



Net Zero Teesside – Environmental Statement

Planning Inspectorate Reference: EN010103

Volume III – Appendices

Appendix 12C: Preliminary Ecological Appraisal Report

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended)



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12C.Preliminary Ecological Appraisal Report

12.1 Introduction

- 12.1.3 This report describes the approach and findings of the Preliminary Ecological Appraisal (PEA) undertaken in support of the ecological impact assessment (EclA) of the Proposed Development. The terms of reference used to describe the Proposed Development in this report are consistent with those defined within the main chapters of the Environmental Statement (ES) (Volume I, Document Ref. 6.2). Figures 12C-1 to 12C-4 illustrate the Site boundary as referred to within the main chapters of the ES. The final distances of receptors from the current Site boundary are set out in Chapter 12: Terrestrial Ecology and Nature Conservation, Chapter 13: Aquatic Ecology, Chapter 14: Marine Ecology and Nature Conservation and Chapter 15: Ornithology (ES Volume I, Document Ref. 6.2).
- 12.1.4 The purpose of the PEA was to define the high level baseline terrestrial, freshwater (and as far as reasonable and practicable) marine ecological conditions associated within the potential zone of influence of the Proposed Development (based on the study areas defined later in this report), and to determine the need for further survey work to inform the subsequent EclA. As such, it supports the EclAs provided as Chapter 12: Terrestrial Ecology and Nature Conservation, Chapter 13: Aquatic Ecology, Chapter 14: Marine Ecology and Nature Conservation and Chapter 15: Ornithology (ES Volume I, Document Ref. 6.2). The PEA report provides a record of the initial work undertaken, the findings of these studies, and clarifies which ecological features are and are not relevant to the impact assessment of the Proposed Development.
- 12.1.5 The approach applied when undertaking this PEA accords with current best practice guidelines for PEA published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). The PEA addresses relevant wildlife legislation and planning policy as summarised in the next section of this report.
- 12.1.6 In order to deliver the PEA, a desk study and an extended Phase 1 Habitat survey were undertaken by appropriately experienced ecologists, to identify ecological features within land required for construction, operation and decommissioning of the Proposed Development and its wider potential zone of influence. The potential zones of influence relevant to different ecological features is considered and defined within the Methods section of this PEA report when defining the desk study and field survey areas to be applied.
- 12.1.7 The objectives of this PEA report are to:
- identify statutory and non-statutory biodiversity and nature conservation designations within the potential zone of influence of the Proposed Development;

- identify and categorise (where possible and accessible) all habitats present within the land required for the Proposed Development, and adjacent areas where there might be potential for direct or indirect effects;
- carry out an appraisal of the potential of the habitats recorded (where possible and accessible) to support protected or notable species of fauna and flora;
- identify requirements for follow-up habitat and species surveys to fully define the ecological baseline;
- provide an evaluation of the relative nature conservation value of the identified nature conservation designations, habitats and species to inform the EclA, where possible based on available information; and
- provide figures showing the locations of the identified ecological features.

12.1.8 The following figures are provided to support this PEA:

- Figure 12C.1 – Phase 1 Habitat Map;
- Figure 12C.2 – Statutory and Non-statutory Nature Conservation Designations;
- Figure 12C.3 – Watercourses and Ponds within 250 m of the Proposed Development; and
- Figure 12C.4 – Priority Habitats Map.

12.2 Wildlife Legislation and Planning Policy

12.2.3 A summary of potentially relevant legislation, planning policy and related guidance is provided within this section of the PEA report. A fuller account is provided as the standalone Appendices 12A: Legislation and Planning Policy Relevant to Ecology (ES Volume III, Document Ref. 6.4) and should be referred to when reading this PEA report.

Wildlife Legislation

12.2.4 The relevant wildlife legislation relating to terrestrial, freshwater and marine biodiversity and nature conservation in England is as follows:

- The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017;
- Wildlife and Countryside Act 1981 (as amended) (the WCA);
- The Hedgerow Regulations 1997;
- Countryside and Rights of Way (CROW) Act 2000;
- Natural Environment and Rural Communities (NERC) Act 2006 (as amended);
- Marine and Coastal Access Act 2009;
- Protection of Badgers Act 1992 (as amended);
- Wild Mammals (Protection) Act 1996;
- Animal Welfare Act 2006;
- Eels (England and Wales) Regulations 2009 (as amended);
- Salmon & Freshwater Fisheries Act 1975 (as amended);
- Environmental Protection Act 1990; and
- Invasive Alien Species (Enforcement and Permitting) Order 2019.

National Planning Policy

12.2.5 The Government's policy for delivery of major energy infrastructure is set out in the following relevant National Policy Statements (NPS):

- Overarching NPS for Energy (EN-1);
- Fossil Fuel Electricity Generating Infrastructure (EN-2);
- Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4); and
- Electrical Networks Infrastructure (EN-5).

12.2.6 The policies set out in the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019) are also important and relevant matters. The NPPF sets out the Government's planning policies for England and how these are to be applied, and identifies overarching objectives, including environmental (such as protecting and

enhancing our natural environment and improving biodiversity). It introduces additional considerations including definitions of and requirements in relation to irreplaceable habitats which must be addressed in the development design and assessment process.

- 12.2.7 The Marine Policy Statement (MPS) provides a framework for taking decisions affecting the marine environment. All public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area are to do so in accordance with the MPS unless relevant considerations indicate otherwise, and applications for Nationally Significant Infrastructure Projects are required to have regard to the MPS.

Local Planning Policy

- 12.2.8 The Proposed Development includes infrastructure located both in the Boroughs of Redcar and Cleveland, and Stockton-on-Tees. It also covers works in offshore areas covered by the draft North East Marine Plan. Therefore, the following planning policies are potentially relevant to the Proposed Development:

- Local Spatial Strategy Policy LS4 of the Redcar and Cleveland Local Plan adopted May 2018. The South Tees Spatial Strategy requires measures to protect European sites, to safeguard and improve sites of biodiversity interest particularly along the River Tees and the estuary, and to encourage integrated habitat creation and management;
- Natural Environment Policies N2 and N4 of the Redcar and Cleveland Local Plan adopted May 2018. These require the protection and enhancement of the borough's green infrastructure network and green wedges, and biodiversity and geological resources, including avoidance of adverse impacts to internationally and nationally statutory nature conservation designations;
- Sustainable Development Policies SD1 and SD4 of the Redcar and Cleveland Local Plan adopted May 2018 which set out requirements for the conservation and enhancement of the natural environment, including designations, green infrastructure, priority habitats, ecological networks, woodland and priority species;
- Economic Growth Policy EG4 of the Stockton-on-Tees Local Plan adopted January 2019, which identifies the areas available for development, including Seal Sands, and the need to recognise the importance of bird species associated with the Teesmouth and Cleveland SPA and Ramsar site when considering development proposals;
- Natural Environment Policy ENV5, ENV6 and ENV7 of the Stockton-on-Tees Local Plan adopted January 2019 which set out requirements for the protection and enhancement of biodiversity, including maximising biodiversity gains within identified Biodiversity Opportunity Areas (BOAs) in the River Tees Corridor and Teesmouth, and minimising adverse effects of ground, air, water noise and light pollution;
- Sustainable Design Policies SD5 and SD8 of the Stockton-on-Tees Local Plan adopted January 2019 which set out requirements for the conservation and enhancement of the natural environment, including

designations, green infrastructure, priority habitats, ecological networks, woodland and priority species; and

- Development Principle STDC7 of the Redcar and Cleveland South Tees Area Supplementary Planning Document (SPD) adopted May 2018 sets out expectations for natural environment protection and enhancement, including the requirement to comply with Redcar and Cleveland Local Plan Policy N4 (see above).

12.2.9 High level consideration has been given to these planning policies when assessing potential ecological constraints and opportunities identified by the desk study and field surveys, and when assessing requirements for further survey, design options and ecological mitigation, as described in Section 12.5. For more information on the wording of each specific policy refer Appendix 12A: Legislation and Planning Policy Relevant to Ecology (ES Volume III, Document Ref. 6.4) as well as the source planning policy documents.

12.2.10 Additional guidance of potential relevance to the Proposed Development and / or for interpretation of the above planning policy is given in the following documents:

- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (Department for Environment, Food and Rural Affairs (Defra), 2011);
- Planning Practice Guidance: Natural Environment (Ministry of Housing, Communities and Local Government, 2019);
- Standing Advice issued by Natural England and Defra: Protected species: how to review planning applications (2016);
- Supplementary Planning Document 1: Sustainable Design Guide (Stockton-on-Tees Borough Council, 2011);
- Tees Valley Green Infrastructure Strategy (Tees Valley Joint Strategy Unit, 2008);
- Redcar and Cleveland's Green Space Strategy 2006-2016 (Redcar and Cleveland Partnership, 2006);
- The Tees Lowlands National Character Area (NCA) Profile (Natural England, 2013);
- A Biodiversity Audit of the North East (Brodin, 2001); and
- Priority Habitats and Species in the Tees Valley (Tees Valley Nature Partnership, 2012).

12.3 Methodology

Desk Study

- 12.3.3 A desk study was carried out to identify nature conservation designations, protected and notable habitats and species potentially relevant to the Proposed Development.
- 12.3.4 The desk study areas used to gather baseline data were specified to support collation of sufficient data to meet worst-case data needs for robust EclA in accordance with Rochdale Envelope principles. They were defined based on professional judgement and an understanding of the maximum distances typically considered by statutory consultees. These study areas are relatively precautionary and will be subject to further consideration and refinement in EclA, once the potential Zone of Influence of the Proposed Development is better understood.
- 12.3.5 The worst-case desk study areas applied are in effect those specified by statutory consultees for assessment of potential operational air quality impacts. Accordingly, the desk study identified any international and national statutory nature conservation designations within 15 km of the Site ; other statutory and non-statutory nature conservation designations within 2 km of the Site; and protected and notable habitats and species¹ within 1 km of the Site.
- 12.3.6 The desk study was carried out using the data sources detailed in Table 12C-1.

Table 12C-1: Desk Study Data Sources

| Data Source | Accessed / Received | Data Obtained |
|--|---------------------|---|
| Multi-Agency Geographic Information for the Countryside (MAGIC) website https://magic.defra.gov.uk/ | January 2020 | <ul style="list-style-type: none"> International and national statutory designations within 15 km of the Combined Cycle Gas Turbine power station (due to requirements for air quality impact assessment) or otherwise within an Impact Risk Zone (IRZ) identified by Natural England and relevant to the wider Proposed Development (i.e. within an IRZ for 'infrastructure development'). Local statutory designations within 2 km. Ancient woodlands and notable habitats within 1 km. European protected species licences and Natural England great crested newt survey data within 1 km. |

¹ Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the WCA; Schedules 2, 4 and 5 of the Habitats Regulations; species and habitats of principal importance for nature conservation in England listed under section 41 (s41) of the NERC Act; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and Biodiversity Action Plans. Records of non-native controlled weed species were also collated; such species are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

| Data Source | Accessed / Received | Data Obtained |
|--|---|---|
| Joint Nature Conservation Committee (JNCC) Website (UK Protected Sites) http://jncc.defra.gov.uk/ | January 2020 | <ul style="list-style-type: none"> Citations for Internationally Designated Sites, Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar Sites. |
| Natural England Website https://designatedsites.naturalengland.org.uk/SiteSearch.aspx | January 2020 | <ul style="list-style-type: none"> Citations for Nationally Designated Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and details on Local Nature Reserves (LNR). |
| Environmental Records and Information Centre (ERIC) North-East | March 2018, updated July 2019 and December 2020 | <ul style="list-style-type: none"> Non-statutory designations within 2 km. Protected and notable species records within 1 km (records for the last 10 years only). Priority habitats within 1 km. |
| Ordnance Survey 1:25,000 Pathfinder maps and aerial photography | January 2020 | <ul style="list-style-type: none"> Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints. |
| Tees Valley Nature Partnership Website | January 2020 | <ul style="list-style-type: none"> General information on Local Biodiversity Action Plan (LBAP) Priority Habitats and Species. |
| Industry Nature Conservation Association (INCA) | September 2019, April 2020 | <ul style="list-style-type: none"> Records of notable species. Advice on relevant protected species e.g. local status of great crested newt (<i>Triturus cristatus</i>). Reports of previous surveys undertaken on and adjacent to the land required for the Proposed Development. |
| Environmental Statement for Dogger Bank Teesside A / Sofia Offshore Wind Farm | April 2020 | <ul style="list-style-type: none"> Records of notable species extracted from the Peak Ecology Ltd (2014) report, in ES Chapter 25, Appendix A1, online at https://infrastructure.planninginspectorate.gov.uk/. |

Field Survey

Phase 1 Habitat Survey

- 12.3.7 Phase 1 Habitat survey data was collated for the Proposed Development from field survey (where land access agreements could be reached), review of current aerial photography, and (where current and reliable) third party data sources (primarily data collected for STDC by Industry Nature Conservation Association (INCA) over the period 2016 to 2020) (Figure 12C.1).
- 12.3.8 Phase 1 Habitat survey (Joint Nature Conservation Committee (JNCC), 2010) is a standard method of environmental audit. It involves categorising, mapping and describing different habitat types and habitat features within a survey area. The standard Phase 1 Habitat survey method can be 'extended' to record target notes on protected, notable and invasive species. The

information gained from the survey can be used to determine the likely ecological value of a site, and to direct any more specific survey work which may need to be carried out prior to the submission of a planning application. Where field survey data has not been obtained directly by AECOM then it has been necessary to adopt a precautionary evidence-based approach to identification of potential constraints and requirements for further survey to inform EclA.

- 12.3.9 The following areas of land required by the Proposed Development were surveyed by suitably experienced AECOM ecologists as detailed below:
- The PCC Site and adjacent land were surveyed on the 21 and 22 February 2018, with botanical data topped up on 19 May 2018; and
 - Land within the connection corridors was surveyed (as the scheme evolved and land access permission was granted) on the 21 and 22 February 2018, 23 and 24 May 2019 and 15 July 2019.
- 12.3.10 The field survey area applied during the AECOM surveys comprised all land to a maximum distance of 50 m from the red line for the Proposed Development, where safely accessible and land access permission had been granted.
- 12.3.11 Typical and notable plant species were recorded for different habitat types and reflect the conditions at the time of survey. Where third party data has been used to map habitats then use has also been made of any associated botanical information, but in some cases this was not available. In all cases, the Phase 1 Habitat survey datasets were not intended to be a detailed inventory of the plant species present as this is not required for the purposes of Phase 1 Habitat survey. If further detailed botanical survey is considered appropriate, then this is advised as a follow-up to the Phase 1 Habitat survey.
- [Appraisal of potential suitability of habitats to support protected and notable species](#)
- 12.3.12 The Phase 1 Habitat survey was 'extended' to include an appraisal of the potential suitability of the habitats present to support protected and notable species of plants or animals (as defined in footnote 1, above). Field signs, habitat features with potential to support protected or notable species and any sightings or auditory evidence were recorded when encountered, but no detailed protected species surveys were carried out for the purposes of this PEA, other than those described in the bullet points below.
- 12.3.13 Specific surveys were undertaken for the following protected or notable species as part of the PEA:
- Badger – this species was not found;
 - Barn owl nest sites - where present, the results are reported in Chapter 13: Ornithology (ES Volume I, Document Ref. 6.2); and
 - Invasive non-native plant species listed on Schedule 9 of the WCA – these were recorded as encountered and the results are provided in this PEA report.
- 12.3.14 Table 12C-5 of this report clarifies any further requirements for species surveys based on the information gathered for this PEA report.

Great Crested Newt eDNA Survey

- 12.3.15 An opportunity was taken during habitat surveys of the Main Site to undertake eDNA surveys for great crested newt at ponds within the habitat survey area. These eDNA surveys were carried out on 18 May 2018.
- 12.3.16 Water samples were taken from four ponds (Ponds 1, 2, 3 and 4, Figure 12C.3) in accordance with established methods (Briggs *et al.*, 2014) and were sent to Nature Metrics Ltd for eDNA analysis. Samples were collected by a suitably qualified ecologist holding a Natural England GCN survey licence.
- 12.3.17 The results of the survey are summarised in Table 12C-5. Subsequently it was confirmed by INCA (email from Ian Bond 24 March 2020) that there are no known occurrences of great crested newt in the South Tees area of Redcar and Cleveland and that it is well established that great crested newt surveys are not required to support planning applications in the South Tees area. No further consideration is therefore given to this species in relation to the components of the Proposed Development located within Redcar and Cleveland.
- 12.3.18 Requirements for great crested newt surveys to the north of the Tees in Stockton-on-Tees are considered further in the PEA report, but no surveys were undertaken in time to permit inclusion of results in this report.
- 12.3.19 A more detailed scoping of great crested newt constraints is provided in Appendix 12J (ES Volume III, Document Ref. 6.4), which builds on the work undertaken for this PEA.

Desk Study and Field Survey Limitations

- 12.3.20 The aim of the desk study was to help characterise the baseline context of the Site and provide valuable background information that would not be captured by a single site survey alone. Information obtained from a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for particular habitats or species does not necessarily mean that those habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the proposed development.
- 12.3.21 During the AECOM field survey, restrictions on access to private land limited the ability of surveyors to view some areas and to identify with confidence the habitats and habitat characteristics in others. Some areas were obscured by buildings or infrastructure and/or could not be approached closely. Habitats in inaccessible areas were identified using third party data, or where this was not available from ground-based observations using binoculars and/or a combination of aerial photographs and information extracted from the MAGIC website. Such an approach is consistent with published methods (JNCC, 2010) or is otherwise generally sufficient to allow a precautionary assessment of likely constraints and ongoing survey needs. Any limitations arising from this are identified and a precautionary approach is taken when interpreting the available data.

Evaluation of Ecological Features

- 12.3.22 The value of habitats and designated sites identified within this PEA has been defined with reference to the following geographic scale:
- International (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
 - National (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in an England context relative to Great Britain as a whole);
 - Regional (North East, Yorkshire and the Humber);
 - County (North Riding of Yorkshire, County Durham);
 - Borough (Redcar and Cleveland, Stockton-On-Tees);
 - Local (ecological features that do not meet criteria for valuation at a borough or higher level, but that have sufficient value at the site level to merit retention or mitigation); and
 - Negligible (common and widespread ecological features that have very low value at the site level and which do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status, or to deliver wider relevant biodiversity objectives).
- 12.3.23 This has been undertaken to inform the EclA presented in Chapters 12 to 15 of the ES (Volume I, Document Ref. 6.2). Further information on the approach to the evaluation of ecological features is provided in Appendix 12B: Ecological Impact Assessment Methods (ES Volume III, Document Ref. 6.4).
- 12.3.24 Species have not been valued using this approach as the data contained within this PEA Report does not permit this. Such valuations will be provided later once all necessary species surveys have been completed.

12.4 Results

Nature Conservation Designations

International and National Statutory Designations

- 12.4.3 Table 12C-2 summarises the statutory nature conservation designations identified by the desk study that are of potential relevance to the Proposed Development. All international and national statutory nature conservation designations within 15 km of the proposed PCC are of potential relevance due to requirements for good practice air quality impact assessment, for all other statutory designations the criteria for relevance are either (a) the designation is 2 km from the Proposed Development Site, or (b) it is within an IRZ identified by Natural England for ‘infrastructure developments’.
- 12.4.4 Based on these criteria, the following are potentially relevant to the EclA for the Proposed Development:
- Six international statutory designations, including two crossed by infrastructure for the Proposed Development; and
 - Six national statutory designations, including one crossed by infrastructure for the Proposed Development.
- 12.4.5 The locations of these designations are shown on Figure 12C.2.

Table 12C-2: Statutory Nature Conservation Designations

| Designation | Reason(s) for Designation/Qualifying Features | Within 15 km (international and national designations) or 2 km (LNR) of the PCC Site | Within 2 km of other proposed infrastructure and/or overlap with the IRZ for the designation concerned |
|---|---|--|--|
| International statutory designations (refer to Figure 12C.2) | | | |
| Teesmouth and Cleveland Coast SPA (as extended in 2020) | <p>Designated for numbers of marine and shore birds.</p> <ul style="list-style-type: none"> • Breeding population of: <ul style="list-style-type: none"> – little tern (<i>Sterna albifrons</i>): 40 pairs, 1.7% of UK population; • Concentrations of: <ul style="list-style-type: none"> – sandwich tern (<i>Sterna sandvicensis</i>): 1900 birds, 6.8% of UK population; – redshank (<i>Tringa totanus</i>): 1648 birds, 1.1% of UK population; • Wintering assemblage of: <ul style="list-style-type: none"> – shoveler (<i>Anas clypeata</i>); – Teal (<i>Anas crecca</i>); – knot (<i>Calidris canutus</i>): 5509 birds, 1.6% of population; – cormorant (<i>Phalacrocorax carbo</i>); – shelduck (<i>Tadorna tadorna</i>). • Population on non-breeding Ruff (<i>Calidris pugnax</i>) | Immediately north | Crossed by the CO ₂ Gathering Network, CO ₂ Export Pipeline, Electrical Connection Corridor and Water Connection Corridors |

| Designation | Reason(s) for Designation/Qualifying Features | Within 15 km (international and national designations) or 2 km (LNR) of the PCC Site | Within 2 km of other proposed infrastructure and/or overlap with the IRZ for the designation concerned |
|--|---|--|--|
| Teesmouth and Cleveland Coast Ramsar (as extended in 2020) | Designated for its internationally important numbers of breeding and wintering waterfowl. It is also designated for its peak counts in spring/autumn of redshank (<i>Tringa tetanus</i>) and its winter counts of red knot (<i>Calidris canutus islandica</i>). | Immediately north | Crossed by the CO ₂ Gathering Network, CO ₂ Export Corridor, Electrical Connection Corridor and Water Connection Corridor |
| Northumbria Coast Ramsar | The site supports internationally important wintering populations of turnstone (<i>Arenaria interpres</i>) and purple sandpiper (<i>Calidris maritima</i>). | 14 km north-west | Not relevant |
| North York Moors SPA | Designated for its high numbers of breeding: <ul style="list-style-type: none"> golden plover (<i>Pluvialis apricaria</i>): 526 breeding pairs (2.3% of national breeding population); and merlin (<i>Falco columbarius</i>): 35 breeding pairs (2.7% of national breeding population). | 12 km south-east | Not relevant |
| North York Moors SAC | Designated for habitats including: <ul style="list-style-type: none"> Northern Atlantic wet heaths with <i>Erica tetralix</i>; European dry heaths; and Blanket bogs. | 12 km south-east | Not relevant |
| Durham Coast SAC | Designated for its vegetated sea cliffs of the Atlantic and Batlic coasts. | 14 km north-west | Not relevant |
| National statutory designations (refer to Figure 12C.2) | | | |
| Teesmouth and Cleveland Coast SSSI | Nationally important for the following biodiversity features: <ul style="list-style-type: none"> sand dunes; saltmarshes; breeding harbour seals (<i>Phoca vitulina</i>); breeding avocet (<i>Recurvirostra avosetta</i>), little tern and common tern (<i>Sterna hirundo</i>); a diverse assemblage of breeding birds of sand dunes, saltmarsh and lowland open waters and their margins; non-breeding shelduck, shoveler, gadwall (<i>Mareca strepera</i>), ringed plover (<i>Charadrius hiaticula</i>), knot, ruff (<i>Calidris pugnax</i>), sanderling (<i>Calidris alba</i>), purple sandpiper (<i>Calidris maritima</i>), redshank and Sandwich tern; | Immediately north | Crossed by the CO ₂ Gathering Network, CO ₂ Export Pipeline, Electrical Connection Corridor and Water Connection Corridors |

| Designation | Reason(s) for Designation/Qualifying Features | Within 15 km (international and national designations) or 2 km (LNR) of the PCC Site | Within 2 km of other proposed infrastructure and/or overlap with the IRZ for the designation concerned |
|---|--|--|---|
| | <ul style="list-style-type: none"> • an assemblage of more than 20,000 waterbirds during the non-breeding season; and • a diverse assemblage of invertebrates associated with sand dunes. | | |
| Teesmouth National Nature Reserve (NNR) | <p>Nationally important for the following biodiversity features:</p> <ul style="list-style-type: none"> • waterbird assemblage (>20,000 birds); • s41 breeding birds: waders, grey partridge (<i>Perdix perdix</i>), skylark (<i>Alauda arvensis</i>), linnets (<i>Carduelis cannabina</i>) and reed bunting (<i>Emberiza schoeniculus</i>); • other birds: knot and redshank (non-breeding), little tern (breeding), ringed plover (spring), sandwich tern (post-breeding) and shelduck (winter); • harbour seal; • invertebrate assemblages; • lyme grass moth (<i>Photedes elymi</i>); • saltmarsh plant assemblage; and • sand dune plant assemblage. | 2.7 km west | 680 m north of Gas Connection Corridor and CO ₂ Gathering Network. 880 m west of Water Connection Corridors. |
| Saltburn Gill SSSI | Designated for its mixed deciduous woodland supporting a diverse ground flora. | 10 km south-east | Not relevant |
| North York Moors SSSI | Nationally important for its mire, blanket bog, dry upland heath, wet upland heath and moorland habitats. Internationally important for its breeding bird populations, particularly merlin (<i>Falco columbarius</i>) and golden plover (<i>Pluvialis apricaria</i>). | 12 km south-east | Not relevant |
| Lovell Hill Pools SSSI | Designated for its outstanding assemblage of dragonflies and damselflies. | 6 km south-east | Not relevant |
| Durham Coast SSSI | Designated for its considerable biological, geological and physiographic interest. It contains most of the paramaritime Magnesian Limestone vegetation in Britain. The site also contains a species-rich dune system which supports nationally important numbers of wintering shore birds and breeding little terns. | 12.7 km north-west | Not relevant |

Local Statutory and Non-statutory Designations

- 12.4.6 Table 12C-3 summarises the 10 local nature conservation designations identified by the desk study that are of potential relevance to the Proposed Development. The locations of these designations are shown on Figure 12C.2.
- 12.4.7 Based on the relative distance from the Proposed Development only Eston Pumping Station LWS and Coatham Marsh LWS have potential to be affected and therefore require impact assessment.

Table 12C-3: Sites with Non-Statutory Designations for Nature Conservation

| Designation | Reason(s) for Designation | Within 2 km of the PCC Site | Within 2 km of other proposed infrastructure |
|---|---|-----------------------------|---|
| Eston Pumping Station LWS | Designated for its mosaic of habitats and borderline neutral urban grasslands. | 1.4 km south | Immediately adjacent to but outside the red line boundary for Connection Corridors. |
| Coatham Marsh LWS | Saltmarsh, coastal grasslands, flushes, seepages and springs. | 600 m south-east | Partially within Freshwater Connection Corridor (existing Northumbrian Water pipeline). |
| Charlton's Pond LNR | Designation applies to land supporting wetland, amenity grassland and woodland habitats. | Not relevant | 800 m west of CO ₂ Gathering Network. |
| Teesaurus Park LWS | Areas of herb-rich grassland with kidney vetch (<i>Anthyllis vulneraria</i>), vipers bugloss (<i>Echium vulgare</i>) and tansy (<i>Tanacetum vulgare</i>). | Not relevant | 930 m south of CO ₂ Gathering Network and laydown area. |
| Cowpen Bewley Woodland Country Park LNR | Designation applies to former agricultural, landfill and brickworks land now supporting grassland and freshwater habitats. | Not relevant | 1.3 km north of CO ₂ Gathering Network. |
| Greatham Creek North Bank LWS | Saltmarsh habitat, dominated by saltmarsh grass, (<i>Puccinellia</i> sp.) with glasswort (<i>Salicornia</i> sp). | Not relevant | 1.4 km north of Gas Connection Corridor and CO ₂ Gathering Network. |
| Greatham North West LWS | The LWS is within the Teesmouth and Cleveland Coast SPA/SSSI/Ramsar. Saltmarsh vegetation in tidal creeks, notably reflexed saltmarsh-grass (<i>Puccinellia distans</i>), glasswort, lesser sea-spurrey (<i>Spergularia marina</i>) and sea milkwort (<i>Glaux maritima</i>). The area supports 3.7% of total SPA bird numbers and important site for breeding lapwing. | Not relevant | 1.7 km north of Natural Gas Connection Corridor and CO ₂ Gathering Network. |

| Designation | Reason(s) for Designation | Within 2 km of the PCC Site | Within 2 km of other proposed infrastructure |
|---------------------------------|--|-----------------------------|--|
| Greenabella Marsh LWS | The LWS is partially within the Teesmouth and Cleveland Coast SPA/SSSI/Ramsar. The site is designated for its population of water voles. | Not relevant | 1.5 km north of natural Gas Connection Corridor and CO ₂ Gathering Network. |
| Cowpen Bewley Woodland Park LWS | Country park comprising new woodland, grassland, ponds and lakes. The site supports Great Crested Newt. | Not relevant | 1.3 km north of CO ₂ Gathering Network. |
| Zinc Works Field LWS | Supports an important number of passerine birds and in particular at times has held >0.5% of the population of ring ouzel (<i>Turdus torquatus</i>). | Not relevant | 1.5 km west of Water Abstraction and Discharge Corridors |

Habitats

- 12.4.8 The habitats within and adjacent to the red line for the Proposed Development are described below. Supporting target notes are provided in Annex A, the habitats are mapped on Figure 12C.1, and illustrative photographs are provided in Annex B. These habitats have been identified through field survey by AECOM and, where survey access was not available to some land, use of third-party data provided by South Tees Development Corporation (STDC)/INCA and review of current Google Earth imagery.
- 12.4.9 The Proposed Development includes infrastructure located in the boroughs of Redcar and Cleveland and Stockton-on-Tees, with the project requirements and relevant habitat conditions in each borough being different. Accordingly, for purposes of clarity and to assist impact assessment later, the habitat account is presented below by borough. Relevant habitats below the mean high-water line of the River Tees, which forms the boundary between the two boroughs, are beyond the scope of the habitat surveys for this PEA report and are defined later in Chapter 14: Marine Ecology (ES Volume I, Document Ref. 6.2) and its supporting appendices (ES Volume III, Document Ref. 6.4).

Habitats in the Borough of Redcar and Cleveland

Broad-leaved woodland

- 12.4.10 There is a small (0.2 ha) stand of oak (*Quercus* sp.) plantation woodland within the Site boundary at Coatham Sands. The trees comprising this woodland are stunted by coastal environment and are less than 3 m tall.
- 12.4.11 This plantation woodland is encompassed by the s41 lowland mixed deciduous woodland habitat but is of recent origin and poorly established. There is little potential for a more notable woodland to establish given the unsuitable growing conditions (an exposed sand dune system). Therefore, it is assessed as having local nature conservation value.

Scrub

- 12.4.12 Dense stands of scrub are widely distributed over the land required for construction of the Proposed Development. These stands are of variable

composition and in some cases, for example within the PCC Site, include deliberate plantings (Photographs 28 and 29, Annex B). Scattered scrub occurs in areas of unmanaged grassland (TN32 and TN62, Annex A. Photograph 31, Annex B).

- 12.4.13 Typical constituent species include sea-buckthorn (*Hippophae rhamnoides*), brambles (*Rubus fruticosus* agg.), hawthorn, gorse (*Ulex europaeus*) and willows. Species-poor stands of dense brambles are frequently along watercourses, railway lines and the existing network of gas pipelines (TN8, Annex 1).
- 12.4.14 Scrub habitats are of recent secondary origin and readily substituted. They are therefore assessed as having local nature conservation value.

Sand dunes

- 12.4.15 This broad habitat type occurs to the north and west of the PCC Site in the areas known as Coatham Sands and Bran Sands. Sand dunes are a priority habitat under s41 of the NERC Act and are also considered an 'irreplaceable habitat' in accordance with definitions and requirements within the NPPF.
- 12.4.16 The sand dune system (photographs 14 to 16, Annex B, see also Appendix 12H, ES Volume III) is within, and one of the reasons for designation of, Teesmouth and Cleveland Coast SSSI. Therefore, it is assessed as having national nature conservation value.
- 12.4.17 This sand dune system comprises a matrix of the following component habitats: open dune, dune grassland, dune scrub and dune slack. The habitats have been influenced by historic deposition of lime-rich slag from the former Redcar Steel Works within the dune system, and these deposits contribute to the botanical interest of the dune system but are not a specific reason for designation of the SSSI.
- 12.4.18 There is an additional area of grassland (TN72 Annex A, Figure 12C.1), that is best regarded as dune grassland due to its location and botanical composition, located immediately south of Bran Sands outside the boundary of the SSSI. This grassland is of secondary origin, and like parts of the SSSI has established over deposits of lime-rich slag.
- 12.4.19 This species-rich grassland has established over undulating ground. The tops of the mounds and ridges are dominated by marram grass (*Ammophila arenaria*) and lyme grass (*Leymus arenarius*). Between the ridges the grassland contains a high abundance of bird's-foot trefoil (*Lotus corniculatus*), soft brome (*Bromus hordeaceus* ssp. *hordeaceus*), common restharrow (*Ononis repens*), lesser hawkbit (*Leontodon saxatilis*), carline thistle (*Carlina vulgaris*) and common mouse-ear-hawkweed (*Hieracium pilosella*). Other species include buck's-horn plantain (*Plantago coronopus*), carline thistle (*Carlina vulgaris*), yellow-wort (*Blackstonia perfoliata*), common centaury (*Centaureum erythraea*), hare's-foot clover (*Trifolium arvense*), wild strawberry (*Fragaria vesca*) and pyramidal orchid (*Anacamptis pyramidalis*) (TN70-TN72, Annex A; photographs 33 and 34, Annex B).

12.4.20 This grassland is of potential LWS quality (county value) but as it will be retained in its entirety no further assessment is required to investigate this further.

Semi-improved grassland

12.4.21 Semi-improved neutral grassland, generally unmanaged and therefore relatively rank and often species-poor, is the most widespread habitat type within the land required for the Proposed Development (photographs 1-4, 7-8, 27, Annex B).

12.4.22 Species composition varies, with the more species-diverse grasslands in the vicinity of the PCC Site supporting herb species such as birds-foot trefoil, kidney-vetch (*Anthyllis vulneraria* ssp. *vulneraria*), wild carrot (*Daucus carota* subsp. *carota*), yarrow (*Achillea millefolium*), common knapweed (*Centaurea nigra* agg.) (TN1, 3 and 70, Annex A and C).

12.4.23 These grasslands are generally located where the underlying substrates prevent dominance rank grasses and can occur in matrix with ephemeral/short perennial vegetation. In such instances the grassland habitats contribute to a wider resource of habitat 'open mosaic habitats on previously developed land' (OMH), a composite habitat type listed in s41 of the NERC Act. Known or anticipated (based on third party datasets, particularly the MAGIC website) occurrences of this composite habitat are mapped on Figure 12C.4. It is the more species-diverse grasslands that are of highest potential ecological value, including for invertebrate species such as dingy skipper and grayling butterflies.

12.4.24 The most species-poor grasslands, which occur over deeper richer soils, are generally dominated by false-oat grass (*Arrhenatherum elatius*).

12.4.25 Most of the grassland resource is relatively species-poor and lacks favourable management, so is assessed as having local nature conservation value. More diverse examples and/or those contributing to OMH are assessed as having borough nature conservation value.

Improved Grassland

12.4.26 Species-poor improved grasslands occur locally e.g. as grassland of sown origin along road verges. Perennial rye-grass (*Lolium perenne*) typically dominates, but ruderal herbs such as creeping thistle (*Cirsium arvense*) and stinging nettle (*Urtica dioica*) can be locally frequent.

12.4.27 Habitats of this type are species-poor and readily substituted. They are therefore assessed as having negligible nature conservation value.

Ephemeral/short perennial

12.4.28 Ephemeral/short perennial vegetation (TN42 and TN72, Annex A photograph 6, Annex B;) is of scattered occurrence within the land required for the Proposed Development. It is mainly found on mineral-based substrates on previously developed land to the south-east of the PCC Site and within Coatham Sands. It is closely associated with current and former industrial land use.

12.4.29 Ephemeral/short perennial vegetation typically occurs in matrix with, and gradations towards, semi-improved grasslands and scrub habitats. Such

habitat matrices are likely to meet the definition of OMH, a s41 habitat. Known (including consideration of third-party datasets, particularly the MAGIC website) occurrences of this composite habitat are mapped on Figure 12C.4.

- 12.4.30 Localised stands of ephemeral/ short perennial vegetation are readily substituted and of negligible nature conservation value, however where they contribute to OMH they will be of at least borough nature conservation value.
- 12.4.31 There are areas of OMH in the vicinity of the PCC Site (but not within) and at Coatham Sands. The latter contains extensive OMH of high (regional) nature conservation value. This OMH is described in detail in Appendix 12H (ES Volume III, Document Ref. 6.4). The OMH in the vicinity of the PCC Site is not as notable and is considered to be of borough nature conservation value.

Watercourses

- 12.4.32 The River Tees, which marks the boundary between the boroughs of Redcar and Cleveland and Stockton-on-Tees, is the largest watercourse associated with the Site. The estuary of the river is adjacent to and crossed by the Site. The banks of the Tees Estuary are largely engineered and dominated by built infrastructure for the associated docks and industry.
- 12.4.33 Locally, the margins of the Tees Estuary have areas of intertidal mudflat habitat, a priority habitat under s41 of the NERC Act. These mudflats are considered to be of international importance for the bird assemblage they support (i.e. the assemblage of Teesmouth and Cleveland SPA and Ramsar site). No areas of saltmarsh (also a priority habitat) have been identified from this part of the estuary.
- 12.4.34 The Site boundary coincides with four additional watercourses (see TN12, TN16, TN28 Annex A and Figure 12C.3 for the locations of these), as follows:
- Dabholm Gut (photograph 26, Annex B);
 - Main's Dyke/The Mill Race;
 - The Fleet (photographs 9 to 11, Annex B); and
 - Kettle Beck.
- 12.4.35 These watercourses have all been affected to some degree by realignment, dredging and culverting. The Fleet is at its most natural immediately downstream of Coatham Marsh LWS but at this location has been extensively colonised by the invasive non-native floating pennywort (*Hydrocotyle ranunculoides*). The Dabholm Gut is immediately adjacent to the Site boundary and is a heavily modified (re-aligned) tidal creek of the Tees Estuary with additional areas of intertidal mudflat habitat.
- 12.4.36 With the exception of Dabholm Gut, which contains s41 mudflat habitats, and given the location and land management context of these watercourses, they are not considered to be examples of priority habitats under s41 of the NERC Act. However, they do represent habitats covered by the Tees Valley LBAP.

- 12.4.37 The relative nature conservation value of these watercourses cannot be determined at present using the data obtained for this PEA report. This will be reviewed, as relevant, once further aquatic ecology survey work has been undertaken (refer to Chapter 13, ES Volume I, Document Ref. 6.2).

Standing water

- 12.4.38 There are four semi-natural ponds (Waterbodies 1 to 4, Figure 12C.3) in within the land required for the Proposed Development in Redcar and Cleveland. Descriptions of these ponds are provided as Target Notes 18, 23, 27 and 29 (Annex A), and illustrated by photographs 5, 12, 13 and 20 (Annex B).
- 12.4.39 Some of the ponds present may qualify as a s41 priority habitats, but this cannot be determined at present using the data obtained for this PEA report. This will be reviewed, as relevant, once further aquatic ecology survey work has been undertaken (ES Volume I, Document Ref. 6.2).

Habitats in the Borough of Stockton-on-Tees

Scrub

- 12.4.40 There are areas of scattered and dense scrub occurring adjacent to the existing pipe racking infrastructure (photograph 22, Annex B) in the Seal Sands and the Haverton Hill areas (TN 41, Annex A).
- 12.4.41 Scrub habitats are of recent secondary origin and readily substituted. They are therefore assessed as having local nature conservation value.

Semi-improved grassland

- 12.4.42 Semi-improved neutral grassland occurs in fields and along road verges. It generally along road verges and the existing pipe racking infrastructure, where it is unmanaged and has a rank relatively species-poor sward (photographs 17, 19, 21, 23, 24, 30, Annex B).
- 12.4.43 Where the underlying substrates prevent dominance by rank grasses then the sward can be more diverse, especially where it occurs in matrix with ephemeral/ short perennial vegetation. In such instances the grassland habitats contribute to a wider resource of OMH, a composite habitat type listed in s41 of the NERC Act. Known or anticipated (based on third party datasets, particularly the MAGIC website) occurrences of this composite habitat are mapped on Figure 12C.4. It is the more species-diverse grasslands that are of highest potential ecological value, including for invertebrate species such as dingy skipper and grayling butterflies.
- 12.4.44 At Saltholme, to the north and south of the A1185 and with only limited overlap with the Site, the semi-improved grasslands (e.g. Target Note 24, Annex A; photograph 30, Annex B) are part of a coastal and floodplain grazing marsh system, a s41 priority habitat. These grasslands are used for raising livestock (sheep, cattle and locally horses). Some fields show evidence of agricultural improvement and are relatively species-poor. It is emphasised that botanical diversity does not influence the quality of the grassland as an example of the s41 habitat. Coastal and floodplain grazing marsh is defined by its hydrological and topographical characteristics rather

than botanical interest. The majority of sites have low botanical grassland interest, but nevertheless important for birds.

- 12.4.45 Habitats of the above grassland types are assessed as having local to borough nature conservation value.

Improved Grassland

- 12.4.46 Fields of improved agricultural grassland are present in the area between Billingham and Saltholme, where they are generally managed for livestock (TN40, Annex A). Elsewhere improved grasslands occur along the margins of roads. These grasslands are of comparable composition to the improved grasslands described for Redcar and Cleveland.

- 12.4.47 Habitats of this type are species-poor and readily substituted. They are therefore assessed as having negligible nature conservation value.

Watercourses

- 12.4.48 In addition to the River Tees, see above, the Site boundary coincides with two additional watercourses (see Figure 12C.3 for the locations of these), as follows:

- Belasis Beck is crossed by an existing pipeline rack which would be used by the Proposed Development; and
- Holme Fleet, which again is crossed by an existing pipeline rack.

- 12.4.49 Given the location and context of these watercourses they are not considered to be examples of priority habitats under s41 of the NERC Act. However, they do represent habitats covered by the Tees Valley LBAP and are flow through and are closely associated with a large area of coastal and floodplain grazing marsh habitat. This latter habitat is of a type covered by s41 of the NERC Act.

- 12.4.50 The relative nature conservation value of these watercourses cannot be determined at present using the data obtained for this PEA report. This will be reviewed, as relevant, once further aquatic ecology survey work has been undertaken (see Chapter 13: Aquatic Ecology, Volume I, Document Ref. 6.2).

Standing Water

- 12.4.51 There are three semi natural waterbodies (Figure 12C.3) in Stockton-on-Tees within the Site boundary. These waterbodies are located in adjacent to the existing pipe racking infrastructure which would be used by the Proposed Development.

- 12.4.52 Some of the ponds present may qualify as a s41 priority habitats, but this cannot be determined at present using the data obtained for this PEA report. This will be reviewed, as relevant, once further aquatic ecology survey work has been undertaken.

Marshy Grassland

- 12.4.53 A small stand of species-poor marshy grassland is present on drainage impeded ground in the corner of a pasture field adjacent to Cowpen Bewley Road (TN 39, Annex A). It is dominated by soft rush (*Juncus effusus*). It is assessed to be of negligible value.

OMH

12.4.54 There are areas of OMH in association with the disused railway within the Natural Gas Connection corridor at Seal Sands. This OMH is an intimate mixture of sparse grassland, ephemeral and scattered scrub communities (photograph 25, Annex B). The quality of the OMH (which is determined by local substrate characteristics and is being lost to succession towards a closed cover of rank grassland and scrub) is limited and relatively uniform. It is considered to be of borough nature conservation value.

Notable Habitats

12.4.55 A summary of the most notable habitats present within the Site, these being those listed being NERC Act s41 priority habitats and NPPF irreplaceable habitats, present in association with the Site is provided below as Table 12C-4.

Table 12C-4: Notable Habitats within the Proposed Site boundary

| s41 Priority Habitat | Named as irreplaceable in NPPF | Subject to legally protection (e.g. via designation) | Redcar and Cleveland | Stockton-on-Tees | Nature conservation value |
|--------------------------------------|--------------------------------|--|--|------------------|--|
| Coastal and floodplain grazing marsh | x | ✓ | x | ✓ | Borough (except where designated) |
| Lowland mixed deciduous woodland | x | X | ✓ | ✓ | Local |
| Mudflats | x | ✓ | ✓ | ✓ | International – fundamental to the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar |
| OMH | x | X | ✓ | ✓ | Borough or regional (see Appendix 12H for further detail on the latter) |
| Ponds | x | ✓ | To be confirmed through further survey, see Chapter 13 (ES Volume I) | | |
| Sand dunes | ✓ | ✓ | ✓ | x | National – fundamental to the integrity of the Teesmouth and Cleveland Coast SSSI |

Protected and Notable Species

- 12.4.56 Table 12C-5 identifies which species are of potential relevance to the Proposed Development based on information gathered through a combination of desk study and field survey, consideration of their relative legal and conservation status, and their likelihood of presence in the zone of influence of the Proposed Development.

Table 12C-5: Protected and Notable Species Relevant or Potentially Relevant to the Proposed Development

| Species | Relevant status | Desk study records | PEA surveys indicate potential for presence | Desk study records or suitable habitat in zone of influence? | | Potentially relevant to the Proposed Development | Comments |
|--|--|--------------------|---|--|------------------|--|--|
| | | | | Redcar and Cleveland | Stockton-on-Tees | | |
| Badger (<i>Meles meles</i>) | Protected | ✓ | ✓ | ✓ | ✓ | x | No evidence of badger found. |
| Barn owl (<i>Tyto alba</i>) | Protected | ✓ | ✓ | ✓ | ✓ | ✓ | Structures suitable for use for breeding or roosting occur in the PCC Site. See Appendix - 15A Baseline Ornithology Report Addendum. |
| Bats | Protected, s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | There are records of the following species: common pipistrelle (<i>Pipistrellus pipistrellus</i>), including a roost at Kirkleatham, soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) and noctule (<i>Nyctalus noctula</i>). Structures suitable for roosting are present in the PCC Site. |
| Birds: other breeding | Protected, s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | There are a variety of habitats suitable for use by a diverse range of bird species during the breeding season. There is potential for conflicts with the WCA if works are timed for the breeding season. |
| Birds: Teesmouth and Cleveland Coast SSSI, SPA, Ramsar species | Protected, s41, LBAP, Designated interest features | ✓ | ✓ | ✓ | ✓ | ✓ | The Proposed Development is located within these designations but also affects connected habitats that may be of functional importance for maintenance of the ornithological interest of these designations. |
| Brown hare (<i>Lepus europaeus</i>) | s41, LBAP | ✓ | ✓ | ✓ | ✓ | x | With implementation of good practice animal welfare measures there is nothing |

| Species | Relevant status | Desk study records | PEA surveys indicate potential for presence | Desk study records or suitable habitat in zone of influence? | | Potentially relevant to the Proposed Development | Comments |
|---|---|--------------------|---|--|------------------|--|---|
| | | | | Redcar and Cleveland | Stockton-on-Tees | | |
| | | | | | | | inherent to the Proposed Development that is likely to adversely affect the conservation status of brown hare given the species wide distribution and favourable status in the Tees Valley (Tees Valley Nature Partnership, 2012). |
| Common lizard (<i>Zootoca vivipara</i>) | Protected, s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | Rare in the Tees Valley and focussed in former industrial areas and along the coast e.g. at Coatham Sands (Tees Valley Nature Partnership, 2012), at Saltholme, and in the vicinity of the PCC site. |
| Common seal (<i>Phoca vitulina</i>) | Designated feature of Teesmouth & Cleveland Coast SSSI, s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | Breeding population of approximately 1,000 individuals using the Tees Estuary and associated inshore marine habitats. |
| Common toad (<i>Bufo bufo</i>) | s41 | ✓ | ✓ | ✓ | ✓ | x | May breed in ponds within the ZOI. If pond loss is required, this could impact the species at a local (site) level. Common toad can be expected to occur widely wherever suitable ponds and other waterbodies occur e.g. throughout the extensive landscape of coastal and floodplain grazing marsh to the north of the River Tees. Given this, further assessment is considered unnecessary given the limited permanent land take for the Proposed Development, and the relatively favourable conservation status of the species and its limited legal protection. |

| Species | Relevant status | Desk study records | PEA surveys indicate potential for presence | Desk study records or suitable habitat in zone of influence? | | Potentially relevant to the Proposed Development | Comments |
|--|---|--------------------|---|--|------------------|--|---|
| | | | | Redcar and Cleveland | Stockton-on-Tees | | |
| Dingy skipper (<i>Erynnis tages</i>) | s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | This butterfly species was recorded by AECOM during the PEA in the vicinity of the PCC. The desk study indicates colonies are focussed on brownfield sites around the Tees Estuary, including Seal Sands, South Gare, and Coatham Sands. |
| Fish | Protected, including s41 and LBAP species | x | ✓ | ✓ | ✓ | ✓ | The Proposed Development is not likely to adversely affect the conservation status of any fish species of freshwater and estuarine habitats, but regard will still be needed to meet legal obligations. |
| Grayling (<i>Hipparchia semele</i>) | s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | The desk study indicates this butterfly species is associated with former industrial sites of the Tees estuary. Key sites are considered to include Seal Sands and the Coatham sand dune system. |
| Great crested newt (<i>Triturus cristatus</i>) | Protected, s41, LBAP | ✓ | ✓ | x | ✓ | ✓ | eDNA surveys by AECOM of four ponds near the PCC did not detect this species. INCA subsequently advised AECOM that there are no records in the ZOI of the Proposed Development in Redcar and Cleveland. There are desk study records for Stockton-on-Tees, the closest of which is at Cowpen more than 1 km north of the Site. There are potentially suitable waterbodies in the Seal Sands area that are considered further in Appendix 12J. |
| Harvest mouse (<i>Micromys minutus</i>) | s41, LBAP | ✓ | ✓ | ✓ | ✓ | x | The desk study indicates records for Saltholme and Coatham Marsh LWS, where |

| Species | Relevant status | Desk study records | PEA surveys indicate potential for presence | Desk study records or suitable habitat in zone of influence? | | Potentially relevant to the Proposed Development | Comments |
|--|--|--------------------|---|--|------------------|--|--|
| | | | | Redcar and Cleveland | Stockton-on-Tees | | |
| | | | | | | | all suitable wetland habitats will be avoided by the Proposed Development. |
| Hedgehog (<i>Erinaceus europaeus</i>) | s41 | ✓ | ✓ | ✓ | ✓ | x | With implementation of good practice animal welfare measures there is nothing inherent to the Proposed Development that is likely to adversely affect the conservation status of hedgehog wide distribution of suitable habitat. |
| Invertebrates: assemblage within Teesmouth and Cleveland Coast SSSI. | Designated feature of Teesmouth & Cleveland Coast SSSI | ✓ | ✓ | ✓ | x | ✓ | The sand dune system at Coatham Sands supports a notable assemblage as described on the citation. |
| Invertebrates: general. | Including s41 and LBAP species | ✓ | ✓ | ✓ | ✓ | ✓ | Numerous records returned by the desk study and likely to occur in higher quality habitats in the ZOI. Potential for notable assemblages. It should be noted that many s41 invertebrates are from a list of 'research only' species and their listing does not always indicate a specific nature conservation concern or priority. |
| Otter (<i>Lutra lutra</i>) | Protected, s41 | ✓ | ✓ | ✓ | ✓ | ✓ | Potential presence along watercourses and in coastal habitats. |
| Proliferous pink (<i>Petrorhagia prolifera</i>) | Nationally Rare, Endangered | ✓ | ✓ | ✓ | x | ✓ | This plant is present in the sand dune system of Coatham Sands within Teesmouth and Cleveland Coast SSSI |

| Species | Relevant status | Desk study records | PEA surveys indicate potential for presence | Desk study records or suitable habitat in zone of influence? | | Potentially relevant to the Proposed Development | Comments |
|--|-----------------------|--------------------|---|--|------------------|--|--|
| | | | | Redcar and Cleveland | Stockton-on-Tees | | |
| Purple milk-vetch (<i>Astragalus danicus</i>) | Endangered, s41, LBAP | ✓ | ✓ | ✓ | x | ✓ | This plant is present in the sand dune system of Coatham Sands within Teesmouth and Cleveland Coast SSSI. |
| Rush-leaved fescue (<i>Festuca arenaria</i>) | Nationally Scarce | ✓ | ✓ | ✓ | x | ✓ | This plant is present in the sand dune system of Coatham Sands within Teesmouth and Cleveland Coast SSSI. |
| Small heath (<i>Coenonympha pamphilus</i>) | s41 | ✓ | ✓ | ✓ | ✓ | ✓ | The desk study indicates this butterfly species is associated with former industrial sites of the Tees Valley, including Seal Sands. |
| Stiff saltmarsh-grass (<i>Puccinellia rupestris</i>) | Nationally Scarce | ✓ | ✓ | ✓ | x | ✓ | Several records of this plant in the vicinity of the Site, including Dabholme Gut and north of the Wilton Works. |
| Wall (<i>Lasiommata megera</i>) | s41 | ✓ | ✓ | ✓ | ✓ | ✓ | The desk study indicates this butterfly species is associated with former industrial sites of the Tees Valley, including Seal Sands. |
| Water vole (<i>Arvicola amphibius</i>) | Protected, s41, LBAP | ✓ | ✓ | ✓ | ✓ | ✓ | Potential presence along watercourses and in wetland habitats, particularly in the Saltholme area. |

Invasive Non-native Plant Species

12.4.57 Six invasive non-native (“controlled”) plant species listed on Schedule 9 of the WCA have been identified through desk study and field survey, as summarised in Table 12C-6. These species may represent legal constraints to the Proposed Development.

Table 12C-6: Records of Invasive Non-native Plant Species

| Species | Comment |
|--|---|
| Floating pennywort (<i>Hydrocotyle ranunculoides</i>) | Various INCA reports indicate this species is widely establishing along The Fleet. AECOM observed large stands in The Fleet between Coatham Marsh LWS and the PCC Site. |
| Giant hogweed (<i>Heraclium mantegazzianum</i>) | AECOM recorded this species within the PCC Site. There is also a desk study record for Eston Pumping Station LWS which is located adjacent to red line for the Proposed Development. |
| Japanese rose (<i>Rosa rugosa</i>) | AECOM recorded this species within the PCC Site and within Coatham Sands. There are scattered field and desk study records from elsewhere, some of which may be ornamental plantings. |
| Montbretia (<i>Crocasmia x crocosmiiflora</i>) | AECOM recorded this species within Coatham Sands. |
| Nuttall’s waterweed (<i>Elodea nuttallii</i>) | AECOM recorded this species from Pond 4 (Figure 12C.3). |
| Wall cotoneaster (<i>Cotoneaster horizontalis</i>) | AECOM recorded this species within Coatham Sands. |

12.5 Conclusions and Recommendations

12.5.3 A review of relevant constraints and any requirements for further survey to address these is provided below.

Constraints and Requirements for Further Survey: Designations

12.5.4 Table 12C-2 and 12C-3 identify the 12 national and international statutory and 10 local nature conservation designations that are potential constraints to the Proposed Development. Of these, the following designations overlap with the land required for the construction, operation and decommissioning of the Proposed Development:

- Teesmouth and Cleveland Coast SPA – ornithological surveys have been completed to inform assessment of potential impacts and effects;
- Teesmouth and Cleveland Coast Ramsar site – ornithological surveys have been completed to inform assessment of potential impacts and effects; and
- Teesmouth and Cleveland Coast SSSI – the Site crosses an area of sand dune habitat within the SSSI, including associated OMH and wetland (dune slack and dry reedbed) habitats. Further habitat, botanical and terrestrial and aquatic invertebrate surveys have been undertaken to inform assessment of potential impacts and effects (see Appendices 12H, 12I and 13A, ES Volume III, Document Ref. 6.4). Potential impacts and effects on the designated intertidal and marine habitats and species are assessed within Chapter 14: Marine Ecology and Nature Conservation (ES Volume I) and supporting appendices, including Appendix 14A: Intertidal Benthic Survey (ES Volume III, Document Ref. 6.4). Any additional survey requirements for designated intertidal and marine habitats has been determined on a case by case basis by a marine ecology specialist and is reported in the final ES, if required.

12.5.5 All other designations are located outside the Site boundary, and therefore will not be directly affected. These designations remain relevant to the assessment of potential indirect impacts and effects of the Proposed Development (primarily in relation to potential air quality impacts and effects). No detailed habitat surveys are considered necessary within these designations to permit robust impact assessment, but some species surveys are likely to be necessary where there is potential for the Site to be of functional importance for the maintenance of the designated species interest features of these designations. Particularly, in relation to ornithological interest features of the relevant statutory nature conservation designations. This is considered in Chapter 15: Ornithology (ES Volume I, Document Ref. 6.2).

Constraints and Requirements for Further Survey: Habitats

Redcar and Cleveland

12.5.6 Re-use of an existing industrial site for the PCC Site reduces the need for new permanent land-take from semi-natural habitats. Habitats of potential botanical interest that may be affected during construction of the PCC have

been surveyed by an experienced botanist and the results are provided in this PEA Report (Annex C). No further terrestrial habitat surveys are therefore required at the PCC Site.

- 12.5.7 No other undesignated terrestrial habitats of relatively high botanical importance are likely to be adversely affected during construction of the Proposed Development.
- 12.5.8 Requirements for other freshwater and marine habitat surveys have been reviewed by relevant specialists and are beyond the scope of this PEA Report. Further information on the approach taken is provided in Chapter 13: Aquatic Ecology, Chapter 14: Marine Ecology and Nature Conservation (ES Volume I, Document Ref. 6.2) and their associated appendices (ES Volume III, Document Ref. 6.4).

Stockton-on-Tees

- 12.5.9 Construction activities for the Proposed Development will largely be restricted to corridors containing an existing network of pipe racks. No substantive permanent above ground land-take is required in Stockton-on-Tees.
- 12.5.10 Some temporary losses of semi-natural habitats may be required along the route of the buried CO₂ Gathering Network, and this primarily affects rank semi-improved grasslands along road verges. Similarly works may also be required in fields of improved and poor semi-improved pasture. None of the affected habitats are of sufficient nature conservation interest to require further botanical survey and assessment, given the nature and duration of the proposed construction activities.
- 12.5.11 Requirements for freshwater and marine habitat survey have been reviewed by relevant specialists and are beyond the scope of this PEA Report. Further information on the approach taken is provided in Chapter 13: Aquatic Ecology, Chapter 14: Marine Ecology and Nature Conservation (ES Volume I, Document Ref. 6.2) and their associated appendices (ES Volume III, Document Ref. 6.4).

Constraints and Requirements for Further Survey: Species

- 12.5.12 A number of protected or notable species have been identified as potentially present within the Site boundary, based on the review provided above in Table 12C-5.
- 12.5.13 Table 12C-7 summarises the species scoped into the EclA for the Proposed Development (Chapters 12 to 15, ES Volume I, Document Ref. 6.2) (in some cases only for purposes of demonstrating legal compliance), and any requirements for further survey to inform the EclA. Cross-references to the relevant ES Chapters that will provide the survey methods and results are also provided in the table.

Table 12C-7: Requirements for Further Survey to Address Potentially Relevant Species (as first identified in Table 12C-5)

| Species | Further survey needed to inform impact assessment | Redcar and Cleveland | Stockton-on-Tees | Reported in ES chapter |
|--|---|----------------------|------------------|------------------------|
| Aquatic invertebrates | Yes – survey work to be completed in 2020 | ✓ | ✓ | 13 |
| Badger | No – survey work completed in 2020 | ✓ | ✓ | 12 |
| Barn owl | Yes – survey work completed in 2020 | ✓ | ✓ | 15 |
| Bats | Yes – survey work completed in 2020 | ✓ | x | 12 |
| Birds | Yes – survey work completed in 2020 | ✓ | ✓ | 15 |
| Botanical | Yes – survey work completed in 2020 | ✓ | x | 12, 13 |
| Common lizard | Yes – survey work completed in 2020 | ✓ | x | 12 |
| Common seal | No – habitat requirements well understand, assume presence in marine habitats | x | x | 14 |
| Common toad | No – assume presence | ✓ | ✓ | 12 |
| Fish | Yes – survey work completed in 2020 | ✓ | ✓ | 13, 14 |
| Great crested newt | Yes – survey/assessment completed in 2020 | x | ✓ | 12 |
| Invasive plant species | Yes – survey work completed in 2020 | ✓ | ✓ | 12, 13 |
| Otter | Yes – survey work completed in 2020 (if relevant) | ✓ | ✓ | 12 |
| Terrestrial invertebrates, including notable butterfly species | Yes – survey work completed in 2020 | ✓ | ✓ | 12 |
| Water vole | No – surveys completed in 2018 | ✓ | x | 12 |

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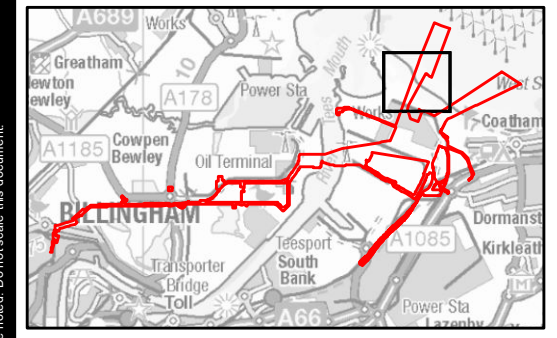
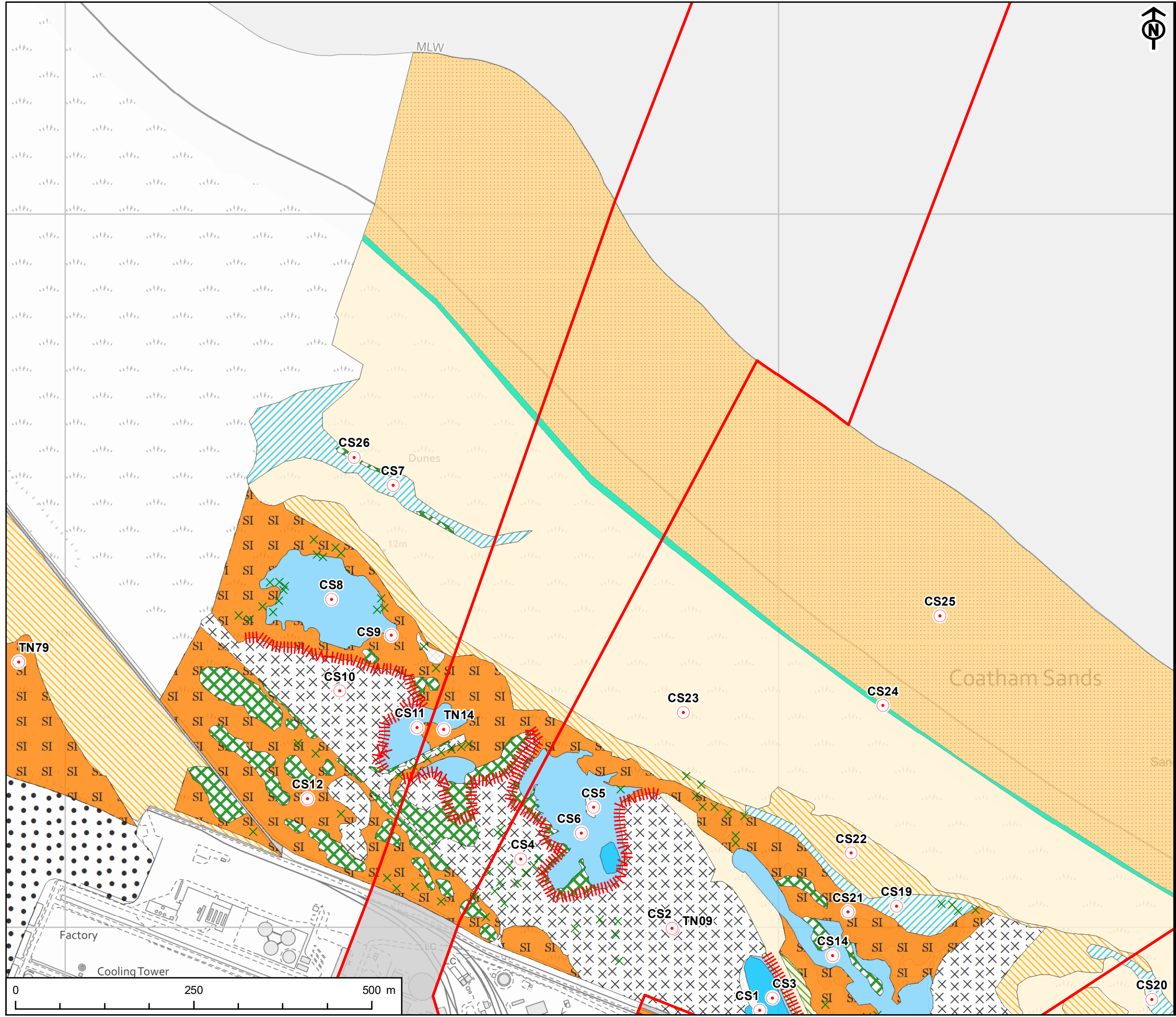
Figures

Figure 12C-1: Phase 1 Habitat Map



KEY

- Site Boundary
- Target note
- × Scrub - scattered
- Hard cliff
- Strandline Vegetation
- Bare ground
- X Cultivated/disturbed land - ephemeral/short perennial
- Dune grassland
- Dune scrub
- Dune slack
- Hardstanding
- Intertidal - mud/sand
- Introduced shrub
- Marginal and inundation - inundation vegetation
- Neutral grassland - semi-improved
- Open dune
- Scrub - dense/continuous
- Standing water
- Swamp



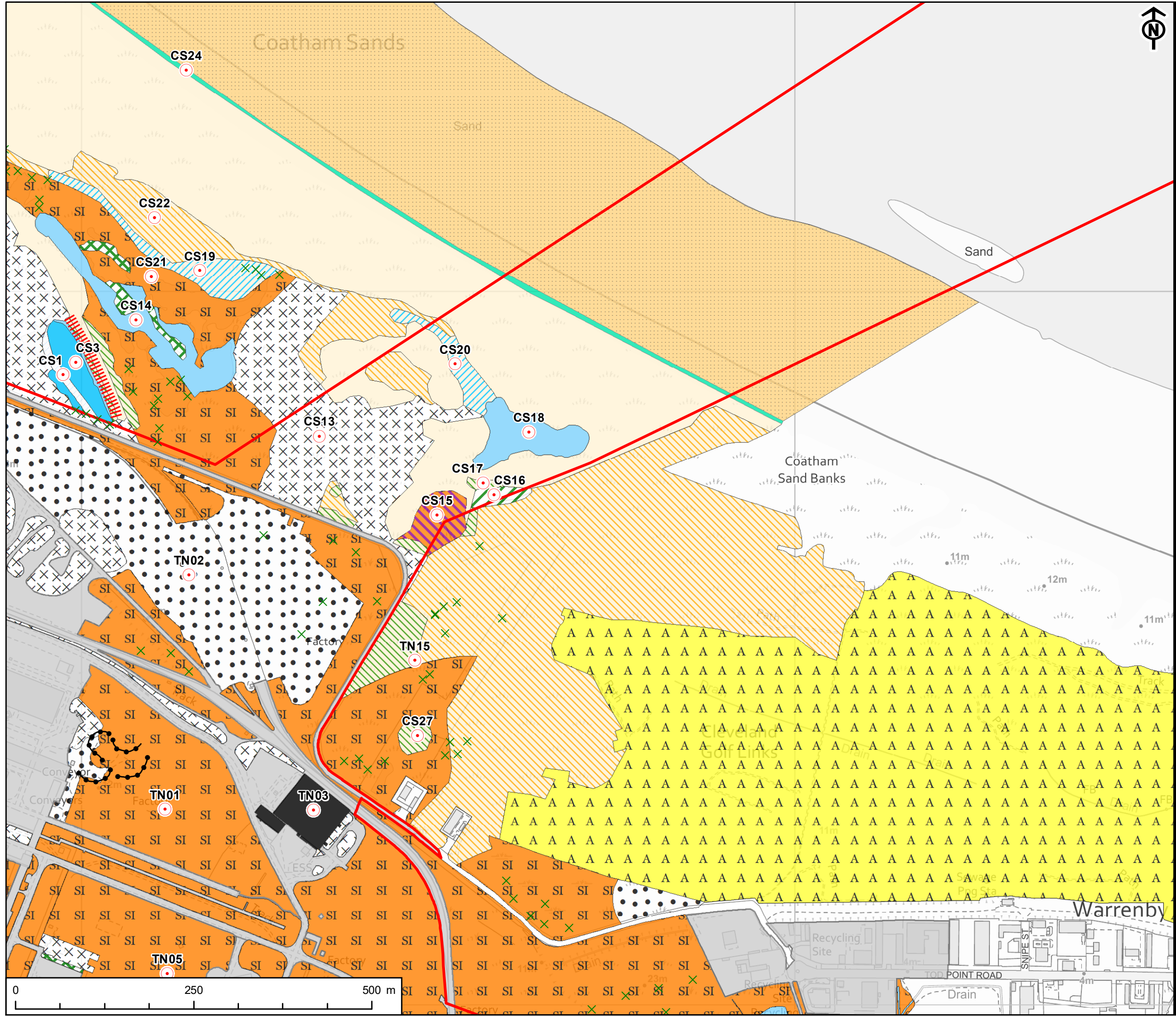
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 FIGURE 12C-1
 PHASE 1 HABITAT MAP

REFERENCE
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SHEET NUMBER
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DATE
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KEY

- Site Boundary
- Target note
- × Scrub - scattered
- Earth bank
- Hard cliff
- Strandline Vegetation
- Bare ground
- Broadleaved woodland - plantation
- Buildings
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - ephemeral/short perennial
- Dune grassland
- Dune scrub
- Dune slack
- Hardstanding
- Intertidal - mud/sand
- Marginal and inundation - inundation vegetation
- Marsh/marshy grassland
- Neutral grassland - semi-improved
- Open dune
- Scrub - dense/continuous

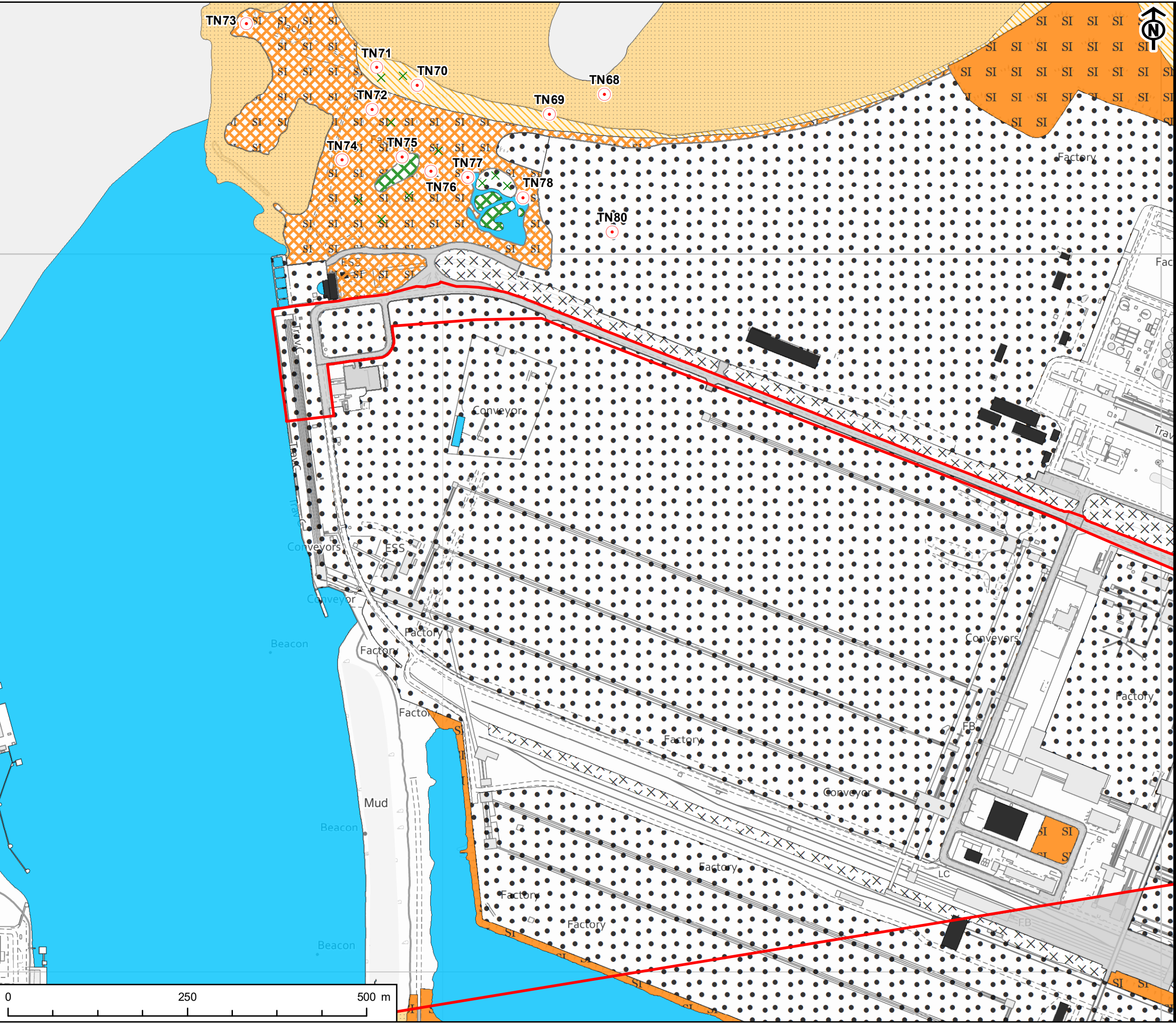
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PHASE 1 HABITAT MAP

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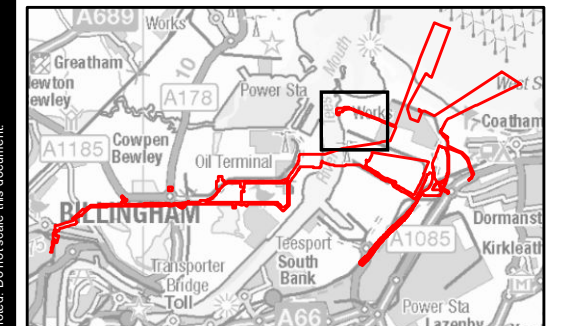


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- KEY
- Site Boundary
 - Target note
 - Scrub - scattered
 - Bare ground
 - Buildings
 - Calcareous grassland - semi-improved
 - Cultivated/disturbed land - ephemeral/short perennial
 - Dune grassland
 - Hardstanding
 - Intertidal - mud/sand
 - Neutral grassland - semi-improved
 - Running water
 - Scrub - dense/continuous
 - Standing water



TITLE
FIGURE 12C-1
PHASE 1 HABITAT MAP

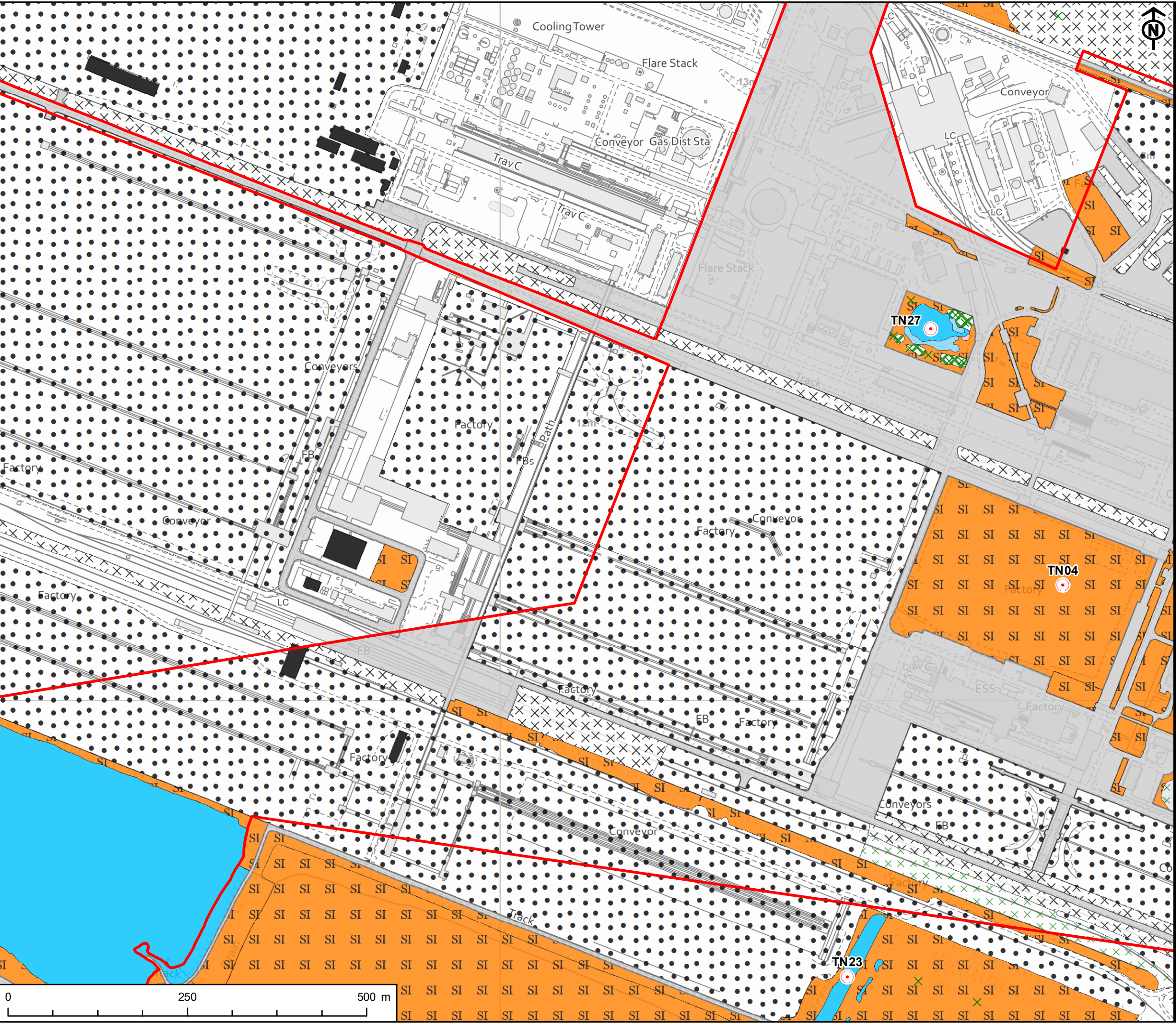
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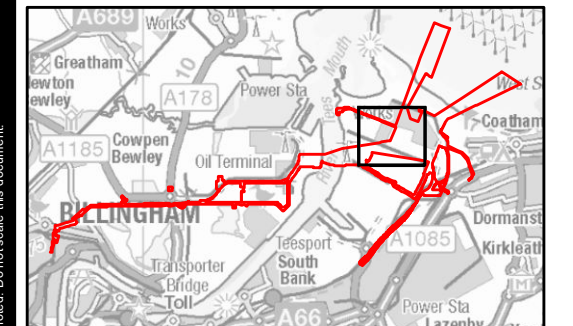
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APPLICANTS
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KEY

- Site Boundary
- Target note
- × Scrub - scattered
- Bare ground
- Buildings
- Cultivated/disturbed land - ephemeral/short perennial
- Hardstanding
- Intertidal - mud/sand
- Neutral grassland - semi-improved
- Running water - brackish
- Saltmarsh - dense/continuous
- Scrub - dense/continuous
- Scrub - scattered
- Standing water
- Swamp



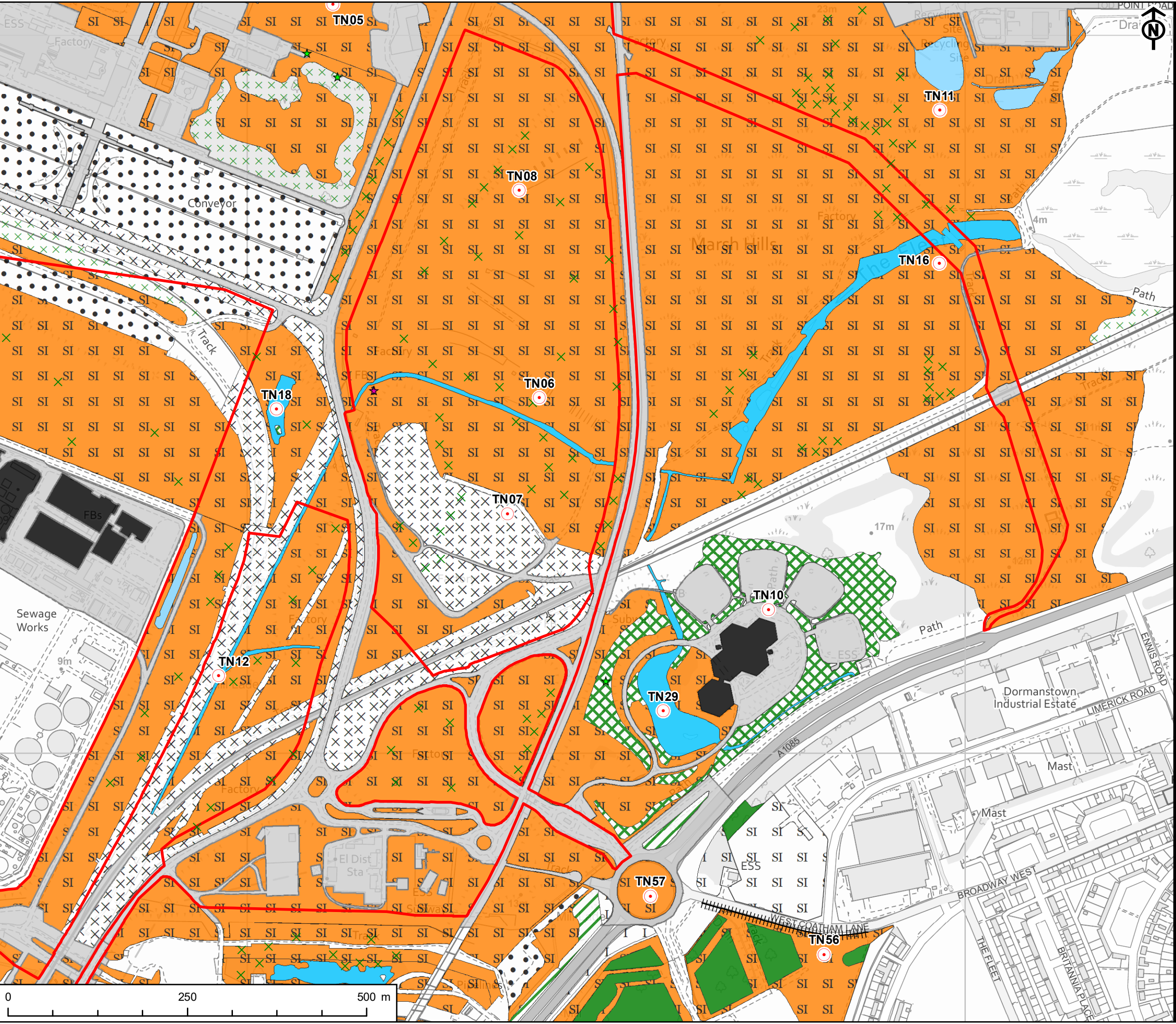
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FIGURE 12C-1
PHASE 1 HABITAT MAP

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APPLICANTS
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KEY

- Site Boundary
- Target note
- × Scrub - scattered
- ★ Roost
- ★ Invasive_Species
- Fence
- Bare ground
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Calcareous grassland - semi-improved
- Cultivated/disturbed land - ephemeral/short perennial
- Hardstanding
- Improved grassland
- Mixed parkland/scattered trees
- Neutral grassland - semi-improved
- Poor semi-improved grassland
- Running water
- Scrub - dense/continuous
- Scrub - scattered
- Standing water
- Swamp

TITLE
FIGURE 12C-1
PHASE 1 HABITAT MAP

REFERENCE
NZN_210507_PEA_12C-1_v6

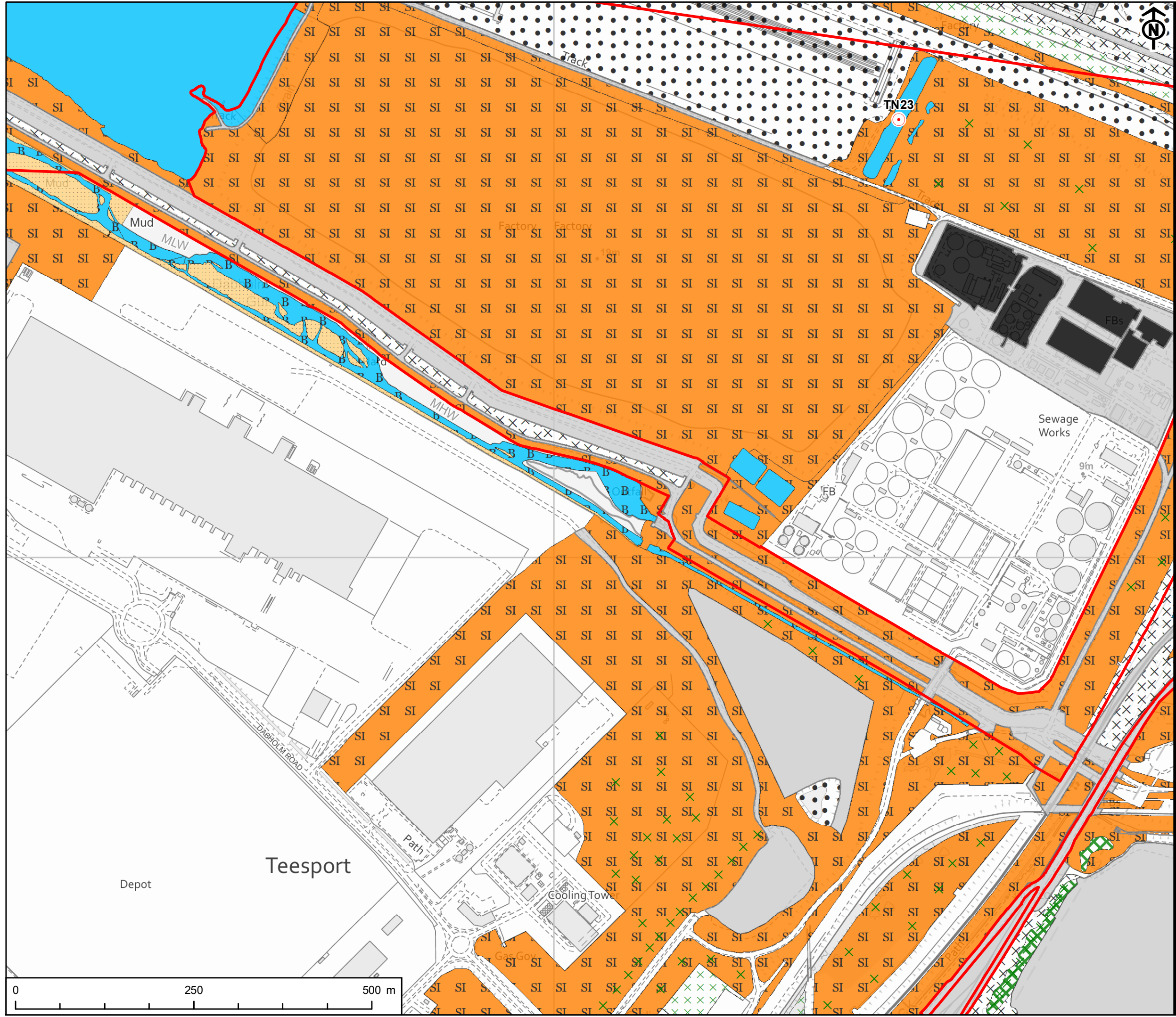
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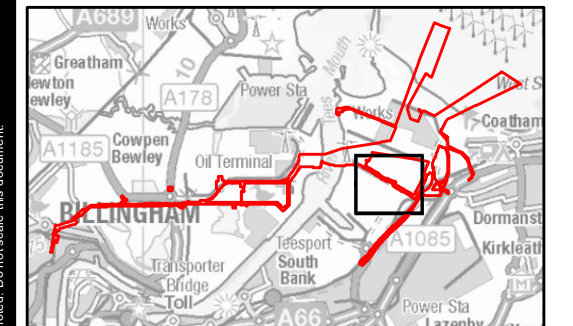
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APPLICANTS
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KEY

- Site Boundary
- Target note
- × Scrub - scattered
- Bare ground
- Buildings
- Calcareous grassland - semi-improved
- Cultivated/disturbed land - ephemeral/short perennial
- Hardstanding
- Intertidal - mud/sand
- Neutral grassland - semi-improved
- Running water
- Running water - brackish
- ⊠ Scrub - dense/continuous
- × Scrub - scattered
- Standing water
- Swamp



TITLE
FIGURE 12C-1
PHASE 1 HABITAT MAP

REFERENCE
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