sites located on the modelled road network as receptors to allow for model verification – namely RCBC tubes 'R26' and 'R27'. This SES (September 2020) has also included additional verification points along the A66 as the modelled road network has expanded. These are Middlesbrough Council diffusion tube monitoring sites and Middlesbrough Council was contacted to obtain these data [1]. The diffusion tubes have been modelled at heights corresponding to those in the latest RCBC Air Quality Annual Status Report (ASR) [2].

Table 5.4: Sensitive receptor locations (supersedes Table F3.1 of the July 2020 ES)

Receptor ID	Description	OS grid reference (m)		Height (m)
		X	Y	
R1	Residential	452942	520658	1.5
R2	Residential	453791	520842	1.5
R3	Residential	454541	520549	1.5
R4	Residential	454840	520708	1.5
R5	Residential	455377	520929	1.5
R6	Residential	455413	520600	1.5
R7	Residential	455491	520603	1.5
R8	Residential	456277	519031	1.5
R9	Residential	456525	519154	1.5
R10	Residential	457015	519404	1.5
R11	Residential	456444	518878	1.5
R12	Residential	456354	518793	1.5
R13	Residential	456231	518655	1.5
R14	Residential	456049	518501	1.5
E1	Ecological	452429	521549	0.0
E2	Ecological	452286	521680	0.0
R15	Residential	447968	518979	1.5
R16	Residential	448050	519108	1.5
R17	Residential	447969	519122	1.5

R18	Residential	448107	519384	1.5
R19	Residential	449542	520625	4.5
R20	Residential	449560	520623	4.5
R21	Residential	449432	520634	1.5
R22	Residential	450965	520077	1.5
R23	Residential	451073	520136	1.5

Figure 5.2: Sensitive receptor locations (supersedes Figure F3.3 of the July 2020 ES)



Model Verification

5.34 Model verification refers to the comparison of modelled and measured pollutant concentrations at the same locations to determine the performance of the model. Should the majority of model results for NO_2 be within ±25% of the measured values and there is no systematic over or under-prediction of concentrations, then the LAQM.TG16 [3] guidance advises that no adjustment is necessary. If this is not the case, modelled concentrations are adjusted based on the observed relationship between modelled and measured NO_2 concentrations to provide a better agreement.

5.35 The outcome of the model verification is reported from Paragraph 5.44 and has been updated for the SES (September 2020) to take into account the updated dispersion model and EFT version.

Significance Criteria

5.36 This assessment has used the same significance criteria as set out in the original ES (July 2020) in Paragraphs F3.18 to F3.24, taken from the 2017 Land-Use Planning & Development Control guidance document [4] produced by Environmental Protection UK (EPUK) and the IAQM.

Assumption and Limitations

5.37 There has been no change to the assumptions and limitations for the original ES (July 2020) listed from paragraphs F3.28 to F3.30.

Updated Baseline Conditions

5.38 There have been no changes to the Baseline assessment or Future Baseline assessment as presented within Section F4.0 of the original ES (July 2020).

Updated Potential Effects

Embedded Mitigation

5.39 The embedded mitigation measures set out within Paragraphs F5.1 of the original ES (July 2020) remain valid. No additional embedded mitigation measures are proposed within this SES (September 2020)

During Construction

5.40 As this is an outline planning application, both the end users of the development site and specifics of construction are therefore unknown at the time of writing. Once traffic data for the construction phase are available, these data should be screened using the IAQM/EPUK criteria [4] and, if the criteria are exceeded, then an air quality modelling assessment would be required.

5.41 This position was set out within the original ES (July 2020) in paragraph F3.22.

During Operation

5.42 This section sets out the results of the additional assessment that has been undertaken as part of this SES. The potential effects identified are new and in addition to those presented in the original ES (July 2020). The results of the ES (July 2020) remain (see section F5.0).

5.43 Pollutant concentrations at relevant receptors have been predicted, with the inclusion of maximum concentrations from the proposed ERF and the A66. This shows there are no

predicted exceedances of any of the relevant UK air quality objectives or EU limit values. Details on the assessment are provided in the following sections.

Model Verification

5.44 Model verification was undertaken using four local diffusion tube monitoring sites operated by RCBC and Middlesbrough Council (MC), which are shown in Table 5.4. The locations of the monitoring sites used in the model verification exercise are shown with the modelled road network on Figure 5.4.

5.45 The verification has been updated in line with the newly released EFT, Defra background concentrations and ADMS dispersion model.

5.46 Other monitoring sites were not included in the model verification as they were considered unsuitable for inclusion based on their location, lack of 2019 monitoring data (for sites in the Middlesbrough authority area) or the lack of traffic data available.

5.47 Monitoring results for these diffusion tubes were provided directly to the author by the EHOs at RCBC [2] and MC [1]. These were compared with the modelled concentrations at the same location. The model verification was undertaken following the methodology described in LAQM.TG16 [3].

5.48 A comparison of monitored and modelled annual mean NO_2 concentrations for 2019 are shown in Table 5.5. The model was shown to slightly underpredict at one site and slightly overpredict at another. The percentage difference between the monitored and modelled results before adjustment ranges from -8.3% to +8.9%. As these are within the recommended guideline stated in LAQM.TG16 of ±25%, therefore no verification factor has been applied and the model is considered to be performing well.

5.49 All monitoring sites used within the model verification exercise are roadside sites, as recommended in TG16 [3].

Table 5.4: Monitoring sites included in the model verification

Monitoring Site ID	Site Name	OS grid reference (m)		Height (m)
		X	**Y**	
R26	Diffusion Tube R26	453500	520500	2.5
R27	Diffusion Tube R27	454500	520500	2.0
M13	Diffusion Tube M13	447945	519098	2.8
M23	Diffusion Tube M23	449451	520631	7.1*
* This diffusion tube is situated at height above the A66 flyover.				

5.50 The comparison of monitored and modelled annual mean NO_2 concentrations are shown below and a graph showing the model verification before adjustment is shown in Figure 5.3, which supersedes Figure F5.2 of the July 2020 ES.

Table 5.5: Comparison of modelled and monitored annual mean NO_2 concentrations

Site ID	Background NO_2 concentration ($\mu g/m^3$)	Monitored NO_2 concentration ($\mu g/m^3$)	Modelled NO_2 concentration ($\mu g/m^3$)	% Difference (modelled - monitored)/ monitored
Before adjustment				
R26	15.1	19.5	19.5	+0.2%
R2	13.9	24.8	21.6	-8.3%

7				
M13	19.7	22.8	24.8	+8.9%
M23	22.0	30.5	28.2	-7.6%
Concentrations are provided to one decimal place.				

Figure 5.3: Graphs showing the model verification before adjustment (supersedes Figure F5.2 of the July 2020 ES)

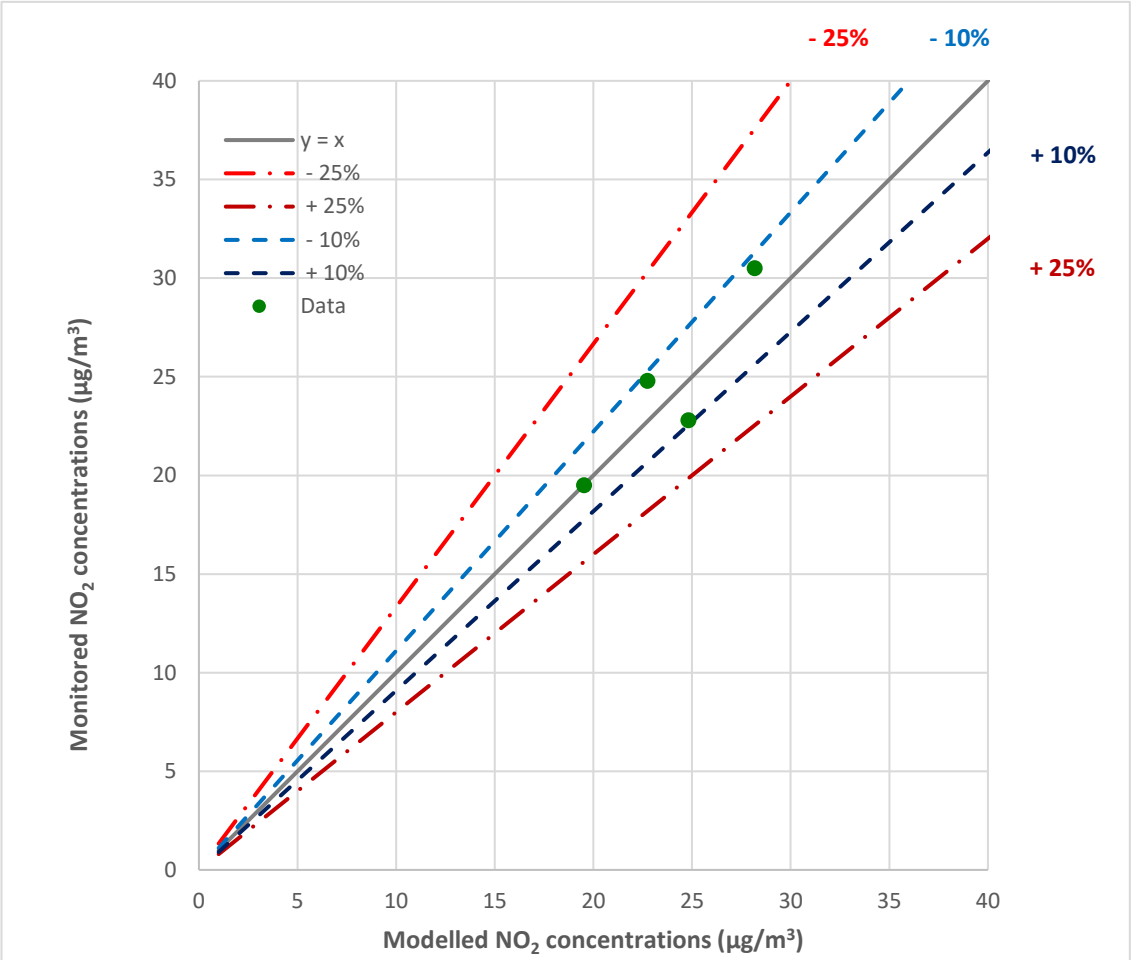
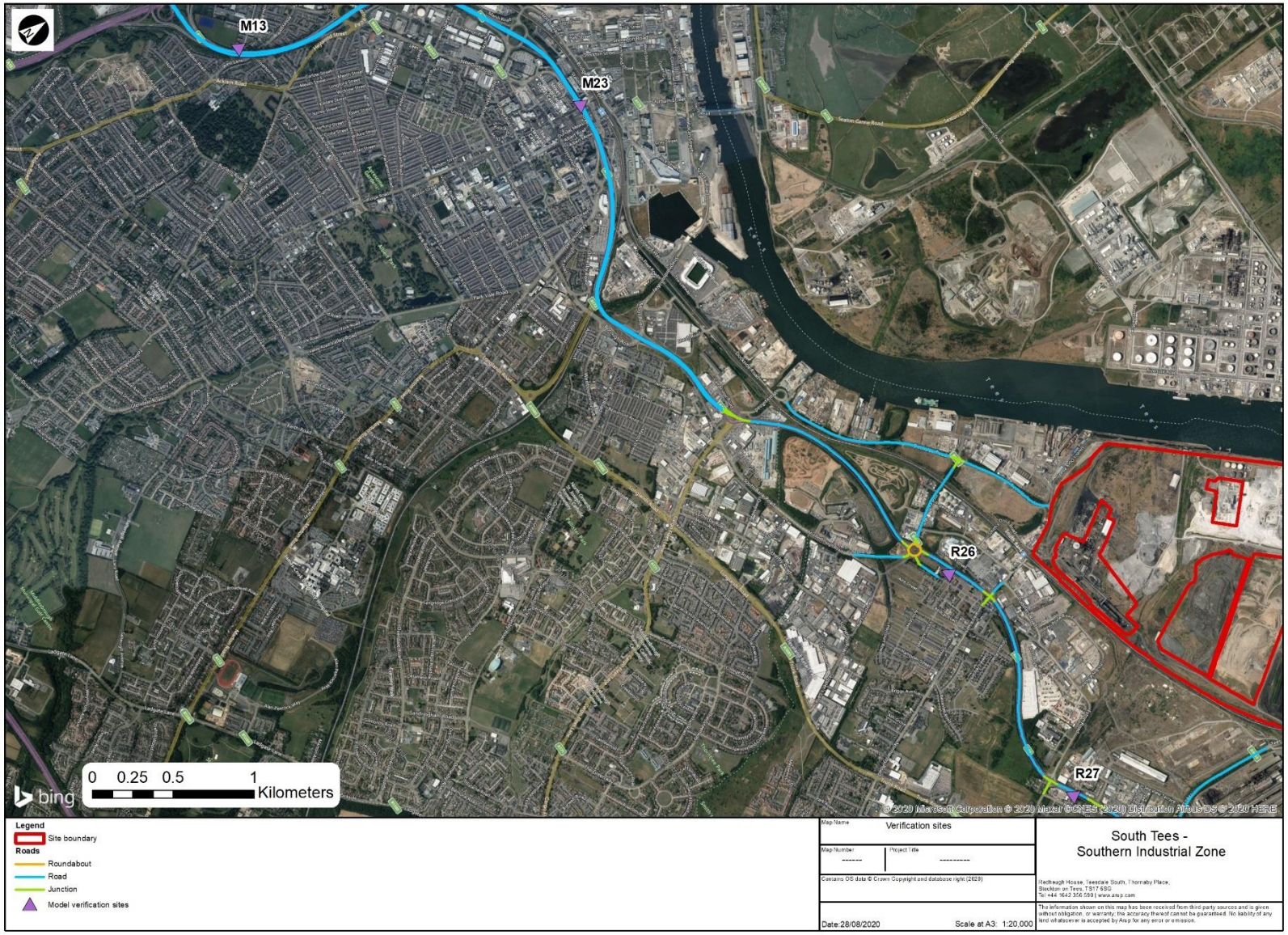


Figure 5.4 Model verification sites



Operational Traffic

5.51 This section provides the results of the assessment of effects from the operational traffic associated with the proposed development on air quality. Effects from operation are considered to be permanent. The assessment has been undertaken on all receptors and therefore the conclusions supersede those set out within section F5.0 and paragraphs F5.19 to F5.36.

Model Results – NO_2

5.52 The predicted annual mean concentrations of NO_2 for all three scenarios (Baseline 2019, DM 2028 and DS 2028) at each receptor are presented in Appendix 5.3, Table 1. The magnitude of impact with the proposed development under operation has been assessed using the EPUK significance criteria [4] and results are also provided in Appendix 5.3, Table 1. Predicted concentrations are below the annual mean air quality objective (40µg/m^3) at all of the sensitive receptor locations for each modelled scenario. The highest concentration was predicted at receptor R21 (an existing residential receptor) and was 33.9µg/m^3 in the baseline scenario, 34.3µg/m^3 in the DM scenario and 35.1µg/m^3 in the DS scenario.

5.53 The magnitude of change to annual mean NO_2 concentrations at all existing receptor locations is predicted to result in negligible or slight adverse impacts and is not considered to be significant in EIA terms.

5.54 The two ecological receptors (Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI) (which also has geological interest) and the Special Protection Area (SPA)/Ramsar site Teesmouth and Cleveland Coast) included in this assessment were also found to experience a negligible impact from NO_2 concentrations as a result of operational traffic. This is not considered to be significant in EIA terms.

5.55 According to the TG16 guidance, previous research carried out on behalf of Defra and the Devolved Administrations identified that exceedances of the NO_2 1-hour mean are considered unlikely to occur where the annual mean is below 60µg/m^3. As the predicted concentrations modelled here are well below 60 µg/m^3, it can be concluded that there would be no exceedances of the hourly mean for NO_2.

Model Results – PM_{10}

5.56 The predicted annual mean concentrations of PM_{10} for all three scenarios (Baseline 2019, DM 2028 and DS 2028) at each receptor are presented in Appendix 5.3, Table 2. The magnitude of impact with the scheme under operation has been assessed using the EPUK significance criteria [**Error! Bookmark not defined.**] and results are also provided in Appendix 5.3, Table 2. P redicted concentrations are below the annual mean air quality objective (40µg/m^3) at all of the sensitive receptor locations for each modelled scenario. The highest concentration was predicted at receptor R18 (an existing residential receptor) and was 16.1µg/m^3 in the baseline scenario, 16.5µg/m^3 in the DM scenario and 16.6µg/m^3 in the DS scenario.

5.57 The magnitude of change to annual mean PM_{10} concentrations at all existing receptor locations is predicted to result in a negligible impact and not considered to be significant in EIA terms.

5.58 The two ecological receptors included in this assessment were also found to experience a negligible impact from PM_{10} concentrations as a result of operational traffic. This is not considered to be significant in EIA terms.

Model Results – $PM_{2.5}$

5.59 The predicted annual mean concentrations of $PM_{2.5}$ for all three scenarios (Baseline 2019, DM 2028 and DS 2028) at each receptor are presented in Appendix 5.3, Table 3. The magnitude of impact with the scheme under operation has been assessed using the EPUK significance criteria [4] and results are also provided in Appendix 5.3, Table 3. Predicted concentrations are below the annual mean air quality objective (25µg/m^3) at all of the sensitive receptor locations for each modelled scenario. The highest concentration was predicted at receptor R18 (an existing residential receptor) and was 10.3µg/m^3 in the baseline scenario, 10.4µg/m^3 in the DM scenario and 10.5µg/m^3 in the DS scenario.

5.60 The magnitude of change to annual mean $PM_{2.5}$ concentrations at all existing receptor locations is predicted to result in a negligible impact and not considered to be significant in EIA terms.

5.61 The two ecological receptors included in this assessment were also found to experience a negligible impact from $PM_{2.5}$ concentrations as a result of operational traffic and not considered to be significant in EIA terms.

Assessment of significance

5.62 The magnitude of change for NO_2 concentrations is predicted to be negligible or slight adverse at all receptors. The magnitude of change for PM_{10} and $PM_{2.5}$ concentrations is predicted to be negligible at all receptors. As stated in Paragraph F3.24 of the July 2020 ES, where the impact is predicted to be negligible or slight, then the overall effect of the proposed development on local air quality is predicted to be not significant in EIA terms.

Sensitivity test

5.63 Given that the original assessment was carried out using the previous version of the Defra EFT, Defra background concentrations and the previous version of the dispersion model, all results have been updated to take into account these changes. The results of the original ES (July 2020) and those of this SES (September 2020) have been compared to determine how these updates have affected the assessment.

5.64 The results of the original receptors vary by only up to +/- 5%, however approximately 70% of the results vary by up to +/- 3% and the same pattern is observed for each scenario. Some of the results are higher, and some lower, comparing this SES assessment to the original ES assessment, however as the SES assessment uses the most recent versions of all available data and tools, this should be the version of the assessment used for consideration.

Additional Mitigation and Monitoring Measures

During Construction

5.65 No changes are proposed to the construction phase mitigation measures as set out at Paragraphs F6.1 to F6.9 of the July 2020 ES. The mitigation measures will also apply to the impacts identified in this SES.

During Operation

5.66 There are no significant effects predicted as a result of the operational phase of the proposed development, therefore no air quality mitigation measures are required, which is consistent with Paragraph F6.10 of the original ES (July 2020).

Updated Residual Effects

During Construction

5.67 There has been no change to the residual construction effects as presented within Section F7.0 of the July 2020 ES; following the implementation of mitigation measures no significant effects have been identified.

During Operation

5.68 The residual effects during the operation of the development are also unchanged from the discussion at Paragraph F7.2 of the July 2020 ES. There are no significant effects as a result of the operational phase of the proposed development, and so it can be concluded that there would be no residual effects, dependent on the ultimate uses and no changes to the data provided for this assessment in EIA terms.

Summary and Conclusion

5.69 The overall conclusions in the original (July 2020) ES remain valid and unchanged.

5.70 The magnitude of change for NO_2, PM_{10} and $PM_{2.5}$ concentrations at all receptors is negligible or slight adverse. The overall effect of the proposed development on local air quality is therefore predicted to be not significant.

5.71 Table 5.6 below provides a summary of the potential air quality effects for this SES (September 2020), where changes to the equivalent table (Table F8.1) in the original ES (July 2020) have been identified. It should therefore be read alongside Table F8.1 of the July 2020 ES.

Table 5.6: Summary table of potential air quality effects (to be read alongside Table F8.1 of the July 2020 ES)

Receptors	Potential Effect	Mitigation Measure	Residual Effect
Residential receptors	Negligible or slight adverse effect resulting from operational traffic. This is considered to be not significant.	No mitigation measures are required for the operational phase.	None.

6.0 Below Ground Heritage

ES Chapter M

6.1 This section of the SES has been prepared by Prospect Archaeology on behalf of STDC. It provides new and updated information in order to address consultee comments, where necessary and relevant to the EIA. It identifies any new or altered significant effects which could arise as a result of the comments received, from that presented within Chapter J of the ES (July 2020). Where the assessment has not changed it is referenced accordingly.

6.2 This section of the SES is supported by the following new or updated appendices:

- **Appendix 6.1**: Pre-Construct Archaeology 2020, Negative Watching Brief Report: South Bank, Redcar, Redcar & Cleveland.

About the Author

6.3 Nansi Rosenberg BA (Hons), MA, MCIfA is the primary author of this report. As Managing Director and Principal Consultant of Prospect Archaeology since 2010, and working as a heritage professional since 1991, Nansi has extensive knowledge and experience of archaeological and built heritage issues across the United Kingdom. Nansi holds a BA(Hons) in Archaeology from the University of Durham and an MA (Distinction) in Archaeology and Heritage from the University of Leicester. She is a full Member of the Chartered Institute for Archaeologists with specialist competence in Project Management.

Response to Consultee Comments

6.4 The consultation response from North East Archaeological Research Ltd on behalf of Redcar & Cleveland approves the proposed mitigation in regard to the following:

- Foundations of South Bank Iron Works Boiler House
- Foundations of the Antonien Works
- Foundations of the WWI submarine base; and
- Foundations of the WWII Heavy Aircraft Battery

6.5 Subsequent to the preparation of the original ES (July 2020), a programme of archaeological monitoring of the Site Investigations within the Metals Recovery Site has been undertaken. Monitoring was maintained to establish whether any survival of the WWII Heavy Aircraft Battery survives within the site. The report on the monitoring is presented as Appendix 6.1. No evidence for any survival of the foundations of the WWII Battery was found. All test pits excavated were found to contain made ground in the form of various compositions of ash, clinker, iron slag, silt and clay, to their full depths. The minimum depth to which test pits were excavated was 4.5m from existing ground surface, except in Pit 102 where a concrete capping slab was present over a modern service. Due to the undulating nature of the surface, the datum reached in excavation varied from 0.94m above Ordnance Datum (aOD) to 6.23m aOD.

6.6 The consultation response questioned the potential for remains of the South Bank Iron Works blast furnaces to be present, requesting details of whether the stated removal of the blast furnaces had been established through site investigations or merely documentary sources. We can confirm that the removal of the blast furnaces was identified from documentary sources and had not been 'ground-truthed' by the author.

6.7 The consultation identified the potential for riverine prehistoric activity or deposits, sealed beneath the made ground. However, previous site investigations have found there to be made

ground present to a depth of 6.5-8m across the site, and locally deeper. It is likely that the imported slag used to reclaim the mudflats will have sunk into the mudflats across the site, and the potential for undisturbed 'sealed' prehistoric horizons is considered low. The overarching remediation strategy for the site is understood to comprise capping with only localised excavation for the removal of contaminants, which would ensure potential prehistoric horizons would not suffer significant impacts except from piled foundations.

6.8 To determine the presence of intact prehistoric horizons and inform mitigation strategies, any future SI works should be monitored / reviewed by an archaeologist. This information would then be used in conjunction with foundation designs for each plot to determine the most appropriate mitigation strategy for that development parcel.

Updated Policy Context

6.9 There is no change to the policy context set out within section M2.0 of the ES (July 2020).

Updated Assessment Methodology and Significance Criteria

6.10 There is no change to the assessment methodology and significance criteria set out within section M3.0 of the ES (July 2020).

Updated Baseline Conditions

Existing Baseline Conditions

6.11 There are no additional designated heritage assets to those identified within paragraph M4.3 of the ES (July 2020).

6.12 The potential for prehistoric remains is added to the baseline conditions and Table M4.2 of the ES (July 2020) has been updated accordingly (see the grey shading for the additional entry). Table 6.1 below therefore supersedes Table M4.2.

Table 6.1 Undesignated Heritage Assets within or bordering the site (supersedes Table M4.2)

HER no.	Name / description	Date / Period	Distance and Direction from Site	Significance
4358	Eston Junction Railway Station	19th century	Adjacent S	Local
4360	Eston Grange (Grangetown) Railway Station	19th century	Adjacent S	Local
4782	Grangetown Signal Box	20th century	Within site	Local
5608	Clay Lane Jetty	19th century	Within site	Local
5612	Eston Jetty	19th century	Within site	Local
5620	Clay Lane Iron Works Tramway	19th century	Within site	Local
5624	Antonien Works (Phosphate Manure)	19th century	Within site	Local
5625	South Bank Iron Works	19th century	Partly within site	Regional
5632	Spoil Ground	19th century	Partly within site	Local
N/A	WWI Submarine base with accommodation	20th century	Partly within site	Regional
N/A	WWII HAA battery and associated facilities	20th century	Within site	Regional
N/A	Riverside Pumping House	20th century	Within site	Local
N/A	Custom House	20th century	Within site	Local
N/A	Prehistoric activity or deposits	Prehistoric	Within site	Regional

Future Baseline Conditions

6.13 There is no change to future baseline conditions set out within paragraph M4.23 of the ES (July 2020).

Updated Potential Effects

Embedded Mitigation

6.1 No embedded mitigation measures are included within the development parameters for the scheme that relate to below ground heritage. This is the same approach as that set out within paragraph M5.1 of the ES (July 2020).

During Construction

6.2 During construction, it is assumed that whilst all 19th and 20th century remains would be removed through the site preparation works, demolition and the creation of development platforms, any prehistoric remains would, in the main, be protected beneath the remediation capping layer and made ground, except where impacted by piled foundations.

6.3 Table M5.1 of the ES (July 2020) has been updated below to identify the additional heritage assets assessed within the SES (September 2020).

Table 6.2 Additional Heritage Assets assessed (supersedes Table M5.1)

Heritage Asset	Significance	Magnitude of change	Unmitigated Impact
Remains of the South Bank Iron Works blast furnaces	Medium	Substantial	Substantial Adverse
Foundations of South Bank Iron Works boiler house	Low - Medium	Substantial	Moderate – Substantial Adverse
Foundations of Antonien Works	Low	Substantial	Moderate Adverse
Foundations of World War I submarine base accommodation	Medium	Substantial	Substantial Adverse
Foundations of World War II HAA battery and associated facilities	Medium	Substantial	Substantial Adverse
20th century Riverside Pumping House	Low	Substantial	Moderate Adverse
20th century Custom House	Low	Substantial	Moderate Adverse
Prehistoric activity or deposits	Medium	Minor	Moderate Adverse

During Operation

6.4 There would be no additional effects during operation than those set out within section M5.0 of the ES (July 2020).

Additional Mitigation and Monitoring Measures

6.5 Within the development proposals there is no potential for preservation in situ and therefore, the only mitigation possible is preservation by record. This approach to mitigation was set out in section M6.0 of the ES (July 2020).

During Construction

6.6 There is no proposed change to the mitigation measures set out within section M6.0 of the ES (July 2020). Areas of archaeological potential should be subject to monitoring during remediation works to determine the presence / absence of archaeology. Should significant archaeological remains survive, an appropriate level of excavation and recording would be undertaken to ensure their preservation by record.

During Operation

6.7 No mitigation or monitoring is required during the operational phase of development. This is the same approach as that set out within the ES (July 2020), Refer to Chapter M, section M6.0.

Updated Residual Effects

During Construction

6.8 Remains of the South Bank Iron Works blast furnaces and any prehistoric remains will also be preserved by record. This is the same approach taken in the ES (July 2020)

During Operation

6.9 There would be no change to the residual effects during operation than those set out in the ES (July 2020). As the below ground heritage assets would have been removed during construction there are no residual effects associated within the operational phase of the development.

6.10 For completeness Table M7.1 of the ES (July 2020) has been updated with the additional heritage assets assessed within the SES (September 2020) and is presented below.

Table 6.3 Supersedes Table M7.1

Heritage Asset	Significance	Magnitude of change	Mitigated Impact
Remains of the South Bank Iron Works blast furnaces	Medium	Substantial	Negligible / Neutral
Foundations of South Bank Iron Works boiler house	Low – Medium	Substantial	Negligible / Neutral
Foundations of Antonien Works	Low	Substantial	Negligible / Neutral
Foundations of World War I submarine base accommodation	Medium	Substantial	Minor Adverse
Foundations of World War II HAA battery and associated facilities	Medium	Substantial	Minor Adverse
20th century Riverside Pumping House	Low	Substantial	Negligible / Neutral
20th century Custom House	Low	Substantial	Negligible / Neutral
Prehistoric remains	Medium	Minor	Negligible / Neutral

Summary and Conclusion

6.11 Five specific areas of (below ground) 19th – 20th century archaeological potential have been identified. The five modern sites comprise the foundations and sub-structures of the following: South Bank Iron Works blast furnaces, South Bank Iron Works boiler house, Antonien Works, World War I submarine base accommodation, World War II HAA battery and associated facilities. The potential for buried prehistoric levels is recognised.

6.12 In each case, the potential survival of significant archaeology should be established through monitoring and review of site investigations and, where necessary, archaeological evaluation.

6.13 Two 20th century structures of Local significance have been identified. These would be recorded prior to demolition.

6.14 Development would remove all elements of the 19th – 20th century archaeological record. Prehistoric remains, if present, could suffer localised impacts from piled foundations

6.15 Mitigation measures comprising the excavation and recording of archaeological features and deposits, and the recording of buildings would ensure impacts are no greater than Minor Adverse. This is not significant in EIA terms.

7.0 Updated Residual Effects, Cumulative Effects and Mitigation and Monitoring

ES Chapter N

7.1 Chapter N of the ES (July 2020) considered the cumulative effects that may arise from the proposed development, including the synergistic effects (the combined effect or different type of impact attributed to the proposed development in respect of a particular receptor) and the cumulative effect (arising from the combined effect of the proposed development with committed development schemes.

7.2 The technical chapters (Chapters C to M) of the ES (July 2020) set out mitigation and compensation measures proposed to avoid and reduce significant adverse environmental effects. Chapter O set out a summary of the proposed mitigation and compensation measures identified in the technical chapters. These measures included those that were considered to be 'embedded' into the design of the scheme, those that were additional mitigation measures and those that were compensatory off-site measures.

7.3 This section of the SES provides an update to Chapters N and O of the ES (July 2020). Where there are no changes, these have been clarified.

Residual Effects

Summary of Sensitive Receptors

7.4 Chapter N of the ES (July 2020) included a summary of sensitive receptors. These remain the same and are set out below for completeness. The additional receptors identified within the additional transport and air quality assessments are already considered within the categories below:

1 Breeding Birds;
2 Brown Hare;
3 Bus User Delay;
4 Cyclist Amenity;
5 Driver Delay;
6 Employment and Economic Output;
7 Eston Nab Hill Footpath;
8 Foundations of World War I Submarine Base Accommodation;
9 Foundations of World War II HAA Battery and Associated Facilities;
10 GHG Emissions;
11 Invasive Non-Native Species;
12 Invertebrates;
13 Landscape Character Area 1 Industrial);
14 On-Site Habitats;
15 River Tees Estuary;
16 Severance;

17 Smith's Dock Road/Dockside Road;

18 South Bank Train Station Footpath/Train Bridge;

19 Surface Water Bodies (Holme Beck, Knitting Wife Culvert, Cleveland and Lackenby Channels); and,

20 Uvedale Road.

Inter-relationship of Effects

7.5 The ES (July 2020) considers the inter-relationship between direct effects arising from the development. It does this by summarising the effects anticipated against each receptor and identifies where particular receptors may be subject to an accumulation of environmental impacts. This section focused only on those issues where the impact identified is significant.

7.6 For completeness Table N3.1 of the ES (July 2020) is reviewed. Those reviewed in relation to the additional receptors identified in the SES are highlighted in grey below. No changes have been identified. The SES process has identified that for the majority of technical assessments carried out the residual effects of the development are either Neutral of Negligible and therefore these are not presented in the table below (even if they were assessed as additional receptors within this SES).

Table 7.1 Direct Residual Environmental Effects for Identified Sensitive Receptors

Receptor	Construction Phase	Operational Phase
Breeding Birds	BE[4]	BE[1]
Brown Hare	BE	BE
Bus User Delay	-	(T)
Pedestrian/Cyclist Amenity	-	(T)
Driver Delay	-	(T)
Employment and Economic Output	SE*	SE
Eston Nab Hill Footpath	LV*	LV
Foundations of World War I Submarine Base Accommodation	-	(BGH)
Foundations of World War II HAA Battery and Associated Facilities	-	(BGH)
GHG Emissions	CC[5]	CC[2]
Invasive Non-Native Species	(BE)	(BE)
Invertebrates	BE	BE
Landscape Character Area 1 (Industrial)	-	LV
On-Site Habitats	BE[6]	BE[3]
River Tees Estuary	X-WMF	WMF
Severance	-	(T)
Smith's Dock Road/Dockside Road	LV*	(T)[7]
South Bank Train Station Footpath/Train Bridge	LV*	-
Surface Water Bodies (Holme Beck, Knitting Wife Culvert, Cleveland and	X-(WMF)	(WMF)[8]

[4] Adverse impacts are associated with breeding and foraging habitats only.
[5] Emissions expected due to significant volumes of building materials required (during construction) and transport emissions during operation, however this will not compromise the ability to meet UK carbon target nor will it contribute significantly to overall GHG emissions from Redcar and Cleveland.
[6] To be off-set by compensatory off-site habitat creation and enhancement, to be agreed.
[7] Pedestrian and Cyclist Amenity (Smith's Dock Road only).
[8] Beneficial impacts are from the amelioration of pollution caused by spillages and leakages.

Receptor	Construction Phase	Operational Phase
Lackenby Channels)		
Uvedale Road	-	LV

Key: T – Transport; BE – Biodiversity and Ecology; NV – Noise and Vibration; AQ – Air Quality; WMF – Water Management and Flooding; GC – Ground Conditions; SE – Socio-Economics; W – Waste and Materials Management; CC – Climate Change; LV – Landscape and Visual; BGH – Below Ground Heritage

RED – adverse effect; **GREEN** – beneficial effect; **BLACK** – unknown; ( ) – minor effect; - negligible/no effect anticipated; * - transitory/short term effect

Updated Cumulative Effects

7.7 The cumulative schemes discussed in Chapter N of the ES (July 2020) have been reviewed. The cumulative schemes are included in Appendix 1.1 of this SES (September 2020). Three of the applications have been approved since July and one additional scheme has been identified. This is the proposed development by STDC at the Metals Recovery Area, Teesside (application reference. R/2020/0465/FFM). This application boundary falls within the site boundary for this planning application.

7.8 For robustness the following paragraphs consider whether the additional scheme (reference. R/2020/0465/FFM) will give rise to any additional or new significant residual effects not considered within the ES (July 2020) in relation to all of the technical assessments.

Transport

7.9 The additional cumulative scheme has been considered as part of the future scenario in the transport assessment set out with the ES (July 2020) and Section 3.0 of this SES (September 2020). The results are not repeated here.

Biodiversity and Ecology

7.10 The proposed development will not include destruction of Open Mosaic Habitat ('OMH') or any other Habitat of Principle Importance ('HoPI'). The site does not support significant populations of faunal species and it is predominately developed land with small areas of grassland and sparsely vegetated habitats. If the site is development prior to this outline scheme, the proposals include mitigation measures to eliminate any significant effects and therefore it is considered that there will be no cumulative effects.

Noise and Vibration

7.11 The additional cumulative scheme has been considered as part of the future scenario traffic flow data provided by Arup in the ES (July 2020). Although this traffic flow data has been updated as part of this SES (September 2020) and the data has not been re-assessed for noise and vibration, it is not considered there will be a cumulative impact as a result of the additional scheme because of its nature.

Air Quality

7.12 The additional cumulative scheme has been considered as part of the future scenario traffic flow data provided by Arup, and therefore the cumulative air quality effects were considered as part of the Air Quality chapter of the SES (September 2020).

Waste Management and Flooding

7.13 There will be no cumulative impact as a result of the additional cumulative scheme.

Ground Conditions and Remediation

7.14 There will be no cumulative impact as a result of the additional cumulative scheme.

Socio-Economic

7.15 There is considered to be no cumulative impact as a result of the additional scheme. Refer to Chapter N of the ES (July 2020) for information on the socio-economic cumulative impacts.

Waste and Materials Management

7.16 There will be no cumulative impact as a result of the additional cumulative scheme.

Climate Change

7.17 Cumulatively, the additional scheme would further contribute to greenhouse gas emissions but it is not considered that it would impact on the ability of the UK or Redcar and Cleveland to achieve its objectives to reduce greenhouse gas emissions. Notwithstanding, all developments should be encouraged to implement measures to reduce emissions from their sites to reduce impacts as far as it is possible.

Landscape and Visual Impact

7.18 There will be no cumulative impact as a result of the additional scheme on landscape and visual impact because of the nature of the development.

Below Ground Heritage

7.19 There will be no cumulative impact as a result of the additional cumulative scheme.

Mitigation, Monitoring and Compensation

7.20 This SES (July 2020) has identified no need for additional mitigation, monitoring or compensation measures over and above those identified within Chapter O of the ES (July 2020).

7.21 Paragraphs O2.2 to O2.4 outline the mitigation measures embedded into the development parameters. Table O2.1 sets out a summary of each mitigation measure required by each technical specialism and paragraphs O2.7 to O2.12 sets out the proposed approach to off-site compensation. All of these measures main relevant to the proposed development. STDC is engaging with the Council on planning conditions and the request for employment and training contributions.

Requirements for Additional Surveys and Information

7.22 Chapter O of the ES (July 2020) identified the need for additional surveys and assessments to be undertaken as part of this EIA process or submitted at Reserved Matters stage once further scheme detailed are known. Assessments undertaken as part of the EIA process and therefore submitted within this SES (September 2020) include:

1 Clarification and surveys on transport, relating to consultation responses that were received from Highways England and Middlesbrough Council; and

2 Updated INNS surveys and habitat surveys to understand the site's suitability for wintering birds.

7.23 Those surveys that will be undertaken at the Reserved Matters stage of the planning process include:

1 Construction traffic assessment and associated air quality assessment (where necessary);

2 Construction materials assessment;

3 Water Framework Directive;

4 Further assessments on ground conditions to fill current data gaps (see chapter H of the ES (July 2020)); and

5 The assessment of GHG as a result of operational processes at the development.

7.24 This approach has been agreed with RCBC.

8.0 Summary and Conclusions

8.1 The SES (September 2020) prepared on behalf of STDC, provides further information to that in the ES (July 2020) for the proposed development of up to 418,000sqm (gross) of general industry and storage or distribution facilities with office accommodation, HGV and car parking and associated infrastructure at the South Industrial Zone in South Tees.

8.2 It provides the results of technical assessments that were ongoing at the point the ES (July 2020) and the planning application was submitted to RCBC and it addresses and provides clarifications for further information requested by statutory consultees and identifies any additional environmental effects not previously identified within the ES (July 2020). It has also sought to describe any measures proposed to prevent, reduce and where possible offset any significant effects on the environment.

8.3 The SES (September 2020) has considered the potential for different effects to that identified within the ES (July 2020) in respect of the following environmental matters:

- Transport;
- Biodiversity and Ecology;
- Air Quality; and
- Below Ground Heritage.

8.4 Transport, biodiversity and ecology and air quality have assessed the results of additional surveys undertaken and in doing so additional receptors have been identified. Additional receptors have also been identified as part of the below ground heritage assessment as a result of responding to consultee comments.

8.5 Overall, the residual effects remain the same as those set out within the ES (July 2020) for each specialism and as a result no further mitigation, monitoring or compensation measures are required.

8.6 No changes are anticipated to the cumulative effects provided in Chapter N of the ES (July 2020).

9.0 Abbreviations

1	AADT	Annual Average Daily Traffic
2	ADMS	Atmospheric Dispersion Modelling System
3	AEL	Associated Emission Levels
4	ASR	Annual Status Report
5	BAT	Best Available Technique
6	BBS	Breeding Bird Survey
7	BM2.0	Defra Biodiversity Metric 2.0
8	BNG	Biodiversity Net Gain
9	BoCC	Birds of Conservation Concern
10	BTO	British Trust for Ornithology
11	cSAC	candidate Special Area of Conservation
12	CEnv	Chartered Environmentalist
13	CEMP	Construction Environmental Management Plan
14	CEng	Chartered Engineers
15	CEnv	Chartered Environmentalist
16	CIEEM	Chartered Institute of Ecology and Environmental Management
17	CTTP	Chartered Transport Planning Professional
18	Defra	Department of Environment, Food and Rural Affairs
19	DM	Do Minimum
20	DS	Do Something
21	EA	Environment Agency
22	EcIA	Ecological Impact Assessment
23	EFT	Emission Factor Toolkit
24	EHO	Environmental Health Officer
25	EIA	Environmental Impact Assessment
26	ELV	Emission Limit Values
27	EPUK	Environmental Protection UK
28	ERF	Energy Recovery Facility
29	ERIC NE	Environmental Records Information Centre North East
30	ES	Environmental Statement
31	EU	European Union
32	F+G	Faithful and Gould
33	Habitats Regulations	The Conservation of Habitats and Species Regulations 2017
34	HE	Highways England
35	HGV	Heavy Goods Vehicles

36	HoPI	Habitat of Principal Importance
37	HRA	Habitats Regulations Assessment
38	IAQM	Institute of Air Quality Management
39	IEMA	Institute of Environmental Management and Assessment
40	IED	Industrial Emissions Directive
41	IES	Institute of Environmental Sciences
42	INCA	Industry Nature Conservation Associated
43	INNS	Invasive Non-native Species
44	JNCC	Joint Nature Conservation Committee
45	LAQM	Local Air Quality Management
46	LBAP	Local Biodiversity Action Plan
47	LNR	Local Nature Reserve
48	LWS	Local Wildlife Site
49	MC	Middlesbrough Council
50	NO_2	Nitrogen Dioxide
51	NOx	Nitrogen Oxides
52	NE	Natural England
53	NERC Act	Natural Environment and Rural Communities Act 2006
54	NNR	National Nature Reserve
55	NPPF	National Planning Policy Framework
56	NSIP	Nationally Significant Infrastructure Project
57	OMH	Open Mosaic Habitats
58	PEA	Preliminary Ecological Appraisal
59	pSPA	proposed Special Protection Area
60	NTS	Non-Technical Summary
61	PM	Particulate Matter
62	RCBC	Redcar and Cleveland Borough Council
63	SES	Supplementary Environmental Statement
64	SPA	Special Protection Area
65	SRN	Strategic Road Network
66	SSSI	Site of Special Scientific Interest
67	SoPI	Species of Principal Importance
68	STDC	South Tees Development Corporation
69	SQE	Suitably Qualified Ecologist
70	TA	Transport Assessment
71	TG	Technical Guidance
72	TVCA	Tees Valley Combined Authority

73	WBS	Wintering Bird Survey
74	WCA	Wildlife and Countryside Act 1981 (as amended)
75	WeBS	Wetland Bird Survey
76	ZoI	Zone of Influence

10.0 References

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