



South Industrial Zone

Environmental Statement
July 2020

Volume 3 - Technical Appendices

Appendices to Chapter D
(Biodiversity and Ecology)

Appendix D1: Legislation, Planning Policy, and Guidance

Legislation, Planning Policy and Guidance

Legislation

Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017

- 1.1 The Wildlife and Countryside Act (WCA) 1981 (as amended) is the primary legislation covering endangered species in England and sets out the framework for the designation of Sites of Special Scientific Interest (SSSI). It confers differing levels of protection on species themselves, their habitats, or both, depending on their conservation status.
- 1.2 Species offered protection by the Act are listed in a series of schedules. These schedules are subject to a rolling review on a five-yearly basis. Protected species are listed under Schedule 1 (birds), Schedules 5 and 6 (animals other than birds and invertebrates) and Schedule 8 (plants).
- 1.3 The WCA makes it an offence (with exception to species listed in Schedule 2) to intentionally kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird while that nest is in use or being built or take or destroy an egg of any wild bird. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.
- 1.4 The WCA makes it an offence to plant or otherwise cause to grow any plant species listed on Schedule 9 of the Act. This includes the invasive non-native species Small-leaved cotoneaster.

Bats

- 1.5 All British bats are protected by law under the WCA and by the Conservation of Habitats and Species Regulations 2017 (hereby referred to as ‘the Habitat Regulations’). These regulations implement the European Habitats Directive (EC Directive 92/43/EEC) on the Conservation of Natural Habitats and of wild flora and fauna in Britain.
- 1.6 All species of bat found in Britain are listed in the Habitat Regulations as European Protected Species (EPS).
- 1.7 It is an offence to intentionally or recklessly:
 - i. Capture, injure or kill a bat;
 - ii. Harass a bat or group of bats;
 - iii. Disturb a bat while it is rearing or otherwise caring for its young;
 - iv. Obstruct access to a breeding site or resting place (bat roost or hibernation site), or otherwise deny a bat use of a breeding site or resting place;
 - v. Disturb a bat while it is occupying a structure or place used for shelter or protection;
 - vi. Disturb a bat in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or
 - vii. Disturb a bat in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or
 - viii. Obstruct, damage or destroy a breeding site or resting place (whether or not the damage or destruction is carried out deliberately or recklessly).
- 1.8 These offences apply to all stages of a bat’s life. It is important to note that bat roosts are protected, even when the bats are not present.

Otter

- 1.9 Otter are an EPS and are fully protected under the Habitat Regulations.
- 1.10 It is an offence to deliberately or recklessly:
- i. Capture, injure or kill an otter;
 - ii. Harass an otter or group of otters;
 - iii. Disturb an otter in a holt or any other structure or place it uses for shelter or protection;
 - iv. Disturb an otter while it is rearing or otherwise caring for its young;
 - v. Obstruct access to a holt or other structure or place otters use for shelter or protection or to otherwise deny the animal use of that place;
 - vi. Disturb an otter in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species; and
 - vii. Disturb an otter in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.
- 1.11 It is also an offence to:
- i. Damage or destroy a breeding site or resting place of such an animal (this does not need to be deliberate or reckless to constitute an offence); and
 - ii. Keep, transport, sell or exchange or offer for sale or exchange any wild otter or any part or derivative of one (if obtained after 10 June 1994).

Breeding Birds

- 1.12 All wild birds in the UK are protected under the WCA. Even common species like pigeons and blackbirds are protected.
- 1.13 Some rarer species and those that are vulnerable to disturbance or persecution receive further protection.
- 1.14 It is an offence to intentionally or recklessly:
- i. Kill, injure or take a wild bird;
 - ii. Take, damage, destroy or interfere with a nest of any wild bird whilst it is in use or being built (or at any time for a nest habitually used by any bird listed in Schedule 1A of the WCA 1981);
 - iii. Obstruct or prevent any wild bird from using its nest;
 - iv. Take or destroy an egg of any wild bird;
 - v. Disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on, or near a nest containing eggs or young;
 - vi. Disturb the dependent young of any wild bird listed on Schedule 1; and
 - vii. Harass any wild bird listed on Schedule 1A.
- 1.15 It is also an offence to possess or control a live or dead wild bird, an egg of a wild bird (or any such derivatives), or to knowingly cause or permit any of the above acts to be carried out.

Water Vole

- 1.16 The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
- 1.17 It is an offence to intentionally or recklessly:
- i. Intentionally capture, kill or injure water vole;
 - ii. Damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
 - iii. Disturb them in a place of shelter or protection (on purpose or by not taking enough care); and
 - iv. Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

Amphibians and Reptiles

- 1.18 Great crested newt, natterjack toad and all marine turtles are EPS and are fully protected under the Habitats Regulations. This lists a number of offences in relation to these species and the places in which they live.
- 1.19 It is an offence to deliberately or recklessly:
- i. Capture, injure or kill a wild animal of these species;
 - ii. Disturb such animals whilst using any structure or place it uses for shelter or protection (e.g. a breeding pond or hibernation site);
 - iii. Obstruct access to a breeding site or resting place of such an animal or to otherwise deny the animal use of that site;
 - iv. Disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of that species; and
 - v. Disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.
- 1.20 It is also an offence to:
- i. Damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate or reckless to constitute an offence); and
 - ii. Keep, transport, sell or exchange or offer for sale or exchange any of these species or any part or derivative of one.
- 1.21 All of the reptile species found naturally in the UK are given limited protection under the WCA.
- 1.22 Common lizard, slow worm, grass snake and adder are protected under Schedule 5 of the WCA. This makes it an offence to:
- i. Intentionally or recklessly kill or injure these species; and
 - ii. Sell, transport for sale and advertise these species for sale.
- 1.23 Sand lizard and smooth snake are afforded additional protection under the Habitat Regulations 2017, and hold EPS status.
- 1.24 In regard to these two species, it is an offence to deliberately or recklessly:
- i. Capture, injure or kill a wild animal of these species;

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- ii. Disturb such animals whilst using any structure or place it uses for shelter or protection (e.g. a breeding pond or hibernation site);
 - iii. Obstruct access to a breeding site or resting place of such an animal or to otherwise deny the animal use of that site;
 - iv. Disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of that species; and
 - v. Disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

1.25 It is also an offence to:

- i. Damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate or reckless to constitute an offence); and
- ii. Keep, transport, sell or exchange or offer for sale or exchange any of these species or any part or derivative of one.

Natural Environment and Rural Communities Act 2006

1.26 Habitats and species of principal importance in England and Wales are listed under the provisions of the Natural Environment and Rural Communities (NERC) Act 2006. These include all the habitats and species in England and Wales that were identified as requiring action in the now succeeded UK Biodiversity Action Plan (UK BAP).

1.27 The following habitats of principal importance (HoPI) are relevant to this assessment:

- i. Coastal saltmarsh;
- ii. Intertidal mudflats;
- iii. Saline lagoons;
- iv. Eutrophic standing waters;
- v. Rivers;
- vi. Open mosaic habitat on previously development land;
- vii. Reedbeds; and
- viii. Lowland mixed deciduous woodland.

1.28 The following species of principal importance (SoPI) are relevant to this assessment:

- i. Various passerine bird species;
- ii. Various waterbird species;
- iii. Various bat species;
- iv. Brown hare;
- v. Hedgehog;
- vi. Dingy skipper;
- vii. Grayling; and
- viii. Small heath.

Planning Policy

National Planning Policy Framework

- 1.29 The original National Planning Policy Framework (NPPF) was published in March 2012, with an updated version published in February 2019. The NPPF is a material consideration in all planning decisions from March 2012.
- 1.30 The updated version of the NPPF took effect immediately for scheme management decisions as of July 2018. NPPF refers the responsibilities of the local authorities to conserve the natural environment with respect to the use of the ‘Circular 6/2005: Biodiversity and Geological Conservation – Statutory Obligation and their Impact within the Planning System’ as guidance in this process. All public bodies including local planning authorities are required to consider habitats and species of Principal Importance listed in Section 41 of the NERC Act and Priority Species / Habitats within Biodiversity Action Plans when considering a planning application.
- 1.31 Policy 170 of the NPPF 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*”. Scheme must therefore propose net gains in biodiversity in order for planning permission to be granted under NPPF policy.
- 1.32 Paragraph 174 of the NPPF states: “*To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*”
- 1.33 Developments should therefore propose net gains in biodiversity in order for planning permission to be granted under NPPF policy.

Redcar and Cleveland Local Plan

- 1.34 The Local Plan came into effect in May 2018 and sets out the overall development strategy and vision for the Council’s area. The plan outlines how to achieve the strategy for the period up to 2032. It replaces in full the Core Strategy and Development Policies Development Plan Document (2007) and saved Local Plan policies (1999) as the statutory planning policy for the area.
- 1.35 The Local Plan will support, under Policy N4: “*high quality schemes that enhance nature conservation and management, preserve the character of the natural environment and maximise opportunities for biodiversity and geological conservation, particularly in or adjacent to, Biodiversity Opportunity Areas in the wider Tees Corridor, Teesmouth, East Cleveland and Middlesbrough Beck Valleys areas*”.
- 1.36 Policy N4 also seeks to: “*protect and preserve local, national and international priority species and habitats and promote their restoration, re-creation and recovery*”.
- 1.37 The Local Plan recognises the need for early consideration of biodiversity in the design stage, and that: “*areas of biodiversity on brownfield land should be retained and enhanced alongside any remediation of contamination, where possible*”.
- 1.38 As stated in the NPPF, the Local Plan also states support for net gains in the value of biodiversity through new developments. Where, as a last resort, compensation must be provided this should be local and representative to the area of loss.

-
- 1.39 The Local Plan supports: “*maximising the role of green infrastructure in mitigating and adapting to climate change, providing solutions for such issues as air quality, flood risk, coastal change and loss of habitats.*”
- 1.40 The Local Plan, when adopted, was independently assessed and found to be in conformity with national policy. In respect of biodiversity net gains, it seeks net gains, as per the highlighted text below. Policy N4 (Biodiversity and Geological Conservation) states:
- 1.41 ‘*Biodiversity and geodiversity should be considered at an early stage in the development process, with appropriate protection and enhancement measures incorporated into the design of development proposals, recognising wider ecosystem services and providing net gains **wherever possible**. Detrimental impacts of development on biodiversity and geodiversity, whether individual or cumulative, should be avoided. Where this is not possible mitigation, or lastly compensation, must be provided as appropriate. Proposals will be considered in accordance with the status of biodiversity and geodiversity sites within the hierarchy*’
- 1.42 The South Tees Area Supplementary Planning Document (SPD) (Appendix B3.2) is also aspirational in its desire for biodiversity net gains, with Development Principle STDC7 (Natural Environmental Protection and Enhancement) stating: ‘*...Net environmental gains should be provided **where appropriate and viable**, in accordance with Policies N2 and N4*’.

South Tees Area Supplementary Planning Document

- 1.43 The purpose of the SPD is to define a spatial strategy and set of requirements for development proposes within the South Tees Development Corporation (STDC) area. In doing so a clear vision has been defined to address heavy industry legacy effects on the environment, improve existing infrastructure and to drive the transformation of the area into a new industrial park.
- 1.44 The SPD aims to “identify those key opportunities to protect, enhance and manage assets of ecological and heritage importance that will further enhance the South Tees Area”.
- 1.45 The South Tees Area will be regenerated through a single vision. This vision has been set out through ten key objectives. Objective 8 intends to “*Deliver redevelopment in a way that provides long term sustainability, reduces pollution, manages the water environment, protects the historic environment, contributes to habitat protection, safeguards biodiversity and enhances green infrastructure, open space and landscape character*”.
- 1.46 The objectives are achieved through ‘Development Principles’. Principle STDC7 focuses on the enhancement and protection of the natural environment. Therefore, all development proposals must be in accordance with the requirements of STDC7 and to respond to their environmental context specifically to protect, and where possible enhance, biodiversity and geodiversity interests.
- 1.47 STDC 7 outlines the need for a coordinated approach to environmental protection and enhancement, with open spaces being used as connectors rather than barriers to development. STDC7 goes on to state: “*...Net environmental gains should be provided **where appropriate and viable**, in accordance with Policies N2 and N4*’

Guidance

Tees Valley Local Biodiversity Species List

- 1.49 At the time of writing this assessment, it was understood that no valid, updated Local Biodiversity Action Plan (LBAP) covers the RCBC local authority, or the Tees Valley region.
- 1.50 In lieu of referred to an LBAP, the Tees Valley Local Biodiversity Species List (updated in 2018) was referenced as a list of species considered to be of ‘county’ importance (referring to the Tees Valley region as a ‘county’, as an LBAP would usually cover this geographical extent).
- 1.51 The Tees Valley Local Biodiversity Species list does not list habitats of importance within the context of the Tees Valley region.
- 1.52 The following Priority Species listed in the Tees Valley Local Biodiversity Species List are relevant to this assessment:
- i. Various passerines bird species;
 - ii. Various waterbird species;
 - iii. Various bat species;
 - iv. Hedgehog;
 - v. Brown hare;
 - vi. Dingy skipper;
 - vii. Grayling; and
 - viii. Small heath.

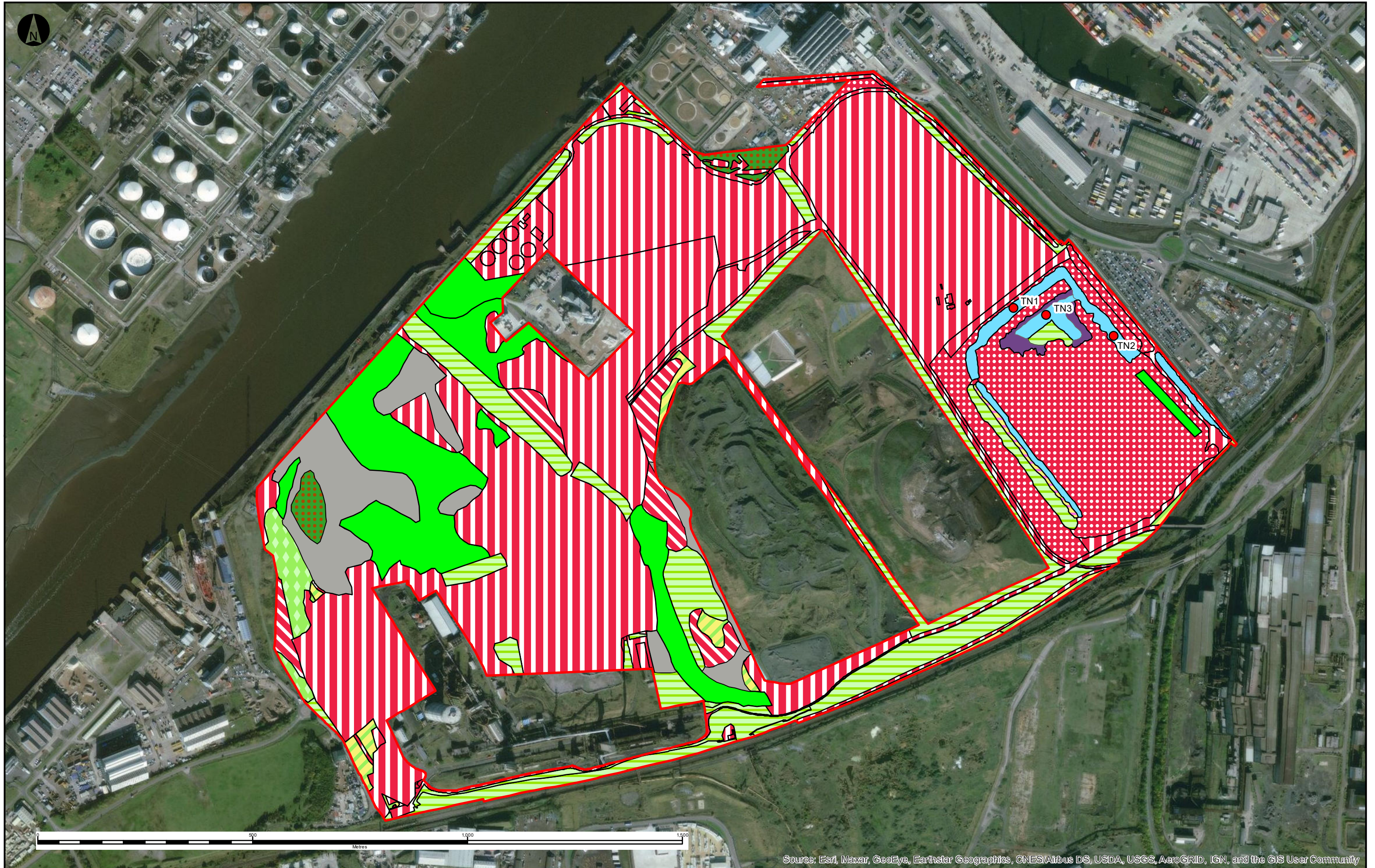
South Tees Regeneration Masterplan

- 1.53 STDC was established in 2017 and in November 2019 published its masterplan for the site. The masterplan supports the South Tees SPD, which was formally adopted in 2018 following completion of statutory consultation.
- 1.54 The masterplan provides a framework for regenerating the area and provides a detailed overview of the existing conditions and future aspirations for the area. There are 10 core principles of the masterplan and principle 8 has particular relevance to the Environment & Biodiversity Strategy:
- i. Principle 8 – deliver redevelopment in a way that reduces pollution, contributes to habitat protection and long-term sustainability, and that encourages biodiversity.
- 1.55 While this principle is focused on environment and biodiversity, this strategy will be informed by all the core principles of the masterplan.

Birds of Conservation Concern

- 1.56 Commonly referred to as the UK Red List for birds, this is the fourth review of the status of birds in the UK, Channel Islands and Isle of Man, and updates the last assessment in 2009. Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts and assigned to the Red, Amber or Green lists of conservation concern.
- The assessment is based on the most up-to-date evidence available and criteria include conservation status at global and European levels and within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance.

Appendix D2: UK Habitat Classification Habitat Survey Map



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Red Line Boundary

INCA 2011 Survey

g2 - Lowland calcareous grassland

g3c - Other neutral grassland

u - Urban - Vacant/derelict land/bareground

u1b - Developed land, sealed surface

w1g - Other woodland, broadleaved

INCA 2019 Survey

g2 - Lowland calcareous grassland

g3c6 - Poor semi-improved grassland

f2e - Wetland - reedbeds

g3c - Other neutral grassland

g3c6 - Poor semi-improved grassland

g4 - Modified grassland

h3h - Heathland and shrub - mixed scrub

r1a6 - Open waters - oligotrophic

s - Sparsely vegetated land - ruderal/ephemeral

u1a - Open mosaic habitats on previously developed land

u1b - Developed land, sealed surface

u1c - Artificial unvegetated unsealed surface

w1g - Other woodland, broadleaved

● Target note

Map Name
UK Habitat Classification Habitat Survey Map

Map Number
D2.1

Project Title
South Industrial Zone

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Appendix D3: Habitat Data Sources



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Red Line Boundary
- INCA 2020 Survey
- INCA 2011 Survey
- INCA 2019 Survey

Map Name Habitat Data Sources	
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Appendix D4: Location of Designated Sites



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Red Line Boundary
- Wider STDC Site Boundary
- Teesmouth and Cleveland Coast SSSI/SPA
- Teesmouth and Cleveland Coast Ramsar

Note: At the time of publication, digitised maps of the revised Teesmouth and Cleveland Coast SPA and Ramsar sites were not publicly available.

Extents of these designated sites have been assumed from digitised maps of the pSPA and proposed Ramsar sites, released publicly by Natural England in February 2018.

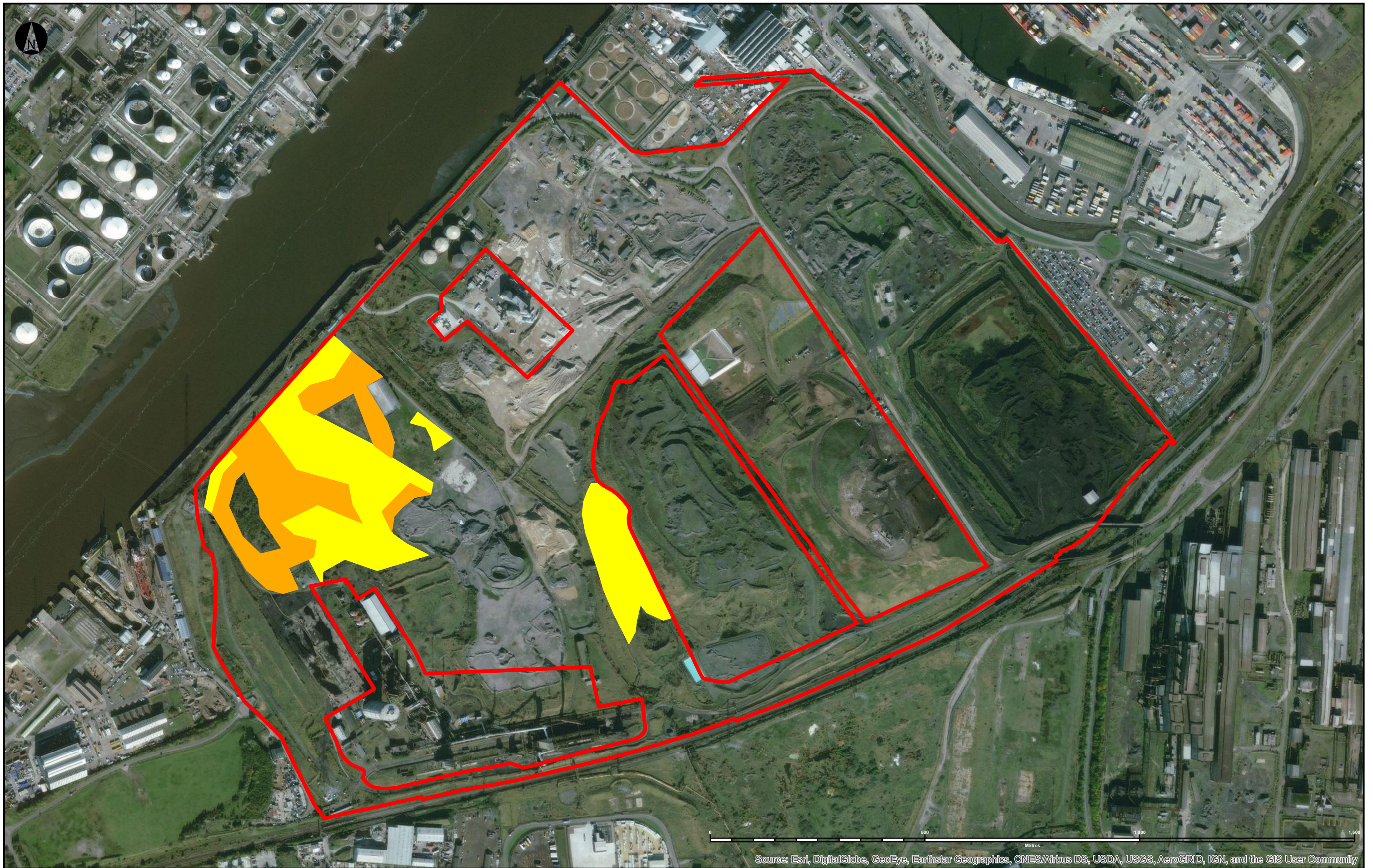
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Appendix D5: Important Invertebrate Areas Map



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Red Line Boundary
- Regional Significance for Dingy Skipper
- Local Significance for Grayling and Dingy Skipper

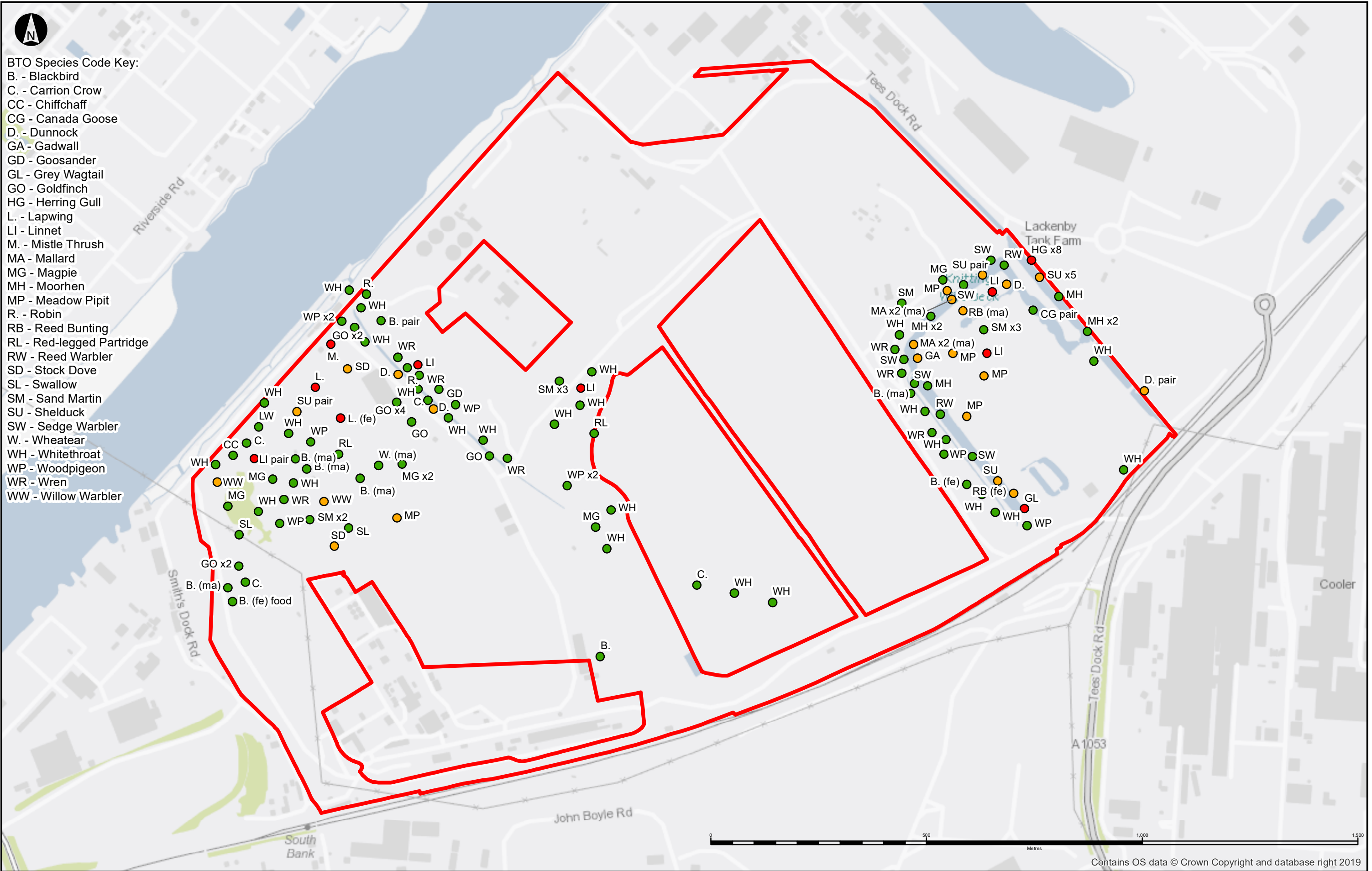
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Appendix D6: Breeding Bird Survey Results Maps



BTO Species Code Key:

- B. - Blackbird
- C. - Carrion Crow
- CC - Chiffchaff
- CG - Canada Goose
- D. - Dunnock
- GA - Gadwall
- GD - Goosander
- GL - Grey Wagtail
- GO - Goldfinch
- HG - Herring Gull
- L. - Lapwing
- LI - Linnet
- M. - Mistle Thrush
- MA - Mallard
- MG - Magpie
- MH - Moorhen
- MP - Meadow Pipit
- R. - Robin
- RB - Reed Bunting
- RL - Red-legged Partridge
- RW - Reed Warbler
- SD - Stock Dove
- SL - Swallow
- SM - Sand Martin
- SU - Shelduck
- SW - Sedge Warbler
- W. - Wheatear
- WH - Whitethroat
- WP - Woodpigeon
- WR - Wren
- WW - Willow Warbler



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Red Line Boundary

Breeding Birds by BoCC Status

- Red
- Amber
- Green

Map Name Breeding Bird Survey Results Map 1	
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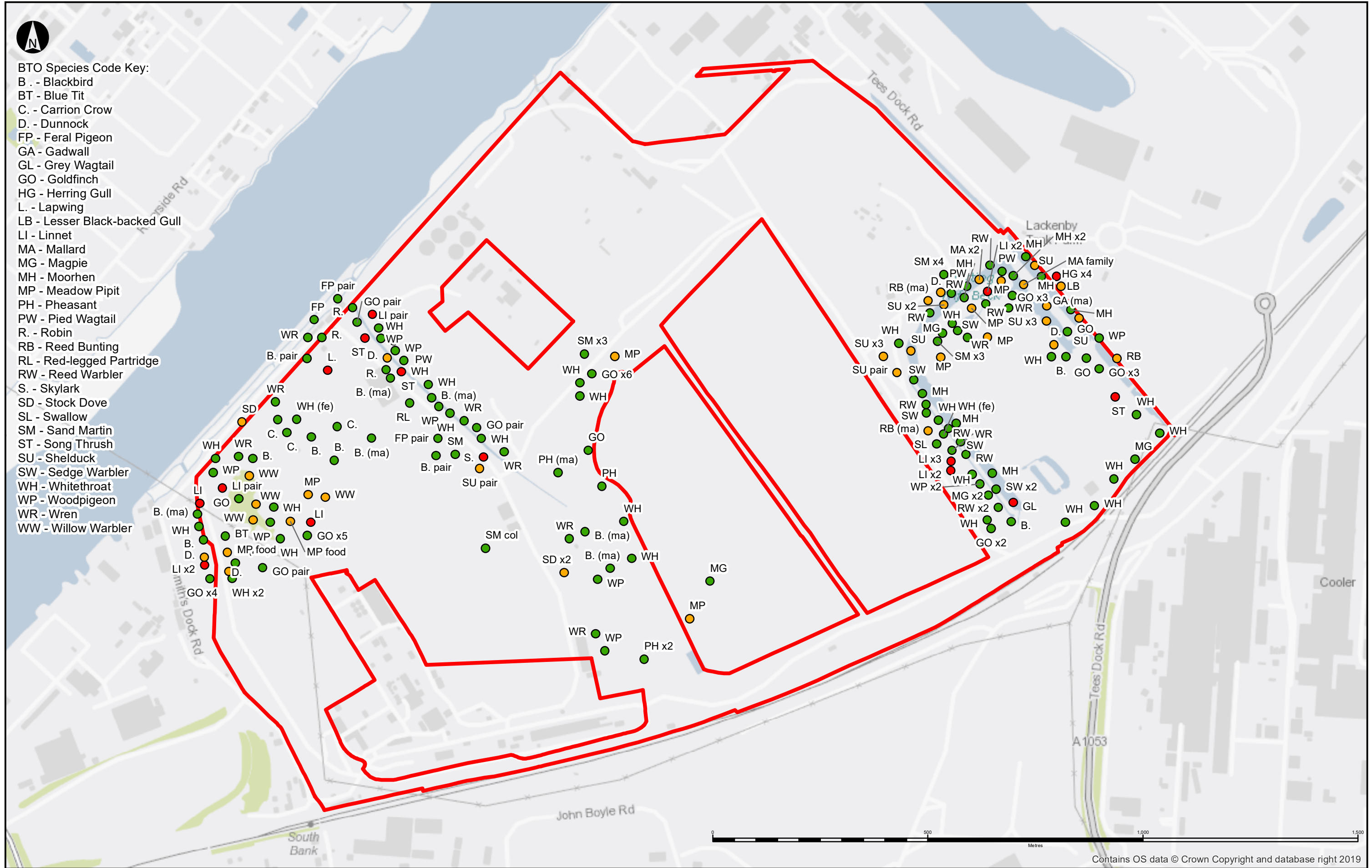
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BTO Species Code Key:

- B. - Blackbird
- BT - Blue Tit
- C. - Carrion Crow
- D. - Dunnock
- FP - Feral Pigeon
- GA - Gadwall
- GL - Grey Wagtail
- GO - Goldfinch
- HG - Herring Gull
- L. - Lapwing
- LB - Lesser Black-backed Gull
- LI - Linnet
- MA - Mallard
- MG - Magpie
- MH - Moorhen
- MP - Meadow Pipit
- PH - Pheasant
- PW - Pied Wagtail
- R. - Robin
- RB - Reed Bunting
- RL - Red-legged Partridge
- RW - Reed Warbler
- S. - Skylark
- SD - Stock Dove
- SL - Swallow
- SM - Sand Martin
- ST - Song Thrush
- SU - Shelduck
- SW - Sedge Warbler
- WH - Whitethroat
- WP - Woodpigeon
- WR - Wren
- WW - Willow Warbler



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Red Line Boundary Breeding Birds by BoCC Status

- Red
- Amber
- Green

Map Name Breeding Bird Survey Results Map 2	
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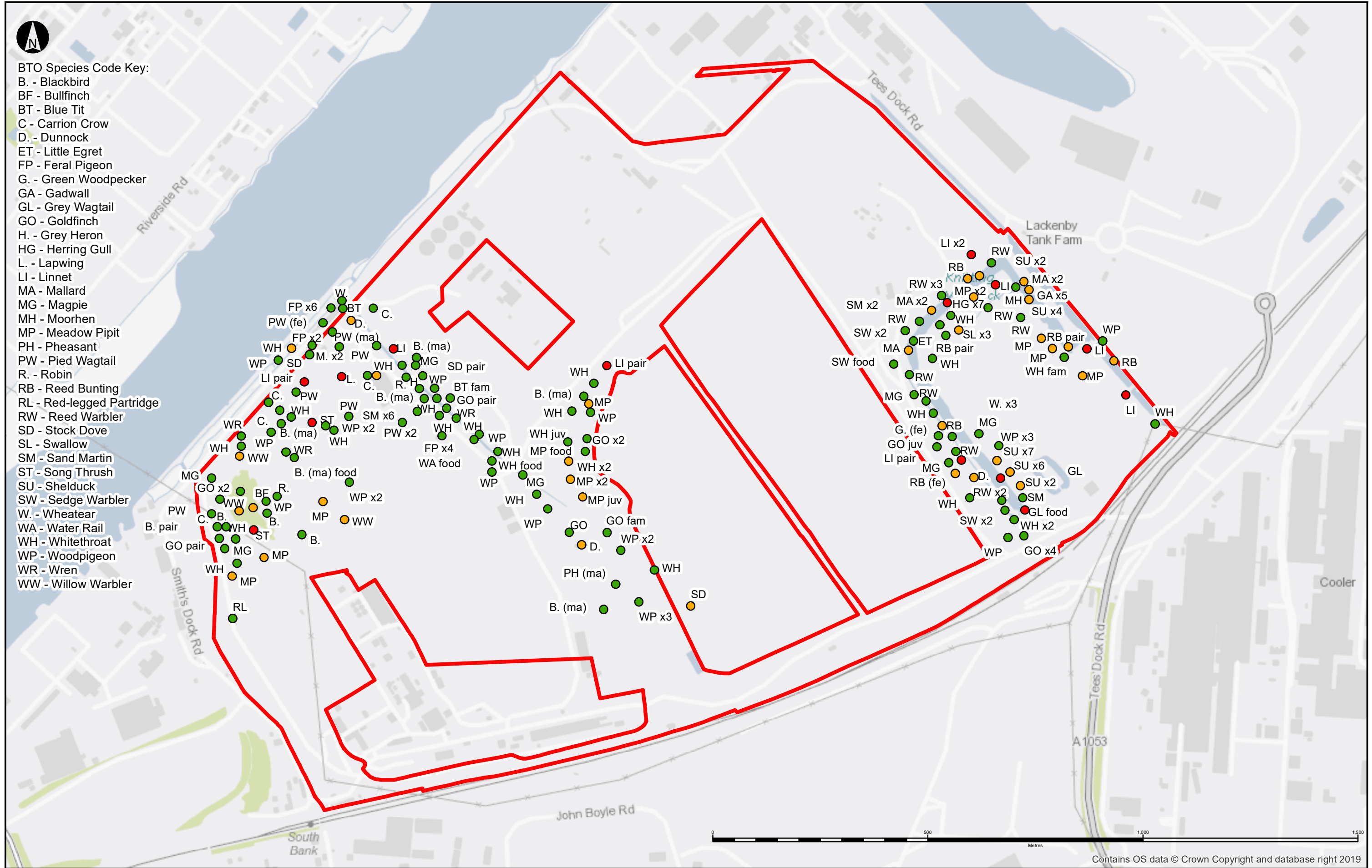
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BTO Species Code Key:

- B. - Blackbird
- BF - Bullfinch
- BT - Blue Tit
- C - Carrion Crow
- D. - Dunnock
- ET - Little Egret
- FP - Feral Pigeon
- G. - Green Woodpecker
- GA - Gadwall
- GL - Grey Wagtail
- GO - Goldfinch
- H. - Grey Heron
- HG - Herring Gull
- L. - Lapwing
- LI - Linnet
- MA - Mallard
- MG - Magpie
- MH - Moorhen
- MP - Meadow Pipit
- PH - Pheasant
- PW - Pied Wagtail
- R. - Robin
- RB - Reed Bunting
- RL - Red-legged Partridge
- RW - Reed Warbler
- SD - Stock Dove
- SL - Swallow
- SM - Sand Martin
- ST - Song Thrush
- SU - Shelduck
- SW - Sedge Warbler
- W. - Wheatear
- WA - Water Rail
- WH - Whitethroat
- WP - Woodpigeon
- WR - Wren
- WW - Willow Warbler



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Red Line Boundary

Breeding Birds by BoCC Status

- Red
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Appendix D7: Breeding Bird Survey Territory Map

Appendix D8: Biodiversity Net Gain Assessment Methodology

Biodiversity Net Gain Assessment Methodology

Introduction

- 1.1 The Biodiversity Net Gain (BNG) calculations, using the Natural England Biodiversity Metric 2.0 (BM2.0), are being undertaken to inform approximate habitat areas required to mitigate and compensate for the loss of semi-natural habitats as a result of the proposed development, and enhance habitats to achieve biodiversity net gain.
- 1.2 BM2.0 provides developers, planners, land managers and others with a tool to help limit damage to nature in the first place and to help it thrive.

Principles of the Biodiversity Metric

- 1.3 BM2.0 uses habitat features as a proxy measure for capturing the value and importance of nature. It uses a simple calculation that takes into account the importance of these features for nature: their size, ecological condition, location and proximity to nearby 'connecting' features. BM2.0 enables assessments to be made of the present and forecast future biodiversity value of a site.
- 1.4 The metric accounts within it for some of the risks associated whenever new habitat is created or existing habitat is enhanced, including the difficulty of creating or restoring a habitat, and the temporal risk (i.e. the time a new habitat takes to establish).
- 1.5 In calculation terms, the change in biodiversity units is determined by subtracting the number of pre-intervention biodiversity units (i.e. those originally existing on-site and off-site) from the number of post-intervention units (i.e. those projected to be provided).
- 1.6 BM2.0 includes additional supplementary modules for habitats that are not well described by their area. These are linear habitats, for which habitat length is often a more meaningful measure of their extent than area, broadly apply to hedgerows and lines of trees, and rivers and streams. These parts of the metric are calculated differently and have their own discrete biodiversity unit types. It is an important rule of the metric that the biodiversity units calculated through the core habitat area-based metric and each of the linear units are unique and cannot be summed or converted. For detailed methodology and results for the Rivers Metric, see Appendix D7.2.
- 1.7 It is worth noting that BM2.0 does not include species explicitly. Instead, BM2.0 uses broad habitat categories as a proxy for the biodiversity 'value' of the species communities that make up different habitats. The metric does not change existing levels of species protection and the processes linked to protection regimes are outside the scope of the metric.

Methodology

- 1.8 Available baseline information has been used to calculate the number of 'biodiversity units' generated by the habitats present within the proposed development site.
- 1.9 Based on the assumption that all habitats within the proposed development site could be lost to the development, calculations have been made to determine approximate habitat areas required to mitigate and compensate for the loss of semi-natural habitats, and to achieve BNG.

Habitat Classifications and Distinctiveness

Modified Grassland (g4)

- 1.10 Rank grassland of any kind, which would fit with the category of 'B6-poor semi-improved grassland' in the Phase 1 Habitat classification, is classed as 'modified grassland (g4)' in line with the UK Habitat Classification, and receives a distinctiveness score of 'low (2)'.

Broadleaved Woodland (w1g7)

- 1.11 If a woodland has been recently felled (within the last 4-5 years), the assessments needs to be based on the trees that stood on the site prior to felling. It should be recorded as the original woodland type, the age of the trees and note that it has been felled.
- 1.12 Only if the felling occurred a considerable time previously (4-5 years +) with no obvious replanting progressing then it may be appropriate to classify as the now prevailing habitat.

Sparsely Vegetated Land – Ruderal/Ephemeral (s); Artificial, unvegetated land with unsealed surfaces (u1c); and Open Mosaic Habitats (u1a)

- 1.13 Habitats would be classed as Open Mosaic Habitats (OMH) only where they meet **all** the descriptors set out in the definition of OMH, as stated in the BM2.0 Technical Guidance.
- 1.14 The two descriptors of OMH that are particularly relevant to the classification of habitats at the proposed development site are:
- 1 Known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site; and
 - 2 The site contains unvegetated, **loose** bare substrate.
- 1.15 While land within the proposed development site has been altered from its natural state by the addition of industrial spoil, principally in the form of blast furnace slag (but in some cases crushed building materials), this material has been added for the purpose of forming areas of flat, hardstanding as a base for industrial operations. The nature of this material, being porous, alkaline and low nutrient makes it conducive to colonisation by a diverse and slightly specialised flora, whilst retaining some bare ground, but its structure does not meet the description of OMH. In many cases this material has been in situ for decades and in places has developed a very thin layer of soil so that the surface may be loose but with certain exceptions this is **merely a dressing on top of hardstanding and is not disturbed**.
- 1.16 In these calculations such habitats are considered to fit with the Phase 1 Habitat classification as 'ephemeral/ short perennial', which equates to the 'ruderal/ephemeral' category of the UK Habitat Classification and receives a distinctiveness score of 'low' (2).
- 1.17 Where an area is effectively unvegetated but is not sealed, then this is classed as 'artificial unvegetated; unsealed surface' habitat, in line with the UK Habitat Classification, which defines this category as 'land cleared for development, infrastructure, construction or other purpose, currently unvegetated, but the soil surface is not sealed with impervious materials'. **INCA have interpreted 'unvegetated' to be defined as areas where the total vegetation cover including bryophytes and lichens is <10%.**

Condition

- 1.18 The BM2.0 technical supplement defines the condition assessment criteria for each habitat type.

1.19 For certain habitat types, some alternative site-specific condition criteria have been developed by INCA for Teesside, which are of relevance to the proposed development. These should provide a more detailed, and locally relevant condition assessment for certain habitats, as outlined below.

Sparsely Vegetated Land – Ruderal/Ephemeral (s);

1.20 The BM2.0 does not provide specific guidance on condition criteria for ruderal/ephemeral habitats, although it could be assumed that the condition assessment criteria for the urban habitat type are the most relevant

1.21 Condition depends principally on the diversity and coverage of typical herb species though, like for OMH, some scattered bare ground is a positive factor.

1.22 The following factors have been used to determine the condition:

- i. The number of early-successional plant species that typify this habitat;
- ii. The percentage cover of early-successional herb species;
- iii. The mixture of bare ground. Bare ground should be scattered. Where it occurs in blocks of >10% of the area it is a negative factor. Any blocks of bare ground of 0.25ha or larger should be recorded as a separate habitat; and
- iv. The percentage cover of non-native, invasive plant species. (Note: except buddleia [*Buddleja davidii*] and red valerian [*Centranthus ruber*]. These can total up to 10% between them with anything above that being counted in the total invasive species cover).

1.23 Table 1 indicates the typical ranges for each condition category but as there are various permutations then some professional judgement from INCA has been required in their use, to apply a single score.

Table 1. Typical ranges for each condition category for Ruderal/Ephemeral habitat on the proposed development site (INCA).

Condition	Score	No. species	% cover	Bare ground	Invasive species
Good	3	10 or more	75-90	10-20% unevenly distributed	<5%
Fairly Good	2.5	8 or more	65-90	10-20% unevenly distributed	<5%
Moderate	2	6 or more	50-90	10-40% unevenly distributed	<10%
Fairly Poor	1.5	4 or more	40-90	40-75%	<20%
Poor	1	Less than 4	10-25%	>75%	>20%

Connectivity

1.24 As detailed in the BM2.0 connectivity tool guidance¹, the connectivity tool should be used only to calculate ecological connectivity for habitats with a ‘high’ or ‘very high’ distinctiveness value.

1.25 For all habitats scoring ‘medium’ or lower, the interim guidance as described in the BM2.0 user guide should be implemented. In the user guide, it states that any habitats with a distinctiveness value of medium or lower should be afforded a connectivity score of ‘low’.

¹ Natural England (2019) Biodiversity Metric 2.0 – Connectivity Tool Guidance. Natural England Joint Publication JP029.

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- 1.26 In the case of this proposed developments site, the OMH has a distinctiveness value of ‘high,’ therefore these habitats were to be assessed using the connectivity tool.
- 1.27 As discussed in Section 3 Chapter 7, the connectivity tool appears to have a potential bug that would not allow the OMH to be calculated. It was therefore decided that professional judgment would be used to determine the connectivity of this habitat.
- 1.28 A value of ‘moderate’ connectivity was determined due to the following facts:
- i. The OMH was only present in two areas within the proposed development site; and
 - ii. In comparison to the total area of habitats within the proposed development site, these areas of OMH are considered to be small and disconnected; and
 - iii. The OMH was separated in part by some sparsely vegetated land (5f) which contained similar plant species in moderate condition.
- 1.29 Based on these facts, a score of ‘high’ connectivity was determined to be inappropriate, however due to the presence of the sparsely vegetated land linking the OMH, a score of ‘moderate’ connectivity was more appropriate than ‘low’.

Strategic Significance

- 1.30 The strategic significance of the habitats within the proposed development site was assessed on the priority habitats described within the Tees Valley Nature Partnership document¹ and INCA’s wider understanding of habitats that are considered to be ecologically desirable in the wider South Tees area.
- 1.31 As OMH is a HoPI and locally important to the South Tees area, it was given a strategic score of ‘Location ecologically desirable but not in local strategy (1.1).’
- 1.32 Although not a HoPI, the sparsely vegetated land within the proposed development site contained some of the same desirable species as within the OMH and was therefore considered to be ecologically desirable in this location. All sparsely vegetated land was therefore given a strategic score of ‘Location ecologically desirable but not in local strategy (1.1).’
- 1.33 As the remainder of the habitats within the proposed development site are not considered to be a HoPI or locally important in the South Tees area, they have all been given a strategic significance score of ‘Area/compensation not in local strategy/ no local strategy (1).’

Appendix D9: Biodiversity Net Gain Assessment – River Metric

Biodiversity Net Gain Assessment - River's Metric

Introduction

- 1.1 This appendix summarises the methodology and assessment used for the Rivers and Streams component of the Biodiversity Net Gain (BNG) assessment carried out for the proposed development. As it was not possible to carry out the Modular River Survey (MoRPh)¹ for this project, an alternative field survey approach and assessment has been used to determine the input values for River Distinctiveness and River Condition. This appendix includes:
- i. Section 2: Methodology employed to assess River Distinctiveness and Condition
 - ii. Section 3: Survey and assessment results for Lackenby Channel and Cleveland Channel
 - iii. Section 4: Summary table of scores to inform the BNG assessment

Methodology

- 1.2 The methodology used to determine River Distinctiveness and River Condition is described below. This involved a search of available desk study information and analysis of field survey data collected on 3 June and 16 June 2020 by INCA. Relevant information pertaining to the physical aquatic and riparian habitat structure and diversity, and the degree of anthropogenic alteration of Lackenby and Cleveland Channels were collected in the field. This data provides a proxy for the overall riverine ecological quality.

River Distinctiveness

- 1.3 Determination of River Distinctiveness was consistent with the approach set out in the BNG Metric 2.0 guidance². The distinctiveness categories for rivers and streams are based on two classifications: Priority Habitats as defined by the Joint Nature Conservation Committee (JNCC)³, and 'River Naturalness'⁴.
- 1.4 Priority Habitat includes several river types:
- i. Chalk Rivers;
 - ii. Watercourses with water crowfoot assemblages (Habitats Directive Annex I habitat H3260);
 - iii. Active shingle rivers; and
 - iv. Headwater streams.
- 1.5 The Natural England Priority River Habitat map⁵ was consulted to determine whether the watercourses on the proposed development site were mapped as Priority Habitat. In addition, an assessment of whether the watercourses met the qualifying criteria for Priority Habitat as defined by JNCC was undertaken using the field survey data collected.

¹ Modular River Survey (2020) <https://modularriversurvey.org/>. Accessed 23/06/2020

² Crosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., Scott, S., Stone, D., & White, N. (2019) The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England.

³ as defined under section 41 of the Natural Environmental and Rural Communities Act 2006.

⁴ Natural England (2019) Guidance on river naturalness assessment, <http://priorityhabitats.org/wp-content/uploads/River-naturalness-assessment-guidance-document-December-2019.pdf> Accessed: 23/06/2020

⁵ Natural England (2017) Priority River Habitat - Rivers (England), <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-river-habitat-rivers-england?geometry=-2.221%2C54.646%2C-0.914%2C54.785> Accessed: 23/06/2020

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- 1.6 A ‘River Naturalness Assessment’ was also carried out based on field survey data. This assessment has been created by Natural England to highlight rivers and streams that should be classified as priority river habitat in response to a known lack of coverage of priority river habitat, particularly for headwater streams. The River Naturalness Assessment derives class scores based on their perceived naturalness ranging from 1 (natural systems) to 5 (modified) within the following categories: physical, hydrological, water quality and biological.

River Condition

- 1.7 River condition was determined based on a combination of desk-study information and the results of a field survey. Relevant information pertaining to the physical aquatic and riparian habitat structure and diversity, and the degree of anthropogenic alteration were used to inform the assessment. This information provides a proxy for the overall riverine ecological quality.
- 1.8 The approach is qualitative in nature and carried out in cognisance of the reach scale desk-based assessment and sub-reach scale field assessment components of the River Metric Survey, aligning with this assessment method where possible. The survey was carried out by competent field ecologists with experience in assessing river and stream habitats. Surveyors employed a precautionary approach to determine the subsequent condition classification for each watercourse.

Part 1: Reach Scale Assessment

- 1.9 The river was assigned to one of 13 river types that are likely to be encountered in England. River type is informed by eight river type indicators which are combined to determine the indicative river type. Each river type indicator is then run through the River Metric information system to produce the indicative river type. In lieu of access to the River Metric information system, a best fit river type was determined following the river type decision tree included in the River Metric outline guidance document⁶.

Part 2: Sub-reach Scale Assessment

- 1.10 Information pertaining to the characteristics of the bank top, bank face, channel margin and channel bed zones of the river were collected in the field. The surveyor considered key aspects of river habitat quality within each of the zones including vegetation type and structure, channel morphology and modification, and the presence of man-made structures and invasive non-native species.

Overall Condition

- 1.11 Both the reach and sub-reach scale assessment were considered when assigning the overall condition of the river for input into the Biodiversity Metric Calculator. The resulting condition category was determined by the professional judgement of an experienced surveyor.

⁶ River Condition Outline (2020) Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric, <https://modularriversurvey.org/wp-content/uploads/RIVER-CONDITION-OUTLINE-Feb2020.pdf>. Accessed 23/06/2020

Results

Distinctiveness

- 1.12 Lackenby Channel is not designated as Priority Habitat River⁷ nor a Priority Habitat Headwater⁸ and does not meet the qualifying criteria for priority habitat as defined by JNCC⁹. Desk study information on river naturalness was not available, so a River Naturalness Assessment was carried out based on data collected on site to determine the distinctiveness of the waterbody. Based upon extensive physical modifications, and evidence of poor water quality pressure associated with surrounding industrial land use, the overall River Naturalness score for the survey reach has been determined to be **Class 4**.

Condition

Reach Scale Assessment

- 1.13 The upstream catchment of Lackenby Channel is comprised of Boundary Beck and Kinkerdale Beck which are largely culverted waterbodies flowing in a broadly northerly direction. The becks combine before flowing underneath an infrastructure corridor and emerging as the Lackenby Channel. The Cleveland Channel upstream catchment is comprised of Holme Beck and Knitting Wife Beck both of which are again largely culverted waterbodies flowing in a broadly northerly direction. The becks pass underneath the infrastructure corridor and emerge as the Cleveland Channel. The Cleveland Channel within the boundary of the proposed development site merges with the Lackenby Channel which flows north and outfalls into the Tees Estuary, west of the Tees Dock. Both channels are each approximately 1km in length within the proposed development site boundary. Due to a similar morphological nature, both channels are considered together within this assessment.
- 1.14 It was not possible to access the downstream 500m length of the Lackenby Channel, however based on satellite imagery it is assumed the river condition in this section is similar to the upstream 500m of the Lackenby Channel.
- 1.15 The surveyed reaches of Lackenby Channel and Cleveland Channel are considered to best fit the river type category of a confined straight-sinuuous river with predominantly silt/clay/sand/gravel substrate (Type K).

Sub-reach Scale Assessment

- 1.16 The surveyed sections of Cleveland Channel and Lackenby Channel are canalised and straightened river reaches which flow through industrial land uses. It is expected that these tributaries of the Tees Estuary have been historically realigned to accommodate the surrounding industry.
- 1.17 The bank top zone of both channels consists of extensive scrub and shrubs with areas of disturbed land and pipes running the length of the right bank of Lackenby Channel. No invasive non-native species were recorded in or around the watercourse. A lagoon has been recorded as a banktop water-related feature. This lagoon is connected to the right bank of the Cleveland Channel prior to joining the Lackenby Channel.

⁷ DEFRA (2020) Priority River Habitat – Rivers. Available at: <https://data.gov.uk/dataset/20019cdb-9fef-4024-81af-daf1d1b74762/priority-river-habitat-rivers> Accessed 23/06/2020

⁸ DEFRA (2020) Priority River Habitat – Headwater Areas. Available at: <https://data.gov.uk/dataset/e19f3b5e-23b3-4b43-8a1a-obca58f5736c/priority-river-habitat-headwater-areas> Accessed 23/06/2020

⁹ JNCC (2011) UK Biodiversity Action Plan Priority Habitat Descriptions – Rivers. <http://data.jncc.gov.uk/data/o1d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf> Accessed: 23/06/2020

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- 1.18 The bank face was predominantly earth with an artificial reshaped profile. The vegetation at the bank-water margin was extensive emergent linear leaves, including common reed *Phragmites australis* and rush *Juncus* sp. In places there were vegetated benches along the channel where reedbed had formed. There were also bare areas of likely poor quality inter-tidal mud recorded.
- 1.19 The channel bed was dominated by silt substrate with no perceptible flow as the dominant water surface flow pattern. There were a number of in channel structures including minor weirs. The upstream and downstream sections of these waterbodies are also heavily culverted. No in-channel vegetation was recorded.
- 1.20 In summary, the surveyed reaches of the Lackenby Channel and Cleveland Channel are historically straightened and reprofiled. Extensive marginal and bank face vegetation has established throughout the channel with likely poor quality intertidal mud present. The modified nature of the channels, coupled with potential water quality pressures associated with industrial land usage, are expected to reduce the suitability of the reach for supporting natural ecological communities. Overall the condition of the surveyed reaches of the Lackenby Channel and Cleveland Channel are considered to be **'moderate'**.

Figure 1: Cleveland Channel looking north.



Figure 2: Lackenby Channel looking south.



Strategic Significance

- 1.21 Lackenby Channel and Cleveland Channel are not explicitly mentioned in any of the local strategic planning documents relevant to this location^{10,11,12}. The channels are located within the Tees Lower and Estuary operational catchment, however they are not located within any Water Framework Directive surface waterbodies¹³. Consequently, Lackenby Channel and Cleveland Channel are considered to be of low strategic significance and a multiplier of 1 is applicable.

Summary

- 1.22 Table 2 summarises the river scores used in the BNG assessment.

Table 1. The River's Metric score for the Cleveland Channel and Lackenby Channel within the proposed development site.

River	Cleveland Channel	Lackenby Channel
Length	1km	1km
Distinctiveness	Medium (4)	Medium (4)
Condition	Moderate (3)	Moderate (3)
Strategic Significance	Low (1)	Low (1)
Total River Units	12	12

¹⁰ Middlesbrough Local Plan (2018) Middlesbrough Council. Accessed: 23/06/20

<https://www.middlesbrough.gov.uk/sites/default/files/Middlesbrough%20Publication%20Local%20Plan.pdf>

¹¹ Northumbria River Basin District Management Plan (2015) Environment Agency.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718333/Northumbria_RBD_Part_1_river_basin_management_plan.pdf Accessed: 23/06/20

¹² Priority Habitat Creation and Restoration (2020) Environment Agency <https://data.gov.uk/dataset/e0165747-8368-4ff7-a644-df9aeb27bbob/priority-habitat-creation-and-restoration> Accessed 18/05/20

¹³ Environment Agency (2020) Catchment Data Explorer, Tees Lower and Estuary.

<https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/PriorityHabitatCreationAndRestoration&Mode=spatial> Accessed 23/06/2020