TEESWORKS

LONG ACRES ENVIRONMENTAL STATEMENT

VOLUME 2: CHAPTER D BIODIVERSITY AND ECOLOGY

DECEMBER 2020

Long Acres, South Tees

Volume 2: Environmental Statement (December 2020)

Chapter D: Biodiversity and Ecology

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Contents

D1.0 Introduction

D1.1 This Chapter of the Environmental Statement ('ES') has been prepared by INCA on behalf of the applicant, South Tees Development Corporation ('STDC'). It assesses the proposed development described in Chapter B and it considers the effects of the proposed development on the ecology and biodiversity issues within and surrounding the site.

D1.2 The baseline situation is considered before the likely environmental effects of the development are identified, both during construction and operational phases of the development. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.

D1.3 This Chapter is supported by the following technical appendices: -

1 Appendix D1 Biodiversity Metrics – Proposed Tees Estuary Partnership definitions

2 Appendix D2 INCA report 202011 Reptile Survey 2020

3 Appendix D3 Barn Owl survey 2020

4 Appendix D4 UK Habitats Classification – habitat survey map

About the Author

D1.4 This chapter has been written by Ian Bond CEnv MCIEEM, who is an ecologist with INCA. He has a first-class honours degree in Environmental Biology and over 20 years' experience of working in an ecological role on Teesside. This includes 12 years as a local authority ecologist, which involved reviewing EIAs. His specialist interests are mammals, amphibians and reptiles and he was the editor of the reference book for those taxa in north east England.

D1.5 The Habitats Regulations Assessment has been written by Mike Leakey. He has almost 30 years' experience of working in an ecological role on Teesside. This has principally been with Natural England and its predecessor bodies and included the assessment of numerous EIAs and HRAs. His specialist interest is ornithology and he was the co-ordinator of the Wetland Bird Survey scheme on Teesmouth for over 20 years and is currently the British Trust for Ornithology ('BTO') regional representative for Cleveland.

D1.6 The chapter has been reviewed by Dr Robert Woods ACIEEM, who is INCA Director and prior to that an ecologist with INCA. He has a post graduate diploma in Ecology from Oxford University and is an authority on Lepidoptera, including being the official moth recorder for VC62, the vice county of North-east Yorkshire, which includes South Tees.

D2.0 Policy Context

Legislation

D2.1 The following legislation is relevant to this chapter:

a The Conservation of Habitats and Species Regulations 2017 [i] (hereafter referred to as 'Habitats Regulations');

b Wildlife and Countryside Act ('WCA') 1981 (as amended) [ii]; and

c Natural Environment and Rural Communities ('NERC') Act 2006 [iii].

D2.2 The Environment Bill 2019-2021 [iv] is currently going through Parliament. The Bill as it stands includes a provision that biodiversity net gain ('BNG') should be made a condition of the grant of planning permission. This will require developers to provide evidence of BNG, likely to be of a minimum 10%. It is understood that this will be demonstrated by the use of a Biodiversity Metric ('BM') developed by Defra. Once the Bill has received Royal Assent, there will be a two-year transition before BNG is required to be implemented.

D2.3 BNG is not yet, therefore, mandated through adoption of the Environment Bill and is expected to become mandatory in early 2023. It is the intention that the Environment & Biodiversity Strategy being developed by STDC to support the South Tees Area Supplementary Planning Document will align with the requirements of the Environment Bill. It is expected that the Strategy will identify habitat enhancement schemes within and beyond the STDC area that can contribute towards BNG in future and provide a means of compensating habitat loss occurring from development schemes that proceed ahead of its finalisation.

D2.4 Until the Environment Bill is enacted and reflected in national policy, full weight should be given to the policies of the Redcar and Cleveland Local Plan, 2018 [v].

Planning Policy

D2.5 The following planning policies are relevant to this assessment:

i Redcar and Cleveland Borough Council ('RCBC') Local Plan (statutory policy) [v];

ii National Planning Policy Framework ('NPPF') [vi]; and

iii South Tees Area Supplementary Planning Document ('SPD') 2018 (non-statutory policy/ material planning consideration) [vii].

Guidance

D2.6 Guidance relevant to this assessment comprises:

a Guidelines for the Selection of Local Wildlife Sites (LWS) in the Tees Valley [viii]; and

b South Tees Regeneration Master Plan.

D3.0 Assessment Methodology & Significance Criteria

Assessment Methodology

Identification of Valued Ecological Receptors

D3.1 This section sets out the methods used in assessing the total biodiversity value of the site and in identifying the potential for any Valued Ecological Receptors ('VER') to be present or impacted by the proposed development. The following VERs have been considered in this assessment:

i Statutory designated sites;

ii Non-statutory designated sites;

iii Priority Habitats, which are those habitats listed under Section 41 of the Natural Environment and Rural Communities Act (2006) as being of principal importance for the conservation of biodiversity in England;

iv Habitats of local importance, for example those for which Local Wildlife Sites could be designated;

v Protected species;

vi Priority Species, which are those species listed under Section 41 of the Natural Environment and Rural Communities Act (2006) as being of principal importance for the conservation of biodiversity in England. (NB. Certain species are listed as Priority Species solely because their status requires further research rather than because they are a known conservation priority; these include some widespread moth and butterfly species. Those species are not considered individually in this assessment); and

vii Any other species or habitats which have been identified as being important in a local context.

D3.2 The presence or potential presence of Invasive Non-Native Species ('INNS') has also been described under Section D4.0 Baseline Conditions.

Zone of Influence

D3.3 In assessing the impacts of a proposal, the geographical extent over which those impacts on VERs might potentially be significant needs to be considered; this is referred to as the Zone of Influence ('ZOI'). The ZOI for the proposed development will vary depending on specific factors such as the ecology of the receptor, the sensitivity of the receptor to the potential impacts of the proposed development and potential pathways to the receptor. The conservation importance of the receptor also influences the extent of the ZOI, for example, the ZOI over which potential impacts on internationally designated sites would be much greater than that of widespread habitats and species. For the purposes of this assessment, the following ZOIs have been used.

i Internationally designated sites - 10km from the closest site perimeter;

ii Nationally designated sites – 5km from the closest site perimeter;

iii Locally designated sites and Priority Habitats – 2km from the closest site perimeter;

iv Protected species and Priority Species – The ZOI is dependent in part on the dispersal ability of the species, i.e. its potential to reach the site from its closest

breeding population, therefore the ZOI is considered individually for each species in terms of its proximity to the site; and

v Widespread species and habitats – site only.

Sources of information

D3.4 Assessment of the ecological value of the site involved a combination of a desk study of available information and site visits.

Desk Study

D3.5 The desk study is based principally on data collected by INCA, which has carried out ecological surveys across almost all of the industrial land in the wider South Tees area over more than a 20-year period, including the entirety of the Teesworks area. INCA has been the main organisation collecting ecological data across the Teesworks area including Long Acres, accumulating a significant number of species records relevant to the site and the surrounding area. Therefore, it was considered more appropriate to use INCA data for this report than to consult the Environmental Records Information Centre North East.

D3.6 An up to date list of Local Sites and Local Nature Reserves within the borough has been obtained from Redcar and Cleveland Borough Council.

D3.7 Information on statutory designated sites has been obtained directly from Natural England.

Site visits

Habitat Assessment 2019

D3.8 Habitat surveys were undertaken by INCA between April and June 2019 as part of a habitat mapping exercise on behalf of the Tees Estuary Partnership. The purpose of the survey was to record the type and condition of all areas of habitat so that they could be measured by a biodiversity metric. The entire area was walked, and areas of habitat were divided into habitat blocks of a minimum area of 0.25ha, based on type and condition. Smaller areas of habitat were recorded as target notes and were assessed in terms of their contribution to the condition of the surrounding habitat block. Boundaries were approximate due to habitats grading into each other in many cases. Each habitat was then traversed on foot so that all features could be observed, and the main components of its vegetation were recorded. Surveys did not attempt to list all plant species or to assess each habitat against specific criteria.

Habitat Assessment 2020

D3.9 The purpose of this surveys was to characterise the habitats in line with the UK Habitats Classification and to undertake further assessment of the condition of each habitat. The entire site was walked, and the habitat types were identified and mapped. No surveys were undertaken for species during the habitat surveys but any significant observations on species were noted.

Great Crested Newt eDNA survey 2019

D3.10 In 2019 INCA undertook an environmental DNA (eDNA) for Great Crested Newts of a concrete tank close to the northern perimeter of the site. The tank held a shallow amount of water which nevertheless appeared to be permanent based on the presence of aquatic vegetation in the form of Stonewort *Chara sp*. A newt larva was observed but due to the depth of the tank it was not possible to identify it or carry out standard newt survey techniques.

D3.11 Samples of water were taken from the tank on 30 May 2019 using the approved eDNA methodology as set out in Biggs et al, 2014 [ix]. The results were sent off for analysis by SureScreen Scientifics, which is an accredited company for carrying out analysis of eDNA material.

Reptile Surveys

D3.12 INCA undertook a reptile survey of four separate areas of the site in August-September 2019 and resurveyed three of those areas in March- June 2020. The reptile surveys were done to the standard methodology, which requires a minimum of seven visits therefore 14 visits to the site were undertaken in total. The results of the reptile surveys were given in INCA Report 202011, which is provided as appendix D2 to the ES.

D3.13 In August 2020, INCA commenced a translocations of Common Lizards from an area of the site immediately to the north of The Fleet. This involved several visits to the site per week over a period of six weeks.

D3.14 While the reptile surveys and translocation were focused on their particular objectives, nevertheless anecdotal observations of other species and habitats were made as part of the site visits.

Barn Owl survey

D3.15 In 2020 INCA commissioned a Barn Owl survey of several buildings on the Teesworks area, including three on Long Acres. The survey was undertaken by Graham Megson who has 38 years' experience of working in the ecology sector and who is licenced to survey for Barn Owls. Details of the survey are provided as appendix D3 to the ES.

Evaluation and Assessment

D3.16 In writing this chapter reference has made to the Chartered Institute of Ecology and Environmental Management ('CIEEM') guidelines for Ecological Impact Assessment ('EcIA') [x]. Whilst these are the current best practice guidelines, they provide guidance for practitioners to refine their own approach.

D3.17 The assessment process involves:

i Identifying and characterising impacts;

ii Incorporating measures to avoid and mitigate (reduce) these impacts;

iii Assessing the significance of any residual effects after mitigation;

iv Identifying appropriate compensation measures to offset significant residual effects; and

v Identifying opportunities for ecological enhancement.

D3.18 Impacts are actions that result in changes either positive or negative to ecological features. Effects are the outcomes for those features. Both positive and negative impacts of the proposed development are identified within this assessment and defined in terms of their impacts on ecological features.

Significance Criteria

D3.19 The assessment of the significance of effects on VERs includes consideration of the geographic importance of the VER and the magnitude of the effect. The extent of the effects on the receptor

is determined, taking into account the nature of the impacts and the sensitivity of the receptor to those impacts.

D3.20 In this assessment the following definitions have been used:

i International – Sites designated under European regulations or international conventions, including Special Protection Areas, Special Areas of Conservation and Ramsar sites. Populations of species or assemblages of species, which are important in an international context;

ii National – Sites designated under UK legislation, i.e. Sites of Special Scientific Interest and National Nature Reserves. Populations of species or assemblages of species, which are important in a national context;

iii Regional – Populations of species; assemblages of species or habitats, which are important in a north east England context;

iv County– Tees Valley Local Wildlife Sites and Local Geological Sites i.e. populations of species; assemblages of species or habitats, which meet the published criteria for designation as a Local Wildlife Site. Populations of species; assemblages of species or habitats, which are important in a Tees Valley context;

v Local – Local Nature Reserves. Populations of species; assemblages of species or habitats, which are important in the context of the RCBC area or which are important to the ecological integrity of the local area beyond the site itself.

vi Site - Populations of species; assemblages of species or habitats, which are important only in the context of the development site itself.

vii Negligible – Populations of species; assemblages of species or habitats, which make no substantive contribution to nature conservation.

D3.21 Professional judgement is used in relation to the nature of the impacts, the sensitivity and the geographic importance of the VER to determine the significance of the effect. Significant effects have been assessed and qualified with reference to the appropriate geographic scale. For example, if an impact would lead to an effect that meant a VER of County importance would be affected to the extent that it would afterwards be classified as of Local importance, this would be a significant effect. However, if an impact would lead to an effect that affected a VER of County importance, but not to the extent that its geographic importance would change, this would be classified as not significant. Whether effects are significant at the local scale, particularly in view of policies for no net loss of biodiversity, have also been assessed. European case law is specific regarding significance in relation to European sites and Annexed habitats. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, an effect on a species which is on a national list of species of principal importance for biodiversity may not have a significant effect on its national population.

D3.22 In assessing the effects of the proposal on VERs, the geographic definitions will be applied to EIA terminology as follows:

1 Substantial – Effects on VERs of international, national or regional importance;

2 Moderate – Effects on VERs of County importance;

3 Minor – Effects on VERs of Local importance;

4 Negligible – effects on VERs of Site or Negligible importance; and

5 Neutral – no effects.

D3.23 These terms will be applied to both beneficial and adverse effects.

D3.24 In relation to the terminology at paragraph D3.22 Substantial and Moderate effects are considered to be Significant, whilst Minor, Negligible and Neutral effects are considered to be Not Significant in EIA terms.

D3.25 Section 4.0 Baseline Condition, lists all VERs that are found in the wider Teesside area and which therefore need to be considered in relation to their potential to be affected by the proposed development.

D3.26 Only those VERs which are of Local importance or above, which are considered to be present or likely to be present or have the potential to be otherwise affected by the proposed development are considered in the assessment of significant effects.

D3.27 Effects on VERs of Local importance, while not classed as Significant in themselves, have the potential to be Significant on the basis of cumulative effects if more than one VER of the same type is affected, hence are included in the assessment. Effects on VERs of Site or Negligible importance are considered not to have the potential to be Significant on the basis of cumulative effects hence are scoped out of further assessment.

Consultation

D3.28 A steering group was established to discuss the wider Environment & Biodiversity Strategy for the South Tees Regeneration Masterplan. The first of these meetings was held on 12 March 2020 and was attended by representatives from STDC, Faithful and Gould (F+G), INCA, Natural England, RCBC, Environment Agency, Arup and Lichfields. This planning application was not discussed at the meeting, however principles of the wider strategy, which are relevant to the planning application, were discussed.

D3.29 During the determination of the outline planning application for the South Bank site (app. ref R/2020/0357/OOM), discussions were had with Natural England the Environment Agency including the use of the South Tees Regeneration Master Plan Environment & Biodiversity Strategy to deliver the compensation required for any significant residual effects and the precautionary approach taken to the assessment of specific ecological features such as wintering birds, invertebrates and habitats. Discussions were also had as to how any direct mitigation necessary to protect the qualifying features of the Teesmouth and Cleveland Coast SSSI, SPA, and Ramsar sites can be secured through the grant of planning permission and suitable conditions thereon. The same approach is to be taken with this application.

D3.30 Lichfields has consulted with Redcar and Cleveland Borough Council (RCBC) on the scope of the ES in the form of an informal scoping note. The note, which sets out the overall approach to scoping, has been agreed as acceptable by RCBC via email (the note and correspondence is provided at Appendix A2 of the ES).

D3.31 Informal consultation via email was undertaken with Tees Valley Wildlife Trust to inform them of the proposal and to seek their views on whether there were any VERs that they considered merited particular attention. A response is awaited as of the date of this report.

Assumptions and Limitations

D3.32 Other than the various reptile surveys and the GCN eDNA survey, no targeted surveys have been undertaken for any protected or priority species. Ecological surveys that have been undertaken have concentrated on characterising the habitats on site. Nevertheless, those surveys have been carried out at optimal times of year for identifying most VERs and any such that were observed were noted. The “brownfield” conditions on Teesside have characteristic suites of habitats and

species due to having had similar historical treatments producing similar edaphic and topographical conditions. Based on INCA's 30 years' experience of surveying the industrial sites on Teesside, these suites of habitats and species are with few exceptions relatively predictable. As such and where detailed survey information is lacking, assumptions of likely presence/absence of species have been made based on the habitat surveys and on INCA's experience. An estimation of the likely size of the population of each species and hence the assessment of its geographical significance, has been based on the amount of suitable habitat for that species.

D3.33 The assessment assumes that all habitats, in their current state within the 'Potential Development Area' as shown on the Parameter Plan (included at Appendix B3) on the site will be lost during the construction phase.

D4.0 Baseline Conditions

Existing Conditions

D4.1 This section sets out a summary of the results of the relevant baseline ecological survey work and desk study. It then goes on to evaluate the importance of the identified ecological features.

Internationally designated sites

D4.2 There are two internationally designated sites within a 10km radius of the site; the Teesmouth and Cleveland Coast Special Protection Area (SPA) and the Teesmouth and Cleveland Coast Ramsar site. SPAs are designated under the EU Wild Birds Directive. Ramsar sites are wetlands of international importance designated under the Ramsar Convention on Wetlands, but which are afforded the same level of protection in policy terms in respect of new development as European sites. The Teesmouth and Cleveland Coast Ramsar site shares the same boundary as the Teesmouth and Cleveland Coast SPA except where the SPA includes a marine component. The intertidal element of the Teesmouth and Cleveland Coast SPA is also classed as a European Marine Site and shares its interest features with the SPA.

D4.3 The closest part of the Teesmouth and Cleveland Coast SPA/ Ramsar to the site is Coatham Marsh, which is immediately adjacent to the east of the site. Coatham Marsh is important for its wetland habitats supporting non-breeding waterbirds.

Teesmouth and Cleveland Coast SPA

D4.4 The Teesmouth and Cleveland Coast SPA was first classified in 1995 for its numbers of European importance of breeding little tern *Sternula albifrons,* passage Sandwich tern *Thalasseus sandvicensis*, wintering red knot *Calidris canutus* and passage common redshank *Tringa totanus,* as well as an assemblage of over 20,000 waterbirds. The SPA was updated in 2000 to include additional areas of coastal and wetland habitats important for waterbirds.

D4.5 As of the commencement of a formal consultation in 2019, the SPA was further extended to include at sea foraging areas for breeding little tern and breeding and foraging areas for common tern *Sterna hirundo*, the latter being proposed as a new qualifying feature in the light of recent increases in the size of the breeding population within the site. The extension includes additional areas of terrestrial habitats such as wet grassland, saltmarsh, deep and shallow pools and intertidal areas important for other foraging and roosting waterbirds which were existing features of the SPA. Non-breeding Ruff *Calidris pugnax* and breeding pied avocet *Recurvirostra avosetta* have also been added as new qualifying features of the SPA.

D4.6 The boundary of the SPA extension covers an area from Castle Eden Denemouth in the north to Marske-by-the Sea in the south and includes the River Tees up to the Tees Barrage resulting in a revised SPA area of 12,226.28 ha. This increases the area of the existing SPA (1,251.50 ha) by 10,974.78 ha. The seaward boundary has been drawn to include waters out to around 3.5km from Crimdon Dene, to include the areas of greatest importance to the little terns at that colony, and out to around 6km offshore further south to include the areas of greatest importance to the common terns at the Saltholme colony.

Teesmouth and Cleveland Coast Ramsar

D4.7 The existing Teesmouth and Cleveland Coast Ramsar boundary has also been extended, as with the SPA, to include the additional terrestrial wet grassland, saltmarsh, deep and shallow pools and intertidal areas for breeding and non-breeding waterbirds. Historically the Teesmouth SPA and Ramsar have effectively shared the same boundary and interest features however the

Ramsar extension will only cover those terrestrial extension areas of the SPA down to Mean Low Water and will not extend outside of the SPA extension. Although not a qualifying feature the Ramsar site citation recognises that the site supports a rich assemblage of invertebrates, including the following seven Red Data Book species: *Pherbellia grisescens, Thereva valida, Longitarsus nigerrimus, Dryops nitidulus, Macroplea mutica, Philonthus dimidiatipennis* and *Trichohydnobius suturalis*.

D4.8 The number of birds in the Ramsar assemblage is greater than for the SPA as it includes mute swan *Cygnus olor* and greylag goose *Anser anser,* both of which are resident all year; the SPA only including migratory and wintering waterbirds.

Nationally Designated Sites

D4.9 There are two nationally designated sites within a 5km radius of the proposed development site; Teesmouth & Cleveland Coast Site of Special Scientific Interest (SSSI) and Teesmouth National Nature Reserve (NNR). The NNR is a sub-set of the SSSI and comprises two parts; the intertidal mudflats at Seal Sands and the dunes and grazing marshes around North Gare. As it is a part of the SSSI with the same interest features then it is not described or assessed separately in this chapter.

D4.10 The Teesmouth and Cleveland Coast SSSI is an amalgamation and rationalisation of the seven SSSIs which were formerly present in the Teesmouth area. It extends the original SSSIs geographically to underpin the non-marine elements of the extension to the Teesmouth and Cleveland Coast SPA and Ramsar (the SPA) and includes some additional, areas that are outside of the SPA as well as adding new interest features. The Teesmouth and Cleveland Coast SSSI was confirmed by Natural England in January 2019. The interest features of the SSSI and their relation to the site are shown in Table D4.1.

Table D4.1 SSSI interest features in relation to Long Acres

Qualifying feature	Principal locations with respect to Long Acres	Distance to Long Acres(km)
Jurassic Geology	Redcar Rocks	1.7 NE
Quaternary Geology	Seaton Carew	7.9 NW
Saltmarsh	Confined almost entirely to the Greatham Creek area north of the Tees. There is a very small amount at Bran Sands	6.6 W Greatham Creek 2.7 N Bran Sands
Sand Dunes	Coatham – South Gare to Coatham Common, Seaton Dunes in Hartlepool.	0.4 N Coatham Dunes 4.2 NW Seaton Dunes
Harbour Seal	Present in the estuary and river. Hauls out on Seal Sands and Greatham Creek. There are no haul out locations south of the Tees	4.2 W Haul-out
Breeding Birds	Present on all areas of suitable wetland habitat. South of the Tees, Coatham Marsh and South Gare are the key areas.	Adjacent Coatham Marsh 1.5 NW South Gare
Non -breeding Birds	Present on intertidal, freshwater and marine areas. Coatham Marsh is the closest site holding significant numbers.	Adjacent – Coatham Marsh
Invertebrate Assemblage	Coatham Dunes is of particular importance	0.4 N

D4.11 The Teesmouth and Cleveland Coast SSSI is an extensive mosaic of coastal and freshwater habitats centred on the Tees Estuary, including sand dunes, saltmarsh, mudflats, rocky and sandy shore, saline lagoons, grazing marshes, reedbeds and freshwater wetlands. These habitats support rich assemblages of invertebrates, breeding seals and large numbers of breeding and non-breeding seabirds and waterbirds. The site is of special interest for the following nationally important features that occur within and are supported by the wider habitat mosaic:

Jurassic geology

D4.12 The foreshore between Redcar Rocks and Coatham Rocks provides exposures of parts of the Lower Jurassic succession that are otherwise unexposed in the Cleveland Basin. These complement the younger Lower Jurassic successions exposed further south in Robin Hood's Bay and are sedimentologically distinct from rocks of the same age to the south of the Market Weighton Axis. The sequence of ammonite assemblages that occur here indicates that the succession is very complete and may provide a key for the comparison of other Hettangian and Sinemurian successions in the Northwest European Province.

Quaternary geology

D4.13 Tees Bay includes a feature known as the 'submerged forest' which has been well studied on the foreshore at Hartlepool between Carr House Sands and just north of Newburn Bridge, but which is also exposed south of Teesmouth on the foreshore at Redcar. On the Hartlepool foreshore there is complex of peats, estuarine and marine sediments deposited during the Holocene, which overlie glacial deposits from the last Ice Age. Within the peats there are tree stumps and branches. This sequence is also rich in fossils and contains archaeological evidence from the Mesolithic to the Romano-British periods. The palaeoenvironmental records at Hartlepool indicate changes in sedimentation due to fluctuations in relative sea level during the mid-Holocene, from approximately 7,000 to 3,000 years BP. The location of Hartlepool on the fulcrum between areas of crustal uplift to the north and subsidence to the south makes these sediments crucial in interpreting Holocene sea level change.

Saltmarsh

D4.14 The Tees Estuary supports the largest area of saltmarsh between Lindisfarne and the Humber Estuary. Its saltmarshes show a succession of vegetation types, from pioneer marshes of glasswort *Salicornia* species and annual sea-blite *Suaeda maritima*, through common saltmarsh-grass *Puccinellia maritima* communities, to stands dominated by common couch *Elytrigia repens* and its hybrid with sea couch *Elytrigia atherica, Elytrigia x drucei*, at the limit of tidal influence. The common saltmarsh-grass communities are diverse and sea aster *Aster tripolium*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima* provide a colourful late summer display.

Sand dunes

D4.15 The SSSI supports an extensive complex of dunes flanking both side of the Tees Estuary. It is the largest dune complex between Druridge Bay (Northumberland) and Spurn Point (East Yorkshire). There are two main dune systems: Seaton Dunes to the north of the Tees, and Coatham Dunes to the south. The dunes support a large area of semi-natural vegetation including the typical succession from strandline vegetation, occasionally including sea sandwort *Honckenya peploides* and sea rocket *Cakile maritima*, through foredunes of sand couch *Elytrigia juncea* and mobile dunes dominated by both marram *Ammophila arenaria* and lyme-grass *Leymus arenarius*, to fixed dune grassland with diverse swards, where herbs such as common bird's-foot trefoil *Lotus corniculatus*, lady's bedstraw *Galium verum*, fairy flax *Linum catharticum* and common restharrow *Ononis repens* form a prominent component. The fixed

dunes also support a number of scarce and threatened species, including purple milkvetch *Astragalus danicus*. There are a number of damp depressions in both dunes ('slacks'), which support a range of wetter vegetation types. A particularly prominent feature of some of the slacks are large and colourful stands of marsh orchids *Dactylorhiza* species and their hybrids. Some of the slacks show affinities with saltmarsh vegetation, with salt-tolerant species such as saltmarsh rush *Juncus gerardii*, sea plantain *Plantago maritima* and sea milkwort *Glaux maritima*. More consistently wet slacks support swamp communities. The dunes also show transitions to wetter habitats and saltmarsh.

Harbour seal

D4.16 Harbour seals *Phoca vitulina* (also known as common seal) have lived at the mouth of the River Tees for hundreds of years but were lost from the estuary for much of the 20th Century, principally due to pollution. They recolonised the estuary in the 1980s and have subsequently established a regular breeding colony which is the only pupping site in north-east England. Harbour seals are present in the estuary and the tidal Tees throughout the year, with regular haul outs at Greatham Creek and Seal Sands. Pupping tends to occur in June and July on the intertidal mud of Seal Sands.

Breeding birds

D4.17 The SSSI supports nationally important numbers of three breeding species: pied avocet *Recurvirostra avosetta*, little tern *Sternula albifrons* and common tern *Sterna hirundo*. Avocets and common terns both nest within the SSSI. Little terns from a large nearby colony at Crimdon (in the adjacent Durham Coast SSSI) use the SSSI for foraging and pre- and post-breeding gatherings, with only occasional recent nesting attempts. The extensive sand dunes, saltmarshes and wetlands across the site support a diverse assemblage of breeding birds. This includes a number of scarce and declining species, such as shoveler *Spatula clypeata,* pochard *Aythya ferina*, ringed plover *Charadrius hiaticula* and little ringed plover *Charadrius dubius*.

Non-breeding birds

D4.18 The extensive areas of open water, grazing marsh and intertidal habitats within the site provide safe feeding and roosting opportunities for large numbers of waterbirds throughout the year. The SSSI is of special interest for its non-breeding populations of ten species (shelduck *Tadorna tadorna*, shoveler, gadwall *Mareca strepera,* ringed plover, knot *Calidris canutus*, ruff *Calidris pugnax*, sanderling *Calidris alba*, purple sandpiper *Calidris maritima*, redshank *Tringa totanus*, Sandwich tern *Thalasseus sandvicensis*) and an assemblage of over 20,000 non-breeding waterbirds. The assemblage comprises a wide variety of waterbirds, including (in addition to the aforementioned species that are reasons for notification in their own right), large numbers of wigeon *Mareca penelope,* lapwing *Vanellus vanellus*, black-headed gull *Chroicocephalus ridibundus* and herring gull *Larus argentatus*. Shoveler, gadwall and ruff are predominantly associated with the extensive freshwater wetlands of the site, while ringed plover, knot, sanderling, purple sandpiper and Sandwich tern mostly use the open coast. Redshank are widespread across the site, but the greatest foraging concentrations occur, along with the largest numbers of shelduck, on the intertidal mud of Seal Sands and Greatham Creek. Seal Sands and Bran Sands are also regularly used by ringed plover and knot.

Invertebrate assemblage

D4.19 The extensive complex of sand dunes within the SSSI supports a nationally important invertebrate assemblage, including at least 14 threatened species. The assemblage is diverse and makes use of a wide range of niches, with a strong dependency on open but consolidated sand exposures within which to nest and hunt, as well as on flower-rich swards for nectar and pollen

gathering. The assemblage does not include a high number of rarities but is a good example of its type in the north of its range. As such, species such as the tephritid fly *Acanthiophilus helianthi*, whose larvae feed within the capitula of carline thistle, occur towards the northern edge of their British range. The grayling butterfly *Hipparchia semele* is found here and remains a scarce species on this north-eastern coastal strip.

Locally Designated Sites

D4.20 There are two locally designated sites within 2km of the site boundaries.

D4.21 Coatham Marsh LWS is immediately adjacent to the east. Its boundaries are slightly more extensive than the SPA and SSSI designations at Coatham Marsh, as they extend to the A1085 trunk road and the application sites. In addition to the interest features that it shares with the SPA and SSSI, it is also designated for Urban Grassland and Vascular Plants. Although it has not been included in the citation of Coatham Marsh LWS, Harvest Mouse is also present, which would be a further qualifying feature.

D4.22 Eston Pumping Station LWS is 0.6km south west of the closest boundary of the site. Eston Pumping Station LWS is designated for its mosaic of habitats including Urban Grassland, a form of brownfield habitat.

Protected Species

Great Crested Newt *Triturus cristatus* (GCN)

D4.23 There is no potentially suitable breeding habitat for GCN on the Long Acres site other than the concrete tank where INCA undertook the environmental DNA test for GCN in 2019. That test result proved negative for GCN, so they are considered to be absent from that waterbody

D4.24 Moreover, GCN is considered to be absent in the surrounding area. INCA carried out GCN surveys of all of the waterbodies on the former Corus site in 2007 and of four ponds at Teesport in 2005. All proved to be negative for GCN. INCA has also undertaken eDNA surveys at various waterbodies at the nearby Wilton Industrial Complex and Lazenby village over the period 2018-2020 and all have also proved negative. There is an unconfirmed record of GCN from a pond on the golf course at Coatham, approximately 100m to the north of the Long Acres site and 200m from the concrete tank where INCA carried out the GCN eDNA survey. This record was from 1988 and the pond where it was recorded no longer exists.

D4.25 The closest current records of GCN to the site are at Lovell Hill Ponds which is approximately 5km away to the south. There are records from the 1980s from Wilton Lake however this was surveyed in 2013 along with a further nine water bodies between Marske and the Wilton Industrial Complex for the Forewind Dogger Bank wind turbine proposal, all of which proved negative for GCN (Peak Ecology, 2013 [xi]).

D4.26 Based on the above information, it is considered that GCN is absent from all of the industrial areas in the wider South Tees area therefore it is concluded that it is absent from the site with no realistic potential for it to colonise. Therefore, it has been scoped out of further assessment.

Bats

D4.27 There are no records of bats over Long Acres. INCA has recorded Common Pipistrelle *Pipistrellus pipistrellus* foraging in small numbers across various parts of the nearby industrial areas and the species has been recorded along the entire Redcar coastline as far as South Gare. Both Daubenton's bat *Myotis daubentonii* and Noctule *Nyctalus noctula*, have been recorded over the adjacent Coatham Marsh. Common Pipistrelles are more generalist in their habitat

requirements than other species of British bat and would be expected to forage over the parts of Long Acres that would support their prey of flying insects. Noctule feed on much larger insects than Common Pipistrelles so their habitat use is more constrained by the availability of their prey, nevertheless in the absence of data it is assumed that they will also use the site to some extent. Daubenton's bat feeds over water so could conceivably use The Fleet where it crosses the site, however the dense covering of Floating Pennywort *Hydrocotyle ranunculoides*, across the surface of The Fleet means that there is very little open water which is anticipated to reduce potential use by Daubenton's bats significantly.

D4.28 In the absence of bat survey data, it is not possible to determine the site's importance for bats. The limited amount of water and the very low amount of tree cover means that the site is not likely to be of high importance, nevertheless using the precautionary principle the site is assessed as being of Local importance for bats.

Reptiles

D4.29 Common Lizard *Zootoca vivipara,* is present the coastal dune areas from South Gare to Coatham Common, though records are few and far between which may indicate that there is not a large population. It has been found in five separate locations on Long Acres. Two of these locations are within a few metres of the boundary of Long Acres with the Coatham Marsh and Coatham Dunes and probably represent an overspill of the population from the contiguous habitats. At a further two locations on Long Acres, surveys in 2020 suggest that lizards are no longer present. There is what appears to be a small population of Common Lizards at the western end of Long Acres, a few metres east of The Fleet, which is currently in the process of being translocated by INCA.

D4.30 The presence of reptiles in a lowland context is a criterion for designation as a Local Wildlife Site in the Tees Valley and therefore the site is assessed as being of County importance for reptiles.

Otter Lutra lutra

D4.31 Otter is established across all suitable waterbodies on Teesside. It is present on Coatham Marsh, where it had been known to breed. A juvenile Otter was recorded as a road casualty on the A1085 trunk road outside Steel House in 2020. As an Otter's territory typically extends for several kilometres it is possible that the species will occur at any location on Teesside where there are suitable water bodies with connectivity to other suitable habitat. Otter will undoubtedly, on occasion, use The Fleet through Long Acres as a conduit between Coatham Marsh and the River Tees. However, as The Fleet would only represent a tiny fraction of an Otter's territory, the site is assessed as being of Site importance for Otter and is therefore scoped out of further assessment.

Water Vole Arvicola amphibius

D4.32 There is some potentially suitable habitat for Water Voles on the site in the form of The Fleet watercourse however Water Vole is considered to be absent in the surrounding area. The most recent record of Water Vole is from an unspecified location on the former Corus site in 2007. INCA has carried out Water Vole surveys on various watercourses and waterbodies on the Teesworks Area and on Wilton Industrial Complex in the intervening period, all with negative results. Water Vole has been recorded from Coatham Marsh in the past though not within the past decade. The closest known recent location for Water Voles is on Spencer Beck approximately 7km to the south west of the site, though Water Voles are not regularly present on Spencer Beck. The lack of suitable habitat in the intervening area would make it highly

unlikely that they could recolonise the area around Long Acres. Therefore, Water Vole is considered to be absent from the site and is scoped out of further assessment.

Badger Meles

D4.33 There is no suitable habitat for Badgers on the site. In any case Badgers are considered to be absent from the surrounding area. Badgers are very uncommon in the entire borough of Redcar and Cleveland with the closest known current population being in the Eston Hills approximately 8km to the south west. Therefore, Badger is considered to be absent from the site and is scoped out of further assessment.

Breeding birds

D4.34 The large extent of the site, its long history of being undisturbed and the variety of habitats mean that there is likely to be an extensive list of breeding birds on the site. There is however no suitable habitat for the breeding bird species which form interest features of the Teesmouth and Cleveland Coast SPA/ Ramsar whilst habitat that would be suitable for the additional breeding bird interest features of the Teesmouth and Cleveland Coast SSSI is limited to very small amounts on the fringes of The Fleet.

D4.35 The most important suite of breeding birds that are associated with the site are those that nest on the ground. This includes Lapwing, *Vanellus vanellus*, Grey Partridge *Perdix perdix* and Skylark *Alauda arvensis,* all of which have been recorded on the site. There is potential habitat for Little Ringed Plover *Charadrius dubium*, to nest on the site, though it has not been recorded as doing so.

D4.36 The most significant individual breeding bird species on the site is Barn Owl *Tyto alba*, which breeds in two of the buildings on the site. Barn Owl is listed as a Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended), which means that it is illegal to disturb it while it is occupying or near a nest.

D4.37 Given that there is likely to be an extensive assemblage of breeding birds including several species of conservation importance, the site is assessed as being of Local importance for breeding birds.

Non-breeding birds

D4.38 The site has only limited potential for non-breeding birds that are an interest feature of the Teesmouth and Cleveland Coast SPA/ Ramsar. Curlew *Numenius arquata*, occurs in single figures in the flatter parts of the site and very small numbers of waterfowl are associated with The Fleet watercourse but otherwise the site is of limited potential use due a combination of the varied topography which limits sightlines and the hard substrate over much of the area which limits feeding opportunities. Therefore, the site is assessed as being of Site importance for non-breeding birds and is thus scoped out of further assessment.

Priority and other notable species

European Hedgehog *Erinaceous europaeus*

D4.39 Hedgehog has been found on the site but the amount of suitable habitat for them is limited as the majority of the site consists of quite open habitats with short vegetation. Consequently, the Hedgehog population on the site is considered to be of Site importance only therefore Hedgehog is scoped out of further assessment.

Brown Hare *Lepus europaeus*

D4.40 The industrial sites on Teesside are thought to support some of the largest populations of Brown Hare in north east England due to the combination of extensive grassland areas and lack of disturbance. Brown Hare is regularly seen at the site and the population there is assessed as being of Local importance.

Harvest Mouse *Micromys minutus*

D4.41 Harvest Mouse is present on the adjacent Coatham Marsh. This species inhabits rank grassland or other gramineous vegetation such as reedbeds. Vegetation of this nature is very limited in extent on the site and most that is present is outside of the potential development area. The site is therefore assessed as being of Negligible importance for Harvest Mouse and it is scoped out of further assessment.

Common Toad *Bufo bufo*

D4.42 Common Toad has been found in the terrestrial stage of its life history throughout the site. Unlike other British amphibians, Common Toads will regularly breed in slow-flowing water therefore it is possible that it breeds in The Fleet. Nevertheless, it is unlikely that its numbers on this site would be sufficient to meet the relevant criterion for designation as a Local Wildlife Site, therefore its population is assumed to be of Local importance.

Dingy Skipper butterfly *Erynnis tages*

D4.43 Dingy Skipper butterfly is resident on the site, and it is a stronghold for this species. There have not been any targeted surveys for butterflies, but casual records have noted a population into low double figures and targeted surveys would doubtless increase this figure significantly. This would be sufficient for the site to be designated as a Local Wildlife Site under the Tees Valley selection criteria. The site is therefore assessed as being of County importance for this species.

Grayling butterfly Hipparchia *semele*

D4.44 Grayling butterfly is resident on the site. There have not been any targeted surveys for butterflies and its population on the site is unknown but in excess of 50 individuals were noted on one part of the site as an incidental part of a reptile survey, so its population is estimated as being comfortably into three figures. It is listed as part of the invertebrate assemblage interest feature of the Teesmouth and Cleveland Coast SSSI but as it is a mobile species there are no selection criteria for designating individual sites as Local Wildlife Sites based on its presence. Nevertheless, its population would be of at least County importance and is likely to be of Regional importance. For the purposes of this assessment, and using the precautionary principle, the site is considered to be of Regional importance for Grayling Butterfly.

Invertebrate assemblage

D4.45 There have been no targeted surveys for moths or other invertebrates on the site. The northern end of what was until recently termed the 'Teardrop' site and the southern part of the same site, south of the Fleet, comprise generally of a floristically rich open grassland with varying aspect and topography in parts. These habitats are extensive in comparison with other parts of the Teesworks area and are likely therefore to support a significant diversity of invertebrate species, including moths. The types of habitat on the site would not lend themselves to supporting any of the moth species which are listed as of priority conservation priority for the Tees Valley as those are primarily associated with saltmarsh, reedbed and coastal grassland however there are some open, sandy areas which would be suitable for aculeate species. Overall the invertebrate assemblage is considered to be of Local importance.

European Eel *Anguilla anguilla*

D4.46 Eels are present in waterbodies on Coatham Marsh, which they will only be able to access via The Fleet. As the population on Coatham Marsh is likely to be of Local importance then The Fleet as a conduit for the species is also assessed as being of Local importance.

Invasive non-native species (INNS)

D4.47 The Fleet watercourse is heavily infested with Floating Pennywort, to the extent that it is not possible to see open water in some stretches. This will be having a very detrimental effect on the ecology of the watercourse as it will prevent the growth of native aquatic plants and the lack of light into the water column will have an adverse effect on food chains.

D4.48 Where Floating Pennywort has not completely covered the water surface another INNS, Nuttall's Waterweed *Elodea nuttallii*, is present. This can similarly cover the entire water surface though it doesn't shade out the water column to the same extent.

D4.49 It is conceivable that other INNS, both plant and animal, are present within The Fleet.

D4.50 There are large stands of Japanese Knotweed, *Fallopia japonica*, on the north facing slope at the north of the site.

D4.51 Individual plant of various species of Cotoneaster including Small-leaved Cotoneaster, *Cotoneaster microphylla* and Herring-bone Cotoneaster *Cotoneaster horizontalis*, are scattered across the site.

D4.52 INNS are not of conservation importance and will be addressed through the embedded mitigation associated with the proposed development. Therefore, they are scoped out of further assessment.

Habitats

D4.53 The site is characterised by various open habitats of short vegetation that range from bare ground to grassland. In many cases these habitat blocks contain a high proportion of wildflowers in the sward and in some cases a high diversity of plant species. The topography is for the most part flat but with numerous small areas where tipping has varied the topography and substrate at a micro-scale. Typically, the substrates are compacted, hard material, mainly blast furnace slag with a light covering of soil but in places the substrates are loose, for example sand or mounds of tipped material.

D4.54 Each type of habitat present is described briefly below and assigned a UK Habitats Classification[xii] category where there is a category which corresponds with the habitat present. Individual habitat types varied in quality across the site and demarcations were made not only between different types of habitat but also between areas of the same habitat but of differing ecological condition. However, it should be noted that the vegetation often graded both within and across habitats, so such boundaries are approximate. The calculation of the Biodiversity Units ('BDU's) associated with the site, which is set out in section D8.0 Biodiversity Value Assessment defines the different areas of the site in terms of the habitats and their ecological condition. A map of the on-site habitats, using the UK Habitats Classification categorisation is provided at **Appendix D4.**

Sparsely vegetated land – Ruderal/Ephemeral

D4.55 The vegetation across much of the site would fit with the definition under Table TS-1 of the Defra Biodiversity Metric 2.0 Technical Supplement [xiii] as, "sparsely vegetated land – Ruderal/Ephemeral", which gives the following definition:

"The short-lived transitory habitat of low growing early successional plants of open ground such as arable landscapes, derelict urban sites, quarries and railway ballasts. This will get replaced by more stable vegetation unless disturbance of soil continues. Reasonably variable in biodiversity value dependent on species present, do often provide important pollen and nectar sources along with open ground for insects."

D4.56 This type of habitat does not fit into the categories of the UK Habitat Classification although they do approximate quite well to the Joint Nature Conservancy Council Phase 1 Habitat Survey [xiv] as category (J1.3) Ephemeral/ Short perennial.

D4.57 The quality of the various habitat blocks of this classification varies considerably across the site. At one extreme there is an area of predominantly bare ground vegetated with lichens and bryophytes but few herbs. Most areas however have high quantities of herbaceous flowers, albeit typically of a limited range of species, with Birds-foot Trefoil *Lotus corniculatus*, Storksbill *Erodium cicutarium* and Stonecrop *Sedum spp*., being particularly prevalent. One area of approximately 5ha, has sufficient diversity of indicator species to meet the "Urban Grasslands" criterion for designation as a Local Wildlife Site. As such this area is assessed as being of County importance.

Open Mosaic Habitats (UK Habitats Classification u1a)

D4.58 On two areas of the site the early successional vegetation that typifies the Ruderal/ Ephemeral habitat blocks is associated with loose, disturbed substrates which thereby meets the definition of Open Mosaic Habitats, which is a Priority Habitat. Both areas are reasonably herb- rich but neither have sufficient species diversity to meet the "Urban Grasslands" criterion for designation as a Local Wildlife Site hence while this is a high distinctiveness habitat, these examples are assessed as being of only Local importance.

D4.59 **Other Neutral Grassland (UK Habitat Classification g3c)**

D4.60 The other main habitat type characterising the site is grassland. Although based for the most part these are on a slightly calcareous substrate in the form of blast-furnace slag, these are not typically calcareous grasslands hence are classed as "Other Neutral Grassland". The habitat blocks of grassland are for the most part a continuation of the vegetation successional processes from Ruderal/ Ephemeral habitats and in some cases a judgement call was required as to which category they would fit best. In such cases they have been assigned to the higher distinctiveness category, which is grassland, as succession would proceed in that direction without intervention.

D4.61 The grassland habitat blocks vary across the site in terms of the principal grass species present and do not all meet the descriptions for the sub-divisions of "Other Neutral Grassland" under the UK Habitats Classification, hence have simply been grouped together under the broader heading. Likewise, the extent and diversity of herbaceous species varies considerably which is likely to be a reflection of the extent to which the underlying substrate is covered by soil. The best quality example, comprising an area of approximately 2ha would have sufficient species diversity to meet the criterion for designation as a Local Wildlife Site, hence it is assessed as being of County importance.

Dune Grassland (UK Habitat Classification s3a7)

D4.62 A small area of approximately 0.5ha in the north east sector of the site has developed into dune grassland. The flora is typical of coastal grassland of the north east England coast with the main component being Storksbill. English Stonecrop *Sedum anglica,* is also abundant and Bloody Cranesbill *Geranium sanguineum*, is frequent. Other species typical of coastal grassland were Restharrow *Ononis repens* and Burnet Rose, *Rosa pimpinellifolia*. It has not been surveyed in sufficient detail to know whether it would meet the criterion for Coastal Grassland to merit

designation as a Local Wildlife Site and hence of County importance. However, due to its relatively small size and isolated location it is assessed as being of Local importance.

Other Neutral Grassland (UK Habitat Classification g 4 Modified Grassland)

D4.63 The margins of The Fleet watercourse, where it passes through the southern part of the site are flanked by narrow strips of rank, species-poor grassland. This is likely to have formed on nutrient-rich material dredged from The Fleet in the past. It is assessed as being of Site importance and is therefore scoped out of further assessment.

Woodland (UK Habitats Classification w1f7 Other Woodland, Broadleaved)

D4.64 There are two small areas of young woodland, each of around 0.5ha in extent and both on the flanks of the high mound at the northern end of the site. They differ in their origins and species composition, but both would seem to fit best in the "Other Woodland, Broadleaved" category.

D4.65 One area is an amenity plantation on the north west flank of the mound which is approximately 6-7m in height and probably around 15 years old. It comprises around 75% native broad-leaved trees of mixed species with the remainder being *Pinus* species.

D4.66 The other area is at the base of the north east flank, including bordering The Fleet watercourse. This appears to be natural regeneration which has developed from the surrounding scrub but as its height now exceeds 5m it should be classed as woodland rather than scrub.

D4.67 Both areas of woodland are of Site importance only and are therefore scoped out of further assessment.

Mixed Scrub (UK Habitats Classification h3h)

D4.68 There are two areas of mixed scrub. The larger is on the eastern flank of the high mound and borders The Fleet in places. The largest species component of the mixed scrub is Sea Buckthorn *Hippophae rhamnoides,* but this is not so prevalent to be dominant. Young trees are growing through the scrub this habitat will eventually succeed to woodland.

D4.69 The second area of scrub is an isolated patch in the middle of the flat area in the far north east of the site. The main scrub components are Sea Buckthorn and Snowberry *Symphoricarpus albus*, the latter an invasive, non-native species, though not an INNS as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

D4.70 The areas of mixed scrub are assessed as being of Site importance and are therefore scoped out of further assessment.

Watercourse (UK Habitats Classification r1e Canals)

D4.71 The Fleet watercourse enters the site flowing in a westerly direction from Coatham Marsh and arcs round in south westerly direction. It is then culverted in a north westerly direction under the former Hot Metals Transfer Railway and internal road and emerges on the other side where it continues in a straight culvert. At the western boundary of the site, the Fleet continues in a culvert heading south until it discharges into Dabholm Gut.

D4.72 It is characterised as canalised as that is its nature for just over half of its length through the site though at the northern end where it flows from Coatham Marsh its width varies and becomes irregular in places, though still with steep sides. There is a narrow fringe of emergent vegetation, principally Branched Bur-Reed *Sparganium erectum*, and Reedmace *Typha latifolia*, for most of its length through the site. As noted in section 4, it is heavily infested with Floating Pennywort, to the extent that there is no open water for much of its length.

D4.73 A second watercourse linking Steel House Lake with The Fleet runs for approximately 100m through the site and joins The Fleet immediately upstream of the road bridge. This watercourse is also canalised.

D4.74 There have been no surveys of either watercourse, but they have the potential to contain other INNS or conversely aquatic species of conservation concern. Regardless of the species which are resident in the watercourses themselves, their connections between the River Tees and the ponds and wetlands at Coatham Marsh and Steel House Lake respectively, make them a potentially important conduit for flora and fauna. As such they are assessed as being of Local importance.

Bare substrates (UK Habitat Classifications u1b Developed land; sealed surface and UK Habitat Classification U1c artificial unsealed; unvegetated surface)

D4.75 Sealed surfaces across the site are confined to roads or former roads. Two areas of the site are unsealed but effectively bare of vegetation. The largest of these is the high mound at the northern end of the site which contains almost 5ha of bare ground. Some small, artificial unsealed surfaces can be found across the site in the form of access tracks.

D4.76 All areas of bare substrate on the site are assessed as being of Negligible importance and are therefore scoped out of further assessment.

Summary

D4.77 Table D4.2 lists those VERs which are present on the site or might otherwise be affected by the proposed development and categorises the geographic context of their status as ecological receptors.

Table D4.2 Valued Ecological Receptors in relation to Long Acres

Valued Ecological Receptor	Status
Teesmouth & Cleveland Coast SPA/ Ramsar	International
Teesmouth & Cleveland Coast SSSI	National
Local Wildlife Sites	County
Bats	Local
Reptiles	County
Breeding birds	Local
Brown Hare	Local
Common Toad	Local
Dingy Skipper butterfly	County
Grayling butterfly	Regional
Other Invertebrates	Local
European Eel	Local
Open Mosaic Habitats	Local
Ruderal/ ephemeral	County
Other neutral grassland	County
Dune grassland	Local
Watercourse	Local

D4.78 Table D4.3 lists those VERs that have been scoped out of further assessment and the reason for them being scoped out.

Table D4.3 VERS scoped out of further assessment

Valued Ecological Receptor	Reason for being scoped out
Great Crested Newt	Absent
Otter	Site importance only
Water Vole	Absent
Badger	Absent
Non-breeding birds	Site importance only
Hedgehog	Site importance only
Harvest Mouse	Negligible importance only
Invasive Non-Native Species	Not of conservation importance
Modified Grassland	Site importance only
Woodland	Site importance only
Scrub	Site importance only
Bare Substrates	Negligible importance only

Future Baseline

D4.79 Without development vegetation successional processes would continue and habitats would change over time. This would be a continuous process, unless intervention occurs, but will happen at different rates depending on the vegetation type and the substrate and different results would be expected depending on the end point chosen. Assuming that no development occurs within 10 years then it is estimated that of the Ruderal/ Ephemeral and Open Mosaic Habitat would deteriorate as vegetation growth, particularly grass, fills in the open habitats. As their names suggest these are by their nature ephemeral habitats and this process of succession can happen quite rapidly with significant changes in the habitat. In some cases, species-rich grassland can occur as an intermediate state but generally there is a notable loss of herb-species diversity.

D4.80 The scrub would likewise continue to develop into young woodland, which would be beneficial in the long term but that would be a slow process with significant changes unlikely to occur in a 10-year time frame. Overall it is expected that there would be a significant reduction in biodiversity value over the site if there is no intervention.

D4.81 Should the proposed development not go ahead then it is likely that some alternative development would happen on the site given the local planning policy position set out in chapter B. Therefore, the future baseline would be expected to be similar to that of the proposed development.

D5.0 Potential Effects

D5.1 This section identifies the VERs that have been taken forward for further assessment. The likely impacts and effects that could arise from the proposed development activities are identified and considered with reference to each of the VERs.

Embedded Mitigation

D5.2 Adherence to measures outlined in a Framework Construction Environment Management Plan (CEMP) will form part of the embedded mitigation for the proposed development during the construction phase. The full list of CEMP measures is set out in section B7.0 Construction Methodology of Chapter B of this ES; with regards to biodiversity and ecology the CEMP will include the following measures:

1 Mitigation will be included to prevent and mitigate against any accidents, including but not limited to, spills, storage of soils and control of construction related dust and the construction of site hoarding to reduce the impact on ecological sensitive receptors;

2 Measures will be implemented to prevent sediment, dust, surface water run-off and other substances from entering watercourses;

3 Removal of trees, scrub, wetland habitat or areas of grassland or open mosaic habitat that may support nesting birds should be undertaken outside of nesting season (March to August inclusive), unless the habitats are first checked by a suitably qualified ecologist, who confirms in writing the LPA that no nesting birds are present.; and

4 Measures will be implemented to prevent the spread of invasive non-native plant species, as listed under either Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or the Invasive Alien Species (Enforcement and Permitting) Order 2019.

D5.3 Section B8.0 Summary of Primary and Tertiary Mitigation, provides a list of further embedded mitigation measures, one of which is relevant to this ecological assessment:

"Further ground investigation surveys will be undertaken in order to identify the need, or otherwise, for remediation work. This stage of work will include, if necessary, the submission of details to divert the Fleet and any associated ground remediation necessary as part the diversion."

D5.4 It has been assumed that the hydrology of Coatham Marsh will not be affected by any works to the Fleet. It is recommended that the submission and approval of a method statement for assessing any works to alter or realign the on-site watercourses which demonstrates this is a condition of any grant of outline planning permission.

D5.5 The assessment of potential effects assumes that this embedded mitigation is in place and therefore only considers impacts and the associated effects which will remain after its implementation.

D5.6 Each of the VERs which are of Local importance or above is assessed below. Table D5.1 sets out the potential effects arising from the proposed development on the VERs.

Major Hazards and Accidents

D5.7 Consideration has been given to major hazards and accidents and it is not considered relevant to this topic.

Phasing

D5.8 A Phasing Schedule has been developed for the site which sets out the predicted levels of construction over time. The Phasing Schedule would make no difference to the assessment of the ecological effects as all impacts on ecology will be due to the initial stages of construction, i.e. site clearance and remediation.

During Construction

Teesmouth & Cleveland Coast SPA/Ramsar

D5.9 The Teesmouth and Cleveland Coast SPA and Ramsar site is immediately adjacent to the south west of the site at its closest point, which is Bran Sands Lagoon.

D5.10 A Habitats Regulations Assessment (HRA) has been completed for the proposed development, as set out under Regulation 63 of the Habitats Regulations [i].

D5.11 Stage 1 of an HRA Stage involves screening to identify the potential for impacts to have likely significant effects. The following impacts were identified as having the potential to have a likely significant effects at Stage 1:

i Hydrological changes to habitats caused by the diversion of watercourses;

ii Loss of supporting habitat caused by the development;

iii Changes to flight lines or sightlines for waterbirds occasioned by the development;

iv Disturbance caused to waterbirds caused by the development;

v Discharges to water caused by the development;

vi Emissions to air caused by the development; and

vii Reduced groundwater infiltration caused by the development.

D5.12 The HRA Stage 2 assessment (Appropriate Assessment) considers those potential impacts identified at Stage 1 and for each assesses whether they would be likely to have adverse effects on the site's integrity, taking into consideration all proposed mitigation measures. The Stage 2 Appropriate Assessment concluded that, "the proposed development will not cause adverse effects to the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar site, either alone or in combination with other plans or projects, provided that the embedded and other mitigation measures specified in the application are satisfactorily delivered.".

D5.13 The relevant embedded mitigation measures include submission and approval of a method statement in relation to any works to the on-site watercourses as set out at paragraph D5.4.

D5.14 The potential impact to these designated sites and their qualifying features will therefore not be further assessed in this EcIA and reference should, instead, be made to the HRA.

Teesmouth & Cleveland Coast SSSI

D5.15 The Teesmouth & Cleveland Coast SSSI underpins the SPA/Ramsar. Therefore, it can be concluded on the basis of the HRA that there would be no adverse effect on those interest features of the SSSI that it shares with the SPA/Ramsar.

D5.16 The SSSI includes some interest features and areas that are in addition to those of the SPA/ Ramsar. The closest of these features are the breeding birds assemblage, part of which is adjacent to the proposed development at Coatham Marsh. However this interest feature is dependent on the same wetland habitats as the SPA interest feature therefore there will likewise be no adverse effect on it. Sand dunes and associated invertebrate assemblage at Coatham

Dunes which are 0.4km to the north. The proposed development would not impact the sand dunes. A small area of saltmarsh (>0.5ha) is present at Bran Sands lagoon, 2.7km to the north, but this would not be affected by the proposed development. The areas where Harbour Seal haul out are all on the north side of the river and a minimum of 4.2km from the proposed development, so would not be affected. Therefore, it can be concluded that there would be no impact on the SSSI, i.e. effects in EIA terms are Neutral and Not Significant.

Locally Designated Sites

D5.17 Although Coatham Marsh LWS lies immediately adjacent to the site, the only designation features that it does not share with the SPA and SSSI and which therefore require separate assessment are Urban Grassland and Vascular Plants. The only way in which either feature could be impacted by the proposed development would be by emissions to air however this will be avoided through the mitigation embedded in the CEMP.

D5.18 Eston Pumping station LWS is 0.6km to the south west of the closest part of the potential development area. No pathways have been identified between the site and Eston Pumping Station LWS.

D5.19 Therefore, it can be concluded that there would be no impact on locally designated sites, i.e. potential effects in EIA terms are Neutral and Not Significant.

Bats

D5.20 The proposed development would result in the permanent loss of habitat supporting a population of bats of Local importance during the construction phase of the proposed development. As a result, there would be a permanent, Minor Adverse effect on bats.

Reptiles

D5.21 The proposed development could cause harm to reptiles during the construction phase. The proposed development would also result in the permanent loss of habitat supporting a population of Common Lizards of County importance during the construction phase of the proposed development. As a result, there will be a permanent, **Moderate Adverse** effect on reptiles.

Breeding Birds

D5.22 The proposed development could cause harm to breeding birds during the construction phase. The proposed development would also result in the permanent loss of habitat supporting a population of breeding birds of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on breeding birds.

Brown Hare

D5.23 The proposed development would result in the permanent loss of habitat supporting a population of Brown Hare of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on Brown Hare.

Common Toad

D5.24 The proposed development would result in the permanent loss of habitat supporting a population of Common Toad of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on Common Toad.

Dingy Skipper butterfly

D5.25 The proposed development would result in the permanent loss of habitat supporting a population of Dingy Skipper butterfly of County importance during the construction phase of the proposed development. As a result, there will be a permanent, **Moderate Adverse** effect on Dingy Skipper butterfly.

Grayling butterfly

D5.26 The proposed development would result in the permanent loss of habitat supporting a population of Grayling butterfly of Regional importance during the construction phase of the proposed development. As a result, there will be a permanent, **Substantial Adverse** effect on Grayling butterfly.

Other Invertebrates

D5.27 The proposed development would result in the permanent loss of habitat supporting a population of invertebrates of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on invertebrates.

European Eel

D5.28 The proposed development could temporarily affect habitat supporting a population of European Eels of Local importance during construction. As a result, there will be a temporary, Minor Adverse Effect on European Eels.

Open Mosaic Habitats

D5.29 The proposed development would result in the permanent loss of an area of 3.04ha of Open Mosaic Habitat of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on the Open Mosaic Habitat resource.

Ruderal/ ephemeral

D5.30 The proposed development would result in the permanent loss of an area of Ruderal/ephemeral habitat of 4.97ha of County importance during the construction phase of the proposed development. As a result, there will be a permanent, **Moderate Adverse** effect on the ruderal/ephemeral habitat resource.

Other Neutral Grassland

D5.31 The proposed development would result in the loss of an area1.81ha of neutral grassland of County importance during the construction phase of the proposed development. As a result, there will be a permanent, **Moderate Adverse** effect on the neutral grassland resource.

Dune Grassland

D5.32 The proposed development would result in the loss of an area of 0.51ha of Dune Grassland of Local importance during the construction phase of the proposed development. As a result, there will be a permanent, Minor Adverse effect on Dune Grassland.

Watercourses

D5.33 At this stage, it is unclear whether the watercourses will be diverted, however, regardless of this, there is potential for temporary adverse effects on the watercourses of Local importance during construction as a result of silt and contaminated soils entering the watercourse. However, as set

out in paragraph D5.2 above, mitigation has been incorporated into the Framework CEMP to prevent this. As a result, there will be a temporary Negligible Adverse effect on watercourses.

Table D5.1 Potential effects on Valued Ecological Receptors

Value Ecological Receptor	Potential effect
Teesmouth and Cleveland Coast SPA/ Ramsar	Neutral and Not Significant
Teesmouth and Cleveland Coast SSSI	Neutral and Not Significant
Local Wildlife Sites	Neutral and Not Significant
Bats	Minor Adverse Not Significant
Reptiles	**Moderate Adverse** and Significant
Breeding birds	Minor Adverse and Not Significant
Brown Hare	Minor Adverse and Not Significant
Common Toad	Minor Adverse and Not Significant
Dingy Skipper butterfly	**Moderate Adverse** and Significant
Grayling butterfly	**Substantial Adverse** and Significant
Other Invertebrates (Odonata)	Minor Adverse and Not Significant
European Eel	Minor Adverse and Not Significant
Open Mosaic Habitats	Minor Adverse and Not Significant
Ruderal/Ephemeral (Urban Grassland)	**Moderate Adverse** and Significant
Other Neutral Grassland	**Moderate Adverse** and Significant
Dune Grassland	Minor Adverse and Not Significant
Watercourses	Negligible Adverse and Not Significant

During Operation

D5.34 Other than the watercourses, it is assumed that all habitats will be lost during the construction phase therefore there will be no further effects on habitats during the operational phase.

D5.35 The Fleet and the other on-site watercourse may be diverted as part of the proposed development, however, at this stage the extent and nature of these works is unknown. Should this involve the "naturalising" of these watercourses, i.e. reprofiling or removing obstructions, etc, it could have potential to make a substantial contribution to the ecology of the site depending on the features incorporated into the realigned watercourses. This would have a permanent Beneficial effect on a watercourse of Local importance. At this stage, it is not possible to provide any certainty about what will happen to the watercourse on and under the site, and therefore any potential improvements do not form part of the assessment. Assuming therefore the watercourses stay in situ, no effects are anticipated on the watercourses or SPA during the operational phase (e.g. effect is Neutral).

D5.36 The effects on species are in relation to the loss of their respective habitats during construction. Consequently, none of the species VERs are anticipated to be present post construction due to the absence of suitable habitat therefore there will be no further effects on species during the operational phase.

D6.0 Mitigation and Monitoring

During Construction

D6.1 Other than for potential harm to nesting birds, which is satisfactorily addressed through embedded mitigation measures are set out in the CEMP, the only other VER for which mitigation is required during construction is reptiles. A small population of Common Lizards is present in three areas of the site and individual lizards could occur in other locations within the site.

D6.2 A reptile mitigation strategy will be drawn up and submitted for approval. The reptile mitigation strategy shall include measures to prevent harm to reptiles and to maintain the population of reptile's ex-situ. It will include a specific monitoring programme to ensure that the objectives of the strategy have been achieved.

D6.3 The recommendations of the reptile mitigation strategy will be implemented in accordance with the phasing therein.

During Operation

D6.4 No effects on habitats and species are anticipated during operation therefore no further mitigation is proposed.

D7.0 Residual Effects

During Construction

D7.1 Other than for reptiles, for which the population (if demonstrated to be present) will be maintained ex situ, residual effects are as set out in section D5.0 Potential Effects.

D7.2 The potential effect on reptiles was **Moderate Adverse.** With the implementation of the mitigation outlined in section D6.0 Mitigation and Monitoring, the residual effect on reptiles will be Negligible and Not Significant. This will be achieved by the provision of a reptile mitigation strategy, the aims of which will be to prevent harm to reptiles and to maintain a population of at least equivalent size ex situ. Monitoring, which will form part of the reptile mitigation strategy, will assess the efficacy of the ex-situ population and if necessary, inform further conservation measures of the ex-situ population to ensure that the aims have been achieved. By maintaining a population of Common Lizards of at least the equivalent size as that which may be on site, then the VER would remain at a County level of importance.

During Operation

D7.3 As no additional mitigation is considered necessary during operation residual effects are as set out in section D5.0 Potential Effects.

D8.0 Biodiversity Value Assessment

D8.1 While the purpose of an EIA is to identify significant effects the biodiversity of any site is wider than the VERs, encompassing all species and habitats. Planning policy requires that there is no net loss of biodiversity and where possible a net gain.

D8.2 The Redcar and Cleveland Local Plan Policy N4 requires that there should be *"appropriate protection and enhancement measures incorporated into the design of development proposals, recognising wider ecosystem services and providing net gains wherever possible"*. This is also reflected within Paragraph 170(d) of national planning policy, which states that *"Planning policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."*

D8.3 Therefore, to give an overall biodiversity value for the potential development areas of the site to ensure as a minimum no net loss, a metric has been used to score all of the habitats present in terms of the number of biodiversity units (BDUs) present. There are currently no widely agreed metrics for species however the overall biodiversity value of species is often a reflection of the habitats. The metric that has been used is the Defra BM2.0 version. This metric has been augmented by further interpretation of certain of the habitats using definitions devised by INCA through the Tees Estuary Partnership; these definitions are stated in **Appendix D1**. The calculation of the number of BDUs for each habitat block within the potential development area of the site is given in Table D8.1 below. (N.B. Areas of bare ground, whether sealed or unsealed, and buildings do not score in the metric so have been excluded from the calculations.)

D8.4 The watercourses have not been included in this Biodiversity Value Assessment. This is because Defra have developed a separate metric for calculating the biodiversity value of rivers and streams. The calculation of this metric requires consideration of a number of biotic factors, with best practice being that those factors are assessed during the summer months. A Biodiversity Value Assessment of the watercourses should form part of the method statement for assessing any works to alter or realign watercourses (namely The Fleet) and be proportionate to the extent of works being proposed. This Assessment should be undertaken prior to the approval of any detailed scheme of works to the watercourses.

Table D8.1 The number of BDUs associated with each habitat block on the site

Habitat Block	Habitat Type	Area	Distinctiveness	Condition	Connectivity	Strategic Significance	BDU / ha	Total BDUs
1	Ruderal/ Ephemeral	2.95	2	1.5	1.15	1.1	3.80	11.20
2	Mixed scrub	0.38	4	1	1	1	4.00	1.52
3	Ruderal/ Ephemeral	0.7	2	2.5	1.15	1.1	6.33	4.43
4	Dune Grassland	0.51	6	2.5	1	1.1	16.50	8.42
5	Other Neutral Grassland	0.55	4	1.5	1.15	1.1	7.59	4.17
6	Other Neutral Grassland	3.88	4	1.5	1.15	1.1	7.59	29.45
7	Other Neutral Grassland	0.72	4	1.5	1.15	1.1	7.59	5.46

Habitat Block	Habitat Type	Area	Distinctiveness	Condition	Connectivity	Strategic Significance	BDU / ha	Total BDUs
8	Other Neutral Grassland	1.40	4	1.5	1.15	1.1	7.59	10.63
9	Ruderal/ Ephemeral	0.51	2	1.5	1.15	1.1	3.80	1.94
10	Woodland Other Broadleaved	0.54	4	1.5	1	1	6.00	3.24
11	Woodland Other Broadleaved	0.50	4	1.5	1	1	6.00	3.00
12	Mixed Scrub	0.63	4	1	1	1	4.00	2.52
13	Ruderal/ Ephemeral	2.42	2	1.5	1.15	1.1	3.80	9.18
14	Ruderal/ Ephemeral	2.11	2	2	1.15	1.1	5.06	10.68
15	Other Neutral Grassland	1.93	2	1.5	1.15	1.1	3.80	7.32
16	Other Neutral Grassland	0.67	4	2	1.15	1.1	10.12	6.78
17	Open Mosaic Habitat	0.92	6	2	1	1.1	13.20	12.14
18	Ruderal/ Ephemeral	0.74	2	1	1.15	1.1	2.53	1.87
19	Other Neutral Grassland	3.46	4	2	1.15	1.1	10.12	35.02
20	Open Mosaic Habitat	2.12	6	2	1	1.1	13.20	27.98
21	Ruderal/ Ephemeral	1.19	2	2	1.15	1.1	5.06	6.02
22	Ruderal/ Ephemeral	0.82	2	2	1.15	1.1	5.06	4.15
23	Modified Grassland	1.88	2	1	1.1	1	2.20	4.14
24	Other Neutral Grassland	2.79	4	1.5	1.15	1.1	7.59	21.18
25	Other Neutral Grassland	1.81	4	3	1.15	1.1	15.18	27.48
26	Ruderal/ Ephemeral	4.97	2	3	1.15	1.1	7.59	37.72
27	Other Neutral Grassland	0.38	4	1.5	1.15	1.1	7.59	2.88
28	Other Neutral Grassland	1.72	4	2	1.15	1.1	10.12	17.41
29	Modified Grassland	0.42	2	1	1.1	1	2.20	0.92

D8.5 In total the vegetated areas of the site have a value of 318.84 BDUs

D9.0 Compensation, Enhancement and Monitoring

Compensation

D9.1 Compensation refers to the process by which any residual effects after mitigation will be addressed. Compensation measures should be such that there will be no significant harm to biodiversity resulting from net loss of biodiversity in terms of the overall number of BDUs.

D9.2 The proposed development is anticipated to result in some areas of the site being available either as landscaping or specifically for the creation of replacement habitats. Both of these features would offset the loss of some of the BDUs caused through the construction process. Both also have the potential to provide like-for-like compensation for some elements of the VERs that would be lost through the construction process. As details of these measures are not known at this stage it is not possible to predict to what extent they will be able to compensate for the overall loss of biodiversity or for specific VERs. Therefore, in calculating the number of compensatory BDUs that will be required for the proposed development, it is assumed that there is no on-site compensation, albeit the intention is to identify on-site compensation when the details of the layout and landscaping proposals are fixed at reserved matters stage.

D9.3 Teesworks is currently preparing an Environment and Biodiversity Strategy that will guide future decisions by Teesworks as to the delivery of habitat enhancement schemes to off-set biodiversity loss resulting from its development and regeneration activities. This will quantify all of the BDUs which will be lost as a result of development across the entire Teesworks area. It will also calculate the number of BDUs that can be created in the Teesworks area including on land outside of the any areas proposed for development. The strategy will also identify any local, off-site habitat creation and enhancement measures that could be implemented, focusing primarily on the Tees estuary but potentially within the wider Tees catchment area if necessary. It is the intention that the Environment and Biodiversity Strategy will provide options and opportunities for Teesworks, and those developing within the Teesworks area, to meet any biodiversity value deficit arising from development.

D9.4 As set out in section 8.0, there will be a net loss of 318.84 BDUs as a result of the proposed development which will be compensated for through the implementation of the Environment and Biodiversity Strategy.

D9.5 As well as needing to compensate for the loss of the overall number of BDUs there will be specific VERs which require like-for-like mitigation. The Defra Biodiversity Metric 2.0 requires like for like compensation for loss of habitats classified as being of high distinctiveness. Open Mosaic Habitat and Dune Grassland are classified as a high distinctiveness habitats, and will therefore have to be compensated for by the creation or enhancement of alternative habitats of the same type

D9.6 Ruderal/Ephemeral habitat is defined by the Defra BM2.0 metric as being of low distinctiveness and therefore not requiring like-for-like replacement. However, as 4.97ha of this habitat meets the “Urban Grassland” criterion for designation as a Local Wildlife Site based on its plant species diversity, thus making it of County importance, then this should be replaced by an equivalent area of equal plant species diversity. Similarly, while Other Neutral Grassland is classed as a medium distinctiveness habitat, the 1.81 ha that is of County importance should be replaced by the same habitat of equal quality.

D9.7 There is no equivalent guidance on the need for like-for-like mitigation for species and there is some merit in conservation terms in allowing flexibility, for example in enhancing the

population of a rarer species that is not found on the site compared to recreating the population of a commoner species that is. Nevertheless, for species for which the population is assessed as being of County significance or above it would seem appropriate that like-for-like compensation is provided to maintain populations of equivalent importance. For Long Acres these would be Dingy Skipper butterfly and Grayling butterfly.

D9.8 Reptiles area also a VER of County importance however a mitigation strategy will be devised specifically for reptiles, therefore no compensation is required.

D9.9 In summary compensation will therefore need to be provided specifically for the following:

i 318.84 Habitat BDUs;

ii An area of 3.04ha of Open Mosaic Habitat;

iii An area of 4.97ha of Ruderal/ Ephemeral habitat meeting the "Urban Grasslands" criterion for LWS designation;

iv An area 1.81ha of Other Neutral Grassland;

v An area of 0.51ha of Dune Grassland;

vi A population of Dingy Skipper butterfly of County importance; and

vii A population of Grayling butterfly of Regional importance.

Enhancement

D9.10 Enhancement refers to any measures that are taken which increase biodiversity value above the baseline conditions, either of the overall biodiversity value or for specific VERs. In ecological terms it is known as Biodiversity Net Gain (BNG).

D9.11 In planning terms, BNG is currently aspirational rather than mandatory. Nevertheless, opportunities will be sought to provide enhancements through the Environment and Biodiversity Strategy.

D9.12 The Defra BM2.0 metric makes quantitative comparisons between habitats however there is scope to make significant qualitative enhancements for biodiversity that go beyond the habitat comparisons. In particular, the opportunity to take a strategic approach to habitat creation and enhancement across the entire Teesworks area can provide a level of ecological connectivity and functionality for species which is significantly greater than the current situation whereby species have colonised the Teesworks area in an opportunistic and often disconnected way.

Monitoring

D9.13 Monitoring will be required to ensure that identified compensatory and, where relevant, enhancement measures, have been achieved across an agreed timescale. This will include but not necessarily be limited to all compensatory measures set out in this section.

D9.14 A specific monitoring programme will be required as part of the reptile mitigation strategy, to ensure that the objectives of the strategy have been achieved.

D9.15 Monitoring will need to be in place for the duration of time that it is predicted to be required to ensure that compensatory measures have achieved their objectives.

D9.16 Monitoring will identify any measures that have not achieved, or are failing to achieve, their objectives and in such cases will provide remedial measures to address any shortfall.

D9.17 The Environment and Biodiversity Strategy will include a management plan to provide the required compensation and, where possible, enhancement measures. The actions of the

management plan will therefore form the focus of the monitoring, with the monitoring schedule provided as part of the management plan.

D10.0 Summary & Conclusions

D10.1 The assessment of the ecological impacts of the construction and operational phases of the proposed development has been carried out on the assumption that all of the habitats and species on the site will be lost through the construction process, except for the Fleet.

D10.2 The proposed development will result in the loss of a number of VERs of County or Local importance, some of which will require compensation on a like-for-like basis.

D10.3 The proposed development will result in the loss of 318.84 BDUs, which will need to be compensated for to achieve a minimum of no net loss. This would be done as part of an Environment and Biodiversity Strategy covering the entire Teesworks area. This Strategy will allow for the provision of off-site compensation if it shows that there would be a net loss on the Teesworks area.

D10.4 Following the implementation of the embedded and other mitigation measures, significant residual effects upon some VERs are anticipated as shown in Table D10.1.

Table D10.1 Table E8.1 Summary of Effects

Receptor	Impact	Embedded Mitigation	Potential Effects	Mitigation	Residual Effects
During Construction					
Teesmouth and Cleveland Coast SPA/ Ramsar	Discharges to water caused by construction	Measures to prevent substances from entering watercourses A method statement for works to watercourses shall be submitted for approval	Neutral and Not Significant	Not applicable	Neutral and Not Significant
Teesmouth and Cleveland Coast SSSI	Discharges to water caused by construction	Measures to prevent substances from entering watercourses A method statement for works to watercourses shall be submitted for approval	Neutral and Not Significant	Not applicable	Neutral and Not Significant
Coatham Marsh LWS	Discharges to air	Measures to minimise discharges to air	Neutral and Not Significant	Not applicable	Neutral and Not Significant
Breeding birds	Harm due to construction	Timing constraints on vegetation clearance	Neutral and Not Significant	Not applicable	Neutral and Not Significant

Receptor	Impact	Embedded Mitigation	Potential Effects	Mitigation	Residual Effects
Breeding birds	Loss of habitat due to construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Reptiles	Harm due to construction	Not applicable	**Moderate Adverse** and Significant	A reptile mitigation strategy will be implemented	Negligible and Not Significant
Reptiles	Loss of habitat due to construction	Not applicable	**Moderate Adverse** and Significant	A reptile mitigation strategy will be implemented	Negligible and Not Significant
Bats	Loss of habitat due to construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Brown Hare	Loss of habitat due to construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Common Toad	Loss of habitat due to construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Dingy Skipper butterfly	Loss of habitat due to construction	Not applicable	**Moderate Adverse** and Significant	Not applicable	**Moderate Adverse** and Significant
Grayling butterfly	Loss of habitat due to construction	Not applicable	**Substantial Adverse** and Significant	Not applicable	**Substantial Adverse** and Significant
Other invertebrates	Loss of habitat due to construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
European Eel	Temporary disruption to habitat during construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Open Mosaic Habitat	Removal during construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Significant
Ruderal/ Ephemeral	Removal during construction	Not applicable	**Moderate Adverse** and Significant	Not applicable	**Moderate Adverse** and Significant
Neutral grassland	Removal during construction	Not applicable	**Moderate Adverse** and Significant	Not applicable	**Moderate Adverse** and Significant
Dune Grassland	Removal during construction	Not applicable	Minor Adverse and Not Significant	Not applicable	Minor Adverse and Not Significant
Watercourses	Realignment during construction	Measures to prevent substances from entering	Negligible Adverse and Not Significant	Not applicable	Negligible and Not Significant

Receptor	Impact	Embedded Mitigation	Potential Effects	Mitigation	Residual Effects
		watercourses. A method statement for watercourse diversion shall be submitted for approval			

D10.5 The proposed development will result in the loss of318.84 BDUs, which will need to be compensated for to achieve a minimum of no net loss. This will be done as part of an Environment and Biodiversity Strategy covering the entire Teesworks area in agreement with Natural England and RCBC. This Strategy will allow for the provision of off-site compensation if it shows that there would be a net loss of biodiversity unit from development in the Teesworks area.

Conclusion

D10.6 Taking into consideration the proposed mitigation measures the residual effect on VERs that would be considered significant in EIA terms are:

i Loss of a population of Grayling butterfly of Regional importance which will have a **Substantial Adverse** effect on Grayling butterfly;

ii Loss of a population of Dingy Skipper butterfly of County importance which will have a **Moderate Adverse** effect on Dingy Skipper butterfly;

iii The loss of an area of 3.04ha of Open Mosaic Habit, which will have a Minor Adverse effect on the OMH resource;

iv The loss of an area of 4.97ha of Ruderal/ Ephemeral habitat, which will have a **Moderate Adverse** effect on the Ruderal/ Ephemeral habitat resource;

v The loss of an area of 1.81 ha of Other Neutral Grassland, which will have a **Moderate Adverse** effect on the Other Neutral Grassland resource; and

vi The loss of an area of 0.51ha of Dune Grassland, which will have a Minor Adverse effect on the Dune Grassland resource.

D10.7 Like for like compensation will be required for all VERs for which the residual effects would be considered significant in EIA terms. The other VERs for which effects are considered to be Not Significant do not require like-for-like compensation but compensation will be provided of at least equivalent biodiversity value.

D10.8 The development and implementation of an Environment and Biodiversity Strategy will ensure that compensatory measures are provided such that there is no net loss of biodiversity arising from the proposed development.

D11.0 Abbreviations & Definitions

1	INCA	Industry Nature Conservation Association
2	ES	Environmental Statement
3	STDC	South Tees Development Corporation
4	CEnv	Chartered Environmentalist
5	CIEEM	Chartered Institute of Ecology and Environmental Management
6	WCA	Wildlife and Countryside Act (1981)
7	NERC	Natural Environment and Rural Communities Act (2006)
8	BNG	Biodiversity Net Gain
9	RCBC	Redcar & Cleveland Borough Council
10	NPPF	National Planning Policy Framework
11	SPD	Supplementary Planning Document
12	VER	Valued Ecological Receptor
13	ZOI	Zone of Influence
14	GCN	Great Crested Newt
15	ECoW	Ecological Clerk of Works
16	EcIA	Ecological Impact Assessment
17	F+G	Faithful and Gould
18	SPA	Special Protection Area
19	SAC	Special Area of Conservation
20	SSSI	Site of Special Scientific Interest
21	NNR	National Nature Reserve
22	CEMP	Construction Environment Management Plan
23	HRA	Habitats Regulations Assessment
24	BDU	Biodiversity Unit

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1

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