FENWICK SOLAR FARM

Fenwick Solar Farm

EN010152

No Significant Effects Report

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00	October 2024	DCO application
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1. Introduction

1.1 Overview

1.1.1 This No Significant Effects Report (NSER) has been commissioned by Fenwick Solar Project Limited (hereafter referred to as 'the Applicant') in relation to an application for a Development Consent Order (DCO) for Fenwick Solar Farm (hereafter referred to as the 'Scheme').

1.1.2 The Applicant is seeking development consent for the construction, operation and maintenance and decommissioning of a solar photovoltaic (PV) electricity generating facility with a total capacity exceeding 50 megawatts (MW) together with a Battery Energy Storage System (BESS) Area and export/import connection to/from the national grid at National Grid's Thorpe Marsh Substation (or via an alternative, the Grid Connection Line Drop). The design life of the Scheme is 40 years (currently anticipated to be 2030 to 2070), with decommissioning to commence 40 years after final commissioning of the Scheme. Refer to **ES Volume I Chapter 2: The Scheme [EN010152/APP/6.1]** for full details.

1.1.3 Due to its proposed generating capacity being more than 50 MW, the Scheme is classified as a Nationally Significant Infrastructure Project (NSIP) and will therefore require consent via a DCO under the Planning Act 2008 ('PA2008'; Ref. 1). The decision whether to grant a DCO will be made by the Secretary of State for the Department for Energy Security and Net Zero (hereafter referred to as the 'Secretary of State') following the Examination and Recommendation by the Planning Inspectorate.

1.1.4 The scope and extent of this NSER has been informed by a combination of the Scoping Opinion (**ES Volume III Appendix 1-2: EIA Scoping Opinion [EN010152/APP/6.3]**) adopted by the Planning Inspectorate on behalf of the Secretary of State, engagement with statutory environmental consultees such as Natural England, and professional judgement. The NSER is also in accordance with Planning Inspectorate Advice Note Ten: Habitats Regulations Assessment relevant to NSIP (Ref. 2).

1.2 Site Description

1.2.1 The 'Order limits' comprises approximately 509 hectares (ha) of land and is made up of the 'Solar Photovoltaic (PV) Site', 'Grid Connection Corridor' and 'Existing National Grid Thorpe Marsh Substation'. The Order limits lie wholly within the City of Doncaster.

1.2.2 The Solar PV Site area (approximately 407 ha) predominantly comprises agricultural fields. For purposes of the Scheme and ease of reference, these fields have been grouped by the ordinal directions northeast (NE), southeast (SE), southwest (SW) and northwest (NW), and numbered within each group. The landscape surrounding the Solar PV Site also encompasses small rural settlements, including Fenwick, Moss, Sykehouse and Topham.

1.2.3 The Grid Connection Corridor runs approximately 6.3 km from the Solar PV Site to the Existing National Grid Thorpe Substation, predominantly through agricultural land. While it will have a typical width of 100 m, a wider width will be adopted in places to allow working areas for Horizontal Directional Drilling

(HDD), temporary construction compounds and to avoid sensitive receptors. Where practicable, the underground cables will be routed along the edge of fields to minimise impacts.

1.2.4 The Order limits consists predominately of agricultural land mainly under arable production, with some areas of pasture, interspersed with individual trees, hedgerows, linear tree belts, small woodland blocks and farm access tracks.

1.2.5 The Solar PV Site is approximately centred on National Grid Reference (NGR) SE 604 161, as shown in Appendix A.

1.2.6 The Order limits also includes a section of highway at the junction of the A19 and Station Road in the town of Askern to allow for abnormal indivisible load (AIL) vehicle access and escort. As the works would be limited to temporary traffic signal and banksman control for the period of AIL delivery, no impacts are anticipated, and therefore this area is not assessed further.

1.3 Description of the Scheme

1.3.1 The principal Scheme infrastructure components comprise:

a. Solar PV Panels;

b. Solar PV Panel Mounting Structures (collectively referred to as ‘tables’ or ‘strings’. Groupings of solar PV tables are referred to as ‘arrays’);

c. Field Stations (areas of hardstanding within the Solar PV Site that will house electrical infrastructure);

d. Supporting infrastructure at Field Stations:

   i. Transformers;

   ii. Centralised inverters (noting that string inverters, if used, will be located at the arrays); and

   iii. Switchgear, protection and control equipment.

e. String inverters as standalone within the array (parallel to or at end of frames), if central inverters are not used;

f. Battery Energy Storage System (BESS) Area – with up to 432 BESS housed in individual shipping-style BESS Containers, designed to store energy created by Solar PV Panels for strategic release at certain times of the day;

g. On-site cabling within the Solar PV Site – low voltage (typically less than 1 kV), above ground between Solar PV Panels and inverters, and underground elsewhere;

h. One (400 kV/33 kV) On-Site Substation (located in Field SW08) – increasing voltage from 33 kV to 400 kV for export of electricity to the Existing National Grid Thorpe Marsh Substation;

i. Grid Connection Line Drop – connecting to the grid via a line drop from the existing overhead power lines running north-south to the east of the Solar PV Site;

j. Grid Connection Cables – 400 kV cabling between the On-Site Substation and the Existing National Grid Thorpe Marsh Substation via the Grid Connection Corridor; and

k. Operations and Maintenance Hub (Field NW08) – Construction of containerised unit adjacent to an existing barn, providing welfare, office and storage facilities.

1.3.2 The term ‘Solar PV Panels’ is used throughout this NSER, as this is the term in common usage; however, it is noted that the technical term for panels is ‘modules’.

1.3.3 During the construction phase, temporary construction compound(s) will be required as well as temporary roadways to facilitate access to all land within the Solar PV Site as well as the Grid Connection Corridor.

1.3.4 Subject to being granted planning consent and following a final investment decision, the earliest construction could start is in 2028. Construction of both main elements of the Scheme, the Solar PV Site and Grid Connection Cables, would commence in tandem. Works on the Grid Connection Cables would be completed in approximately 12 months, with the Solar PV Site requiring an estimated 24 months to complete. The operational and maintenance phases are anticipated to commence in 2030.

2. Legislative Framework

2.1 Introduction

2.1.1 As part of the assessment of a development, it is necessary to consider whether the Scheme is likely to result in 'significant' effects on areas that have been internationally designated for nature conservation purposes (i.e. 'Habitats Sites'). Habitats Sites are protected under the Conservation of Habitats and Species Regulations 2017 (as amended; relevant to England and Wales) (Ref. 3).

2.1.2 The UK left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (termed the 'Withdrawal Act'). However, the most recent amendments to the 'Habitats Regulations' (i.e. Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 [Ref. 4]) make it clear that the need for Habitats Regulations Assessment (including the likely signfiicant effects assessment contained in this NSER) continues to apply. Whilst the 2019 Regulations make changes to the Habitats regime and terminology (e.g. by introducing the term 'national site network'), this document uses the term Habitats Sites to refer to all Natura 2000 sites in line with current standard practice (comprising Special Areas of Conservation [SACs], Special Protection Areas [SPAs]) potentially affected by the Scheme. The National Planning Policy Framework (NPPF) (December 2023) (Ref. 5) requires proposed SACs and SPAs to be treated as Habitats Sites along with Ramsar sites (wetlands of international importance).

2.1.3 Regulation 63 of the Habitats Regulations requires a 'Competent Authority', in this case the Secretary of State (who is informed by recommendations of the Planning Inspectorate as the appointed Examining Authority), to undertake an 'Appropriate Assessment' (AA) of any plan or project (alone or in-combination with other plans and projects) which is likely to have a significant effect on a Habitats Site unless the project is directly connected with the management of the site. Following the conclusions of the assessment, the Competent Authority may proceed with or consent to the plan or project only after having ascertained that it will not result in adverse effects on the integrity of a Habitats Site, or if it will adversely affect the integrity of a Habitats Site, that there are imperative reasons of overriding public interest (IROPI) for the project in accordance with Regulation 64.

2.1.4 In accordance with the mitigation hierarchy, all plans and projects should identify any potential likely significant effects early in the plan/project making process, either altering the plan/project to avoid such effects or introduce mitigation measures to the point where no adverse effects remain. In reaching its final conclusion, the Competent Authority must consult with the Statutory Nature Conservation Body (in this case, Natural England) and take account of their comments. They may also consult the general public if considered appropriate.

2.1 Relevant Case Law

2.1.1 Although the UK is no longer part of the EU, a series of rulings of the Court of Justice of the European Union (CJEU) are still relevant to HRA in the UK. The NSER is in accordance with the principles established through these

precedence cases. The relevant rulings and their implications for this NSER are summarised in Table 1 and this NSER is cognisant of these rulings.

Table 1: Case Law Relevant to the NSER of the Scheme

Case	Ruling	Relevance to NSER
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)	The ruling of the CJEU in this case requires that any conclusion of 'no likely significant effect' on a Habitats Site at the screening stage must be made prior to any consideration of mitigation measures to avoid or reduce harm to such a site. The determination of likely significant effects at the screening stage should not in the opinion of the CJEU, constitute an attempt at detailed technical analysis. This should be conducted as part of the AA.	This ruling clarified that 'mitigation' (i.e. measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats Site that would otherwise arise) should not be taken into account when forming a view on likely significant effects at the screening stage. Mitigation should instead only be considered at the AA stage. This NSER has been cognisant of that ruling.
Waddenzee (C-127/02)	The ruling in this case clarified that AA must be conducted using best scientific knowledge in the field, and that the Competent Authority must be satisfied that there is no reasonable doubt as to the absence of adverse effects on the integrity of a Habitats Site. The Waddenzee ruling also provided clarity on the definition of 'significant effect', specifically that any effect from a plan or project on the conservation objectives of any Habitats Site will be a significant effect.	Adopting the precautionary principle, a 'likely' significant effect in this NSER is interpreted as one which is 'possible' and cannot be objectively ruled out. The test of significance of effects has been conducted with reference to the conservation objectives of relevant Habitats Sites.
Holohan and Others v An Bord Pleanála (C-461/17)	The conclusions of the Court in this case were that consideration must be given during AA to: Effects on qualifying habitats and/or species of a SAC or SPA, even when occurring outside of the boundary of a Habitats Site, if these are relevant to the site meeting its conservation objectives; and	This relates to the concept of 'functionally-linked habitat' (i.e. areas outside of the boundary of a Habitats Site which supports its qualifying feature(s)). In addition, consideration must be given to non-qualifying features upon which qualifying habitats and/or species rely. This NSER has taken the use of

Case	Ruling	Relevance to NSER
	Effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in adverse effects on the integrity of the Habitats Site.	functionally-linked habitats into account in relation to non-breeding birds, fish and otter.
T.C Briels and Others v Minister van Infrastructuur en Milieu (C-521/12)	The ruling of the CJEU in this case determined that compensatory measures cannot be used to support a conclusion of no adverse effect on site integrity.	Compensation can only be considered at the IROPI stage of HRA and not during AA. Compensation must be delivered when AA concludes that there will be adverse effects on site integrity.

3. Assessment Methodology

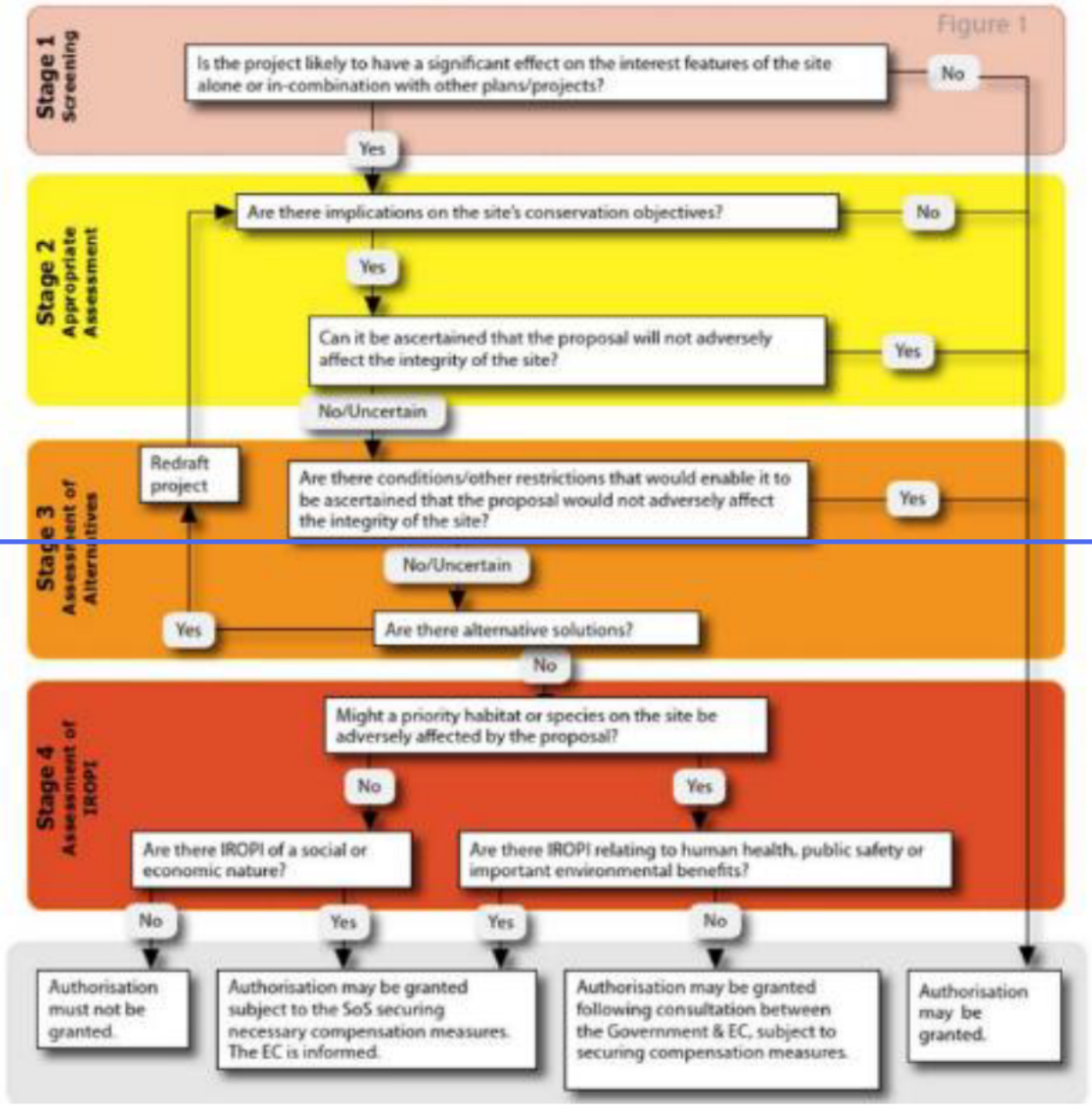
3.1 Introduction

3.1.1 This NSER has been undertaken with reference to the general European Commission (EC) guidance on HRA (Ref. 6), general guidance on HRA published by the UK Government in July 2019 (Ref. 7), and Planning Inspectorate Advice Note 10 (Ref. 2).

3.1.2 The assessment of a project under the Habitats Regulations can be split into four stages. ~~Plate 1 below outlines all~~This section discusses the stages ~~of HRA~~ according to Planning Inspectorate Advice Note Ten (Ref. 2). Only Stage 1 Screening, as documented in this NSER, is deemed to be necessary for the Scheme.

3.1.3 Whilst the HRA decisions must be taken by the Competent Authority (the Secretary of State, informed by the recommendations of the appointed Examining Authority), the information needed to support this decision-making must be provided by the Applicant. The information needed for the Competent Authority to establish whether there are any Likely Significant Effects (LSE) from the Scheme is therefore provided in this HRA.

3.1.4 Paragraphs 5.3–5.7 of Planning Inspectorate Advice Note Ten (Ref. 2), as well as guidance from the Department for Business, Energy and Industrial Strategy (Ref. 8; noting that this Department is now the Department for Energy Security and Net Zero) requires an evaluation of the potential for the Scheme to require other consents which could also require HRA by different competent authorities, and a statement to identify whether significant effects are considered likely regarding Habitats Sites in devolved administrations or European Economic Area (EEA) States. It is confirmed that the Order limits do not overlap with areas of devolved administrations or with those of other EEA States. It is also the case that no parallel consents are required for the Scheme which would require additional HRA to be carried out. The entirety of the Scheme is within eastern England and there are no pathways arising from the Scheme that could results in LSEs to Habitats Sites in devolved administrations or other EEA States.



~~**Plate 1: Four Stage Approach to HRA of Projects**~~

3.2 HRA Stage 1: Screening for Likely Significant Effects

3.2.1 'HRA Stage 1: Screening for Likely Significant Effects' is the assessment of the likelihood of a plan or project resulting in LSEs on the features of a Habitats Site. If the screening assessment concludes that LSEs are present, this is the trigger for an AA to be undertaken as set out in Regulation 63(1) and is the purpose of this NSER.

3.2.2 The objective of the LSEs screening exercise is to screen out those aspects of a project and/or any Habitats Sites that can, without more detailed appraisal, be said to be unlikely to result in adverse effects upon Habitats Sites. This is usually because there is no mechanism for an adverse interaction (i.e. a pathway) with Habitats Sites. Any remaining aspects are then taken forward to AA. The assessment must also consider the potential for LSEs in-combination with other plans and projects.

3.2.3 As shown in Table 1, this NSER has been prepared in accordance with all principles set out in relevant case law and guidance relating to the 2017 Regulations, the Habitats Directive (Ref. 9) and Birds Directive (Ref. 10). This includes the ruling by the CJEU in the case of People Over Wind and Peter Sweetman v Coillte Teoranta (C-323/17) (Ref. 11). This case held that: "*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*" (Paragraph 40). This establishes that mitigation measures cannot be considered at the screening stage, but they can be taken into account in an AA. The implication of this is that the screening stage must be undertaken on a precautionary basis with no regard to mitigation measures.

3.3 In-Combination Scope

3.3.1 It is a requirement of the Habitats Regulations that the impacts and effects of any planning proposal being assessed are not only considered in isolation but also in combination with other plans and projects that may also have effects on the Habitats Site(s) in question.

3.3.2 When undertaking this part of the assessment it is essential to consider the principal intention behind the legislation, i.e. to ensure that those projects or plans (which in themselves may have minor impacts) are not simply dismissed on that basis but are evaluated for any contribution they may make to an overall significant effect in-combination with other projects and plans. In practice, in-combination assessment is therefore of greatest relevance when a development proposal would otherwise be screened out because its individual contribution is inconsequential.

3.3.3 The plans and projects considered to have the potential to act in-combination with the Scheme are discussed and screened out in Chapter 6 of this NSER.

4. Scoping and Data Gathering

4.1 Impact Sources and Pathways

4.1.1 There is no guidance that dictates the physical scope of an HRA. Therefore, in considering the physical scope of the assessment of the Scheme, AECOM was guided primarily by the identified impact pathways (namely the 'source-pathway-receptor' approach).

4.1.2 Briefly defined, impact pathways are routes by which the implementation of a project or plan can lead to an effect upon a Habitats Site. For some impact pathways (notably atmospheric pollution) there is guidance that sets out distance-based zones required for assessment. For others, a professional judgment must be made based on the best available evidence.

Impact Sources

4.1.3 Applying the source-pathway-receptor approach, the potential impacts that could arise from the Scheme were considered. The broad categories of impact sources which could arise are set out in Table 2.

Table 2: Impact Pathways that could arise from the Scheme

Impact category	Brief description
Loss of functionally linked habitat	The loss of habitat which lies outside the boundary of a Habitats site, but which is critical to its functioning. For example, the loss of foraging habitat outside of an SPA which is used by roosting or breeding qualifying bird species.
Water pollution	This may arise in the construction, operational and decommissioning phases of a development. It includes surface runoff containing suspended sediment or other aquatic pollutants such as hydrocarbons, chemicals, fuels and oils. Any sewage effluent discharges would also be included in this category.
Atmospheric pollution	This encompasses the release of dust (i.e. particles of sufficiently large size to coat vegetation and interfere with photosynthesis) and atmospheric pollutants that can be directly toxic to vegetation or contribute to nitrogen deposition and, therefore, eutrophication. Overall nitrogen deposition is primarily determined by the release of oxides of nitrogen (NOx; associated with combustion from vehicle exhausts) and ammonia (NH3, associated predominantly with industrial processes and agriculture, but also with vehicle exhausts).
Hydrological changes	Impacts which alter the hydrological processes within a Habitats site or in an area used by its qualifying features. For example, reduced levels or flows in groundwater or watercourses may occur due to water impoundment or abstraction. These processes can have various cascading impacts on designated habitats and species.

Impact category	Brief description
Visual and noise disturbance	Visual disturbance is likely to occur due to the physical movement of vehicles and site staff in proximity to qualifying species (potentially at greater distances than noise disturbance, particularly when considering overflying birds). Noise and/or vibration disturbance will occur as a result of particularly noisy construction activities, such as impact piling or the operation of noise plant. Depending on its scale, visual and noise disturbance may occur during the construction, operational and decommissioning phases of a development.
Barriers and/or disturbance displacement	Barriers to the movement of aquatic qualifying species may either be physical (for example, a dam in a river) or physiological (for example, the attraction of migratory fish towards the outflow of a hydro-electric scheme). Disturbance displacement may also occur due to the construction of new infrastructure, such as Solar PV Panels, that interrupt the open vistas preferred by some qualifying bird species.
Injury or mortality	The direct injury or mortality of a qualifying species, either during the construction, operational and decommissioning phases of a new development. For example, birds may suffer injury or mortality when colliding with solar infrastructure due to mistaking Solar PV Panels with waterbodies (although evidence on this is scant).
Spread of invasive non-native species (INNS)	INNS can have detrimental impacts on native species and the overall community composition within habitats. Their inadvertent spread can occur during the construction, operational and decommissioning phases of a development, and via multiple pathways (for example via watercourses or on the treads of construction machinery).

Impact pathways

4.1.4 For an impact to result in a negative effect on a qualifying feature of a Habitats Site, a pathway between the impact source and that feature must exist.

4.1.5 For each of the types of impact which could arise (as set out in Table 2) the maximum distance at which an effect could occur was determined based on the pathway(s) by which such impact(s) could reach a Habitats Site or its qualifying feature(s). These impact pathway buffer zones were based on published guidance and available research evidence wherever possible, and professional judgment. The adopted impact buffers are set out in Table 3.

Table 3: Impact Pathway Buffer Distances

Impact Category	Buffer Distance
Direct loss of habitat	Within Habitats Site boundary.
Loss of functionally linked habitat	Varies based on the species in question. NatureScot's (formerly Scottish Natural Heritage [SNH]) guidance on 'Assessing Connectivity with Special Protection Areas (SPAs)' (Ref. 13) suggest that certain species of geese may forage up to 15-20 km from the boundary of SPAs for which they are qualifying features. This is likely to be the largest distance at which functionally linked habitat may be located from a Habitats Site. More generally, functionally linked habitat is likely to be within a maximum of 10 km (though often considerably less than this) from European site boundary for most species.
Waterborne pollution	No buffer used – relies on there being a hydrological connection to a Habitats Site according to the source-pathway-receptor model.
Airborne pollution	50-500 m for dust generation (Ref. 14) and 200 m for emissions from road traffic (Ref. 15).
Hydrological changes	No buffer used – relies on there being a hydrological connection to a Habitats Site according to the source-pathway-receptor model.
Disturbance of qualifying species	500 m for general noise and/or visual disturbance, based on professional judgment.
Barriers and/or displacement	Not possible to set buffer. Depends on movements of species, which may be very long-distance for those which migrate. However, the potential of solar farms to result in barriers to movement and displacement is minimal (discussed later).
Injury or mortality	Injury or mortality only likely to occur within a Habitats Site boundary or when species are using functionally-linked habitat. Therefore, refer to criteria for 'Direct loss of habitat' and 'Loss of functionally-linked habitat'.
Spread of invasive non-native species	Generally within 100 m, except where hydrological connectivity could result in spread further afield.

4.1.6 To identify which Habitats Sites should be scoped into the NSER, the impact pathway buffers set out in Table 3 and professional judgment were used. The data presented in Table 3 indicates that the impacts which could occur over the largest distance (excluding instances where there is a hydrological connection) are the loss of functionally-linked habitat used by foraging non-breeding goose species (up to 20 km).

4.2 Relevant Habitats Sites

4.2.1 Guidance published by the Environment Agency (Ref. 16) recommends that for large power generation developments greater than 50 MW[1], a radius search of 15 km should be used as the screening distance for air emissions when identifying relevant Habitats Sites that could be affected by the development. However, the Scheme comprises a solar farm that will not result in operational air quality emissions, such that there will be no negative operational air quality impacts.

4.2.2 Additionally, a radius of 30 km should be used for any Habitats Site for which bats are a qualifying feature (Ref. 17). It can be confirmed that, in this case, there are no Habitats Sites designated for bats within 30 km of the Scheme.

4.2.3 Based on the impact pathway buffers set out in Table 3, Environment Agency guidance and professional judgement, a search radius of 20 km has been used for this NSER. This distance allows adequate assessments of any potential functionally-linked habitat loss (maximum foraging distances of 20 km have been identified for some overwintering bird species, such as pink-footed goose, barnacle goose, golden plover and lapwing) and hydrological impacts (any effects at greater distances are likely to be negligible based on attenuation and dilution processes).

4.2.4 All Habitats Sites within 20 km of the Scheme were identified using Geographic Information System data from datasets downloaded from the Joint Nature Conservation Committee (JNCC) and the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref. 18).

4.2.5 The following Habitats Sites lie within 20 km of the Scheme, and are shown in Appendix A of this report:

a. Thorne Moor SAC (approximately 7.9 km distant);
b. Thorne and Hatfield Moors SPA (approximately 8.6 km distant);
c. Hatfield Moor SAC (approximately 8.7 km distant);
d. River Derwent SAC (approximately 12.8 km distant);
e. Humber Estuary SPA (approximately 14.2 km distant);
f. Humber Estuary Ramsar (approximately 14.2 km distant);
g. Humber Estuary SAC (approximately 14.2 km distant);
h. Lower Derwent Valley SPA (approximately 17 km distant);
i. Lower Derwent Valley Ramsar (approximately 17 km distant); and
j. Lower Derwent Valley SAC (approximately 17 km distant).

4.2.6 A summary of the qualifying features of each of the Habitats Sites taken through to screening, and their distance from the Scheme is provided in Table 4. The Conservation Objectives and currents threats/pressures to site integrity for each relevant Habitats Site are summarised in Table 5.

[1] This applies to the following types of development: natural gas (or fuels with a similarly low sulphur content) fired combustion plants, with more than 500 MW thermal input, and larger combustion plants using more sulphurous fuels with more than 50 MW thermal input.

Table 4: Habitats Sites Taken Forward to HRA Screening

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
Thorne Moor SAC	The Order limits are approximately 7.9 km from the SAC	Thorne Moor covers an extent of 1,911.02 ha and represents England's largest area of raised bog. While recent management interventions have increased the extent of active raised bog, the inclusion of Goole Moors (where peat extraction only recently ceased) means that the site is still predominantly in degraded condition. The part of the SAC that has been restored to active raised bog is characterised by bog mosses *Sphagnum* spp., cottongrasses *Eriophorum angustifolium* and *E. vaginatum*, heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, round-leaved sundew *Drosera rotundifolia*, cranberry *Vaccinium oxycoccos* and bog rosemary *Andromeda polifolia*.	Annex I habitats that are a primary reason for selection of this site: a. Degraded raised bogs still capable of natural regeneration.
Thorne and Hatfield Moors SPA	The Order limits are approximately 8.6 km to the west of the SPA	The SPA lies within the flat, low-lying agricultural landscape of East Yorkshire. Thorne Moor comprises England's largest area of raised bog, a few kilometres to the north of the smaller Hatfield Moor. Both moors lie within the former floodplain of rivers feeding into the Humber Estuary. While the bogs have been historically cut for peat, a restricted representative flora and fauna persists within a mosaic of mire and dry heath habitats. The site is designated for breeding nightjar (the number of churring males ranging between 71 to 95 since 2005), but supports a range of other Annex I species,	The SPA qualifies under Article 4.1 by regularly supporting the following Annex 1 species: a. Nightjar *Caprimulgus europaeus* (breeding).

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
		including hen harrier, merlin, short-eared owl and hobby.	
Hatfield Moor SAC	The Order limits are approximately 8.7 km to the west of the SAC	Hatfield Moor is a remnant of formerly extensive bog and fen peatlands in the Humberhead Levels (it covers an area of 1,359.45 ha), comprising the second largest lowland raised bog in England. Sand moraines are present beneath the peat and contributed to the formation of Lindholme Island in the centre of the site. With peat-cutting now terminated, the bog is being restored over its remaining minimum depth of 0.5 m. Pockets of remnant characteristic vegetation are still present in dry heathland and birch *Betula* woodland. Plants include heather, cross-leaved heath, cottongrasses, cranberry, bog rosemary, bog myrtle *Myrica gale* and the bog mosses *Sphagnum cuspidatum*, *S. recurvum*, *S. papillosum*, *S. subnitens* and *S. tenellum*. The bog is also important for its invertebrate fauna, such as the mire pill beetle *Curimopsis nigrita*.	Annex I habitats that are a primary reason for selection of this site: a. Degraded raised bogs still capable of natural regeneration.
River Derwent SAC	The Order limits are approximately 12 km southwest of the SAC	The Yorkshire Derwent is considered to represent one of the best British examples of the classic river profile. This lowland section, stretching from Ryemouth to the confluence with the River Ouse, supports diverse communities of aquatic flora and fauna. Fed from an extensive upland catchment, the lowland course of the River Derwent has been considerably diverted and	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. (Rivers with floating

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
		extended as a result of glacial action in the Vale of Pickering. The river supports an aquatic flora uncommon in Northern Britain. Several species, including river water-dropwort *Oenanthe fluviatilis*, flowering rush *Butomus umbellatus*, shining pondweed *Potamogeton lucens*, arrowhead *Sagittaria sagittifolia*, opposite-leaved pondweed *Groenlandia densa* and narrow-leaved water-parsnip *Berula erecta* are more typically found in lowland rivers in southern England. The River Derwent is noted for the diversity of its fish communities, which include river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* populations that spawn in the lower reaches, as well as bullhead *Cottus gobio*. The diverse habitats also support otters *Lutra lutra.*	vegetation often dominated by water-crowfoot). Annex II species that are a primary reason for selection of this site: a. River lamprey. Annex II species present as a qualifying feature, but not a primary reason for site selection: a. Sea lamprey; b. Bullhead; and c. Otter.
Humber Estuary SPA	The Order limits are approximately 14.2 km southwest of the SPA	The Humber Estuary SPA is located on the east coast of England and comprises extensive wetland and coastal habitats. The inner estuary supports extensive areas of reedbed, with areas of mature and developing saltmarsh backed by grazing marsh in the middle and outer estuary. On the north Lincolnshire coast, the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. Parts of the estuary are owned and managed by conservation organisations. The estuary supports important numbers of waterbirds (especially geese, ducks and waders) during the migration periods and in winter. In summer, it supports	The SPA site qualifies under Article 4.1 by regularly supporting the following Annex 1 species in any season: a. Avocet (wintering and breeding); b. Bittern (wintering and breeding); c. Hen harrier *Circus cyanea* (wintering); d. Golden plover *Pluvialis apricaria* (wintering); e. Bar-tailed godwit *Limosa lapponica* (wintering);

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
		important breeding populations of bittern *Botaurus stellaris*, marsh harrier *Circus aeruginosus*, avocet *Recurvirostra avosetta* and little tern *Sterna albifrons.*	f. Ruff (passage); g. Marsh harrier (breeding); and h. Little tern (breeding). The site qualifies under article 4.2 of the Birds Directive (79/409/EEC) as it is used regularly by the following regularly occurring migratory species other than those listed in Annex I) in any season: a. Shelduck *Tadorna tadorna* (wintering); b. Knot *Calidris canutus* (wintering and passage); c. Dunlin *Calidris alpina* (wintering and passage); d. Black-tailed godwit *Limosa limosa* (wintering and passage); and e. Redshank *Tringa tetanus* (wintering and passage). Assemblage qualification: The SPA site qualifies under article 4.2 of the Birds Directive (79/409/EEC) as it is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) in any season such as dark-bellied brent goose *Branta bernicla bernicla*, shelduck, wigeon *Anas penelope*, teal *Anas crecca*,

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			mallard *Anas platyrhynchos*, pochard *Aythya ferina*, scaup *Aythya marila*, goldeneye *Bucephala clangula*, bittern, oystercatcher *Haematopus ostralegus*, avocet, ringed plover *Charadrius hiaticula*, golden plover, grey plover *P. squatarola*, lapwing *Vanellus vanellus*, knot, sanderling *Calidris alba*, dunlin, ruff, black-tailed godwit, bar-tailed godwit, whimbrel *Numenius phaeopus*, curlew *N. arquata*, redshank, greenshank *Trimga nebularia* and turnstone *Arenaria interpres*.
Humber Estuary Ramsar	The Order limits are approximately 14.2 km southwest of the Ramsar	The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 km^2 and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The estuary regularly supports internationally important numbers of	The Ramsar site is designated for: **Ramsar Criterion 1:** The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. **Ramsar Criterion 3:** The Humber Estuary Ramsar site supports a breeding colony of grey seals *Halichoerus grypus* at Donna Nook. It is the second largest grey seal colony in

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
		waterfowl in winter and nationally important breeding populations in summer.	England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most northeasterly breeding site in Great Britain of the natterjack toad *Bufo calamita.* **Ramsar Criterion 5:** Assemblages of international importance – non-breeding season. **Ramsar Criterion 6:** Species/populations occurring at levels of international importance: a. Golden plover (passage and wintering); b. Knot (passage and wintering); c. Dunlin (passage and wintering); d. Black-tailed godwit (passage); e. Redshank (passage and wintering); f. Shelduck (wintering); and g. Bar-tailed godwit (wintering). **Ramsar Criterion 8:** The Humber Estuary acts as an important migration route for both river and sea lamprey

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			between coastal waters and their spawning areas.
Humber Estuary SAC	The Order limits are approximately 14.2 km southwest of the SAC	The Humber is the second largest coastal plain Estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. The range of salinity, substrate and exposure to wave action influences the estuarine habitats and the range of species that utilise them; these include a breeding bird assemblage, winter and passage waterfowl, river and sea lamprey, grey seals, vascular plants and invertebrates.	Annex I habitats that are a primary reason for selection of this site: a. Estuaries; and b. Mudflats and sandflats not covered by seawater at low tide. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Atlantic salt meadows *Glauco-Puccinellietalia maritimae*; b. Coastal lagoons; c. Dunes with *Hippophae rhamnoides*; d. Embryonic shifting dunes; e. Fixed dunes with herbaceous vegetation (`grey dunes`); f. Salicornia and other annuals colonising mud and sand; g. Sandbanks which are slightly covered by sea water all the time; and h. Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes').

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			Annex II species present as a qualifying feature, but not a primary reason for site selection: a. Grey seal; b. River lamprey; and c. Sea lamprey.
Lower Derwent Valley SPA	The Order limits are approximately 17 km southwest of the SPA	The lower Derwent Valley covers an area of 1,089.4 ha, draining a catchment of 1,362 km^2 before entering the River Humber system. It consists of extensive areas of traditionally managed species rich, alluvial flood-meadow, of a kind now highly restricted in the UK.	The SPA site qualifies under Article 4.1 by regularly supporting nationally important winter numbers of the following Annex I species: a. Bewick's swan *Cygnus columbianus bewickii*; b. Golden plover *Pluvialis apricaria*; and c. Ruff *Philomachus pugnax* (a significant number of this species is also present during spring migration). The site qualifies under Article 4.2 by regularly supporting a breeding population of: a. Shoveler *Anas clypeata*. The site also qualifies under Article 4.2 as an area of international importance to waterfowl by regularly supporting over 20,000 waterfowl in winter. Within

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			this number the site holds internationally important numbers of: a. Teal *Anas crecca*; and b. Wigeon *Anas Penelope*. The site also supports nationally important numbers of the following migratory species: a. Shoveler; b. Pochard *Aythya ferina*; c. Whimbrel *Numenius phaeopus*; and d. Ruff *Philomachus pugnax*.
Lower Derwent Valley Ramsar	The Order limits are approximately 17 km southwest of the Ramsar	The Lower Derwent Valley represents one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK. These grasslands, which were formerly widespread, are now very restricted in distribution due to agricultural improvement. The river and these floodlands play a substantial role in the hydrological and ecological functioning of the internationally important River Humber basin.	The Ramsar site is designated for: **Ramsar Criterion 1:** The Ramsar site represents one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK. **Ramsar Criterion 2:** The Ramsar site has a rich assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates as well as a leafhopper *Cicadula ornate* for which Lower Derwent Valley is the only known site in Great Britain.

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			Ramsar Criterion 4: The Ramsar site qualifies as a staging post for passage birds in spring. Of particular note are the nationally important numbers of ruff and whimbrel *Numenius phaeopus.* **Ramsar Criterion 5:** Assemblages of international importance – Species with peak counts in winter. **Ramsar Criterion 6:** Species/populations occurring at levels of international importance. Species with peak counts in winter: a. Wigeon *Anas penelope*; and b. Teal *Anas crecca*.
Lower Derwent Valley SAC	The Order limits are approximately 17 km southwest of the SAC	The Lower Derwent Valley SAC contains a greater area of high-quality examples of lowland hay meadows than any other UK site and encompasses the majority of this habitat type occurring in the Vale of York. The abundance of the rare narrow-leaved water-dropwort *Oenanthe silaifolia* is a notable feature. Traditional management has ensured that ecological variation is well-developed, particularly in the transitions between this grassland type and other types of wet and dry grassland, swamp and fen vegetation. Additionally there is an area of damp alder woodland at Thornton Ellers adjoining marsh and tall fen communities.	Annex I habitats that are a primary reason for selection of this site: a. Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*). Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*).

Name	Approx. Distance from Order limits	European Site Description	Summary of Qualifying Features
			Annex II species present as a qualifying feature, but not a primary reason for site selection: a. Otter *Lutra lutra.*

Table 5: Conservation objectives and threats/pressures to the integrity of relevant Habitats Sites

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
Hatfield Moor SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; a. The extent and distribution of the qualifying natural habitat, b. The structure and function (including typical species) of the qualifying natural habitat, and, c. The supporting processes on which the qualifying natural habitat rely.	18.13 ha (1.27%) – Favourable 1,313.59 ha (92.23%) – Unfavourable Recovering 92.55 ha (6.5%) – Unfavourable No Change	The following threats/pressures to the integrity of the Hatfield Moor SAC have been identified in Natural England's Site Improvement Plan (Ref. 19): a. Drainage; b. Inappropriate scrub control; c. Air pollution: Impact of atmospheric nitrogen deposition; d. Public access/disturbance; e. Planning permission: General; f. Peat extraction; and g. Invasive species.
Thorne and Hatfield Moors SPA	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; a. The extent and distribution of the habitats of the qualifying features b. The structure and function of the habitats of the qualifying features c. The supporting processes on which the habitats of the qualifying features rely	The Thorne and Hatfield Moors SPA is underpinned by the Hatfield Moors SSSI and and Thorne, Crowle and Goole Moors SSSI. The condition assessments of these SSSIs is provided in relation to the respective SACs.	The following threats/pressures to the integrity of the Thorne and Hatfield Moors SPA have been identified in Natural England's Site Improvement Plan (Ref. 19): a. Drainage; b. Inappropriate scrub control; c. Air pollution: Impact of atmospheric nitrogen deposition;

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
	d. The population of each of the qualifying features, and, e. The distribution of the qualifying features within the site.		d. Public access/disturbance; e. Planning permission: General; f. Peat extraction; and g. Invasive species.
Thorne Moor SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; a. The extent and distribution of qualifying natural habitats b. The structure and function (including typical species) of qualifying natural habitats, and c. The supporting processes on which qualifying natural habitats rely.	74.08 ha (3.85%) – Favourable 295.94 ha (15.39%) – Unfavourable Recovering 56.53 ha (2.94%) – Unfavourable No Change 1,496.39 ha (77.82%) – Unfavourable Declining	The following threats/pressures to the integrity of the Thorne Moor SAC have been identified in Natural England's Site Improvement Plan (Ref. 19): a. Drainage; b. Inappropriate scrub control; c. Air pollution: Impact of atmospheric nitrogen deposition; d. Public access/disturbance; e. Planning permission: General; f. Peat extraction; and g. Invasive species.
River Derwent SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: a. The extent and distribution of qualifying natural habitats and habitats of qualifying species;	22.54 ha (5.53%) – Favourable 382.13 ha (93.69%) – Unfavourable Recovering 3.17 ha (0.78%) – Unfavourable No Change	The following threats/pressures to the integrity of the River Derwent SAC have been identified in Natural England's Site Improvement Plan (Ref. 20): a. Physical modification;

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
	b. The structure and function (including typical species) of qualifying natural habitats; c. The structure and function of the habitats of qualifying species; d. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; e. The populations of qualifying species; and f. The distribution of qualifying species within the site.		b. Water pollution; c. Invasive species; d. Change in land management; and e. Water abstraction.
Humber Estuary SPA/Ramsar	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: a. The extent and distribution of the habitats of the qualifying features; b. The structure and function of the habitats of the qualifying features; c. The supporting processes on which the habitats of the qualifying features rely; d. The population of each of the qualifying features; and e. The distribution of the qualifying features within the site.	2,254.42 ha (6.09%) – Favourable 32,126.26 ha (86.83%) – Unfavourable Recovering 82.20 ha (0.22%) – Unfavourable No Change 2,537.70 ha (6.86%) – Unfavourable Declining	The following threats/pressures to the site integrity of the Humber Estuary SPA have been identified in Natural England's Site Improvement Plan (Ref. 21): a. Water pollution; b. Coastal squeeze; c. Changes in species distributions; d. Undergrazing; e. Invasive species; f. Natural changes to site conditions; g. Public Pressure Access/Disturbance; h. Fisheries: Fish stocking; i. Direct land take from development;

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
			j. Shooting/scaring; k. Direct impact from third-party; and l. Inappropriate scrub control. The Information Sheet on Ramsar Wetlands (RIS) (Ref. 22) identifies the following factors (past, present or potential) adversely affecting the site's ecological character: a. Disturbance to vegetation through cutting/clearing; b. Vegetation succession; c. Water diversion for irrigation/domestic/industrial use; d. Overfishing; e. Pollution – domestic sewage; f. Pollution – agricultural fertilisers; g. Recreational/tourism disturbance (unspecified); and h. Other factor – Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
			rise and fixed defences. The Humber Flood Risk Management Strategy has been developed and is being implemented.
Humber Estuary SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: a. The extent and distribution of qualifying natural habitats and habitats of qualifying species; b. The structure and function (including typical species) of qualifying natural habitats; c. The structure and function of the habitats of qualifying species; d. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; e. The populations of qualifying species; and f. The distribution of qualifying species within the site.	Covered by the Humber Estuary SSSI (see preceding row for summary condition)	The following threats/pressures to the site integrity of the Humber Estuary SAC have been identified in Natural England's Site Improvement Plan (Ref. 21): a. Water pollution; b. Coastal squeeze; c. Changes in species distributions; d. Undergrazing; e. Invasive species; f. Natural changes to site conditions; g. Public Pressure Access/Disturbance; h. Fisheries: Commercial marine and estuarine; i. Direct land take from development;

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
			j. Air Pollution: impact of atmospheric nitrogen deposition; and k. Direct impact from third-party.
Lower Derwent Valley SPA/Ramsar	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: a. The extent and distribution of the habitats of the qualifying features; b. The structure and function of the habitats of the qualifying features; c. The supporting processes on which the habitats of the qualifying features rely; d. The population of each of the qualifying features; and e. The distribution of the qualifying features within the site.	323.26 ha (48.52%) – Favourable 279.42 ha (41.94%) – Unfavourable Recovering 8.80 ha (1.32%) – Unfavourable No Change 54.70 ha (8.21%) – Unfavourable Declining	The following threats/pressures to the integrity of the Lower Derwent Valley SPA have been identified in Natural England's Site Improvement Plan (Ref. 23): a. Hydrological changes; b. Drainage; c. Public access/disturbance; d. Invasive species; e. Undergrazing; and f. Inappropriate scrub control. The Information Sheet on Ramsar Wetlands (RIS) (Ref. 24) identifies the following factors (past, present or potential) adversely affecting the site's ecological character: a. Water diversion for irrigation/domestic/industrial use; and

Name	Conservation objectives	SSSI Condition Assessment summary	Threats/pressures to site integrity
			b. Reservoir/barrage/dam impact: flooding.
Lower Derwent Valley SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: a. The extent and distribution of qualifying natural habitats and habitats of qualifying species; b. The structure and function (including typical species) of qualifying natural habitats; c. The structure and function of the habitats of qualifying species; d. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; e. The populations of qualifying species; and f. The distribution of qualifying species within the site.	Covered by the Derwent Ings SSSI (see preceding row for summary condition)	The following threats/pressures to the site integrity of the Lower Derwent SAC have been identified in Natural England's Site Improvement Plan (Ref. 23): a. Hydrological changes; b. Drainage; c. Invasive species; d. Undergrazing; and e. Air pollution: impact of atmospheric nitrogen.

4.3 Existing Baseline Conditions

4.3.1 Following an extended Phase 1 habitat survey, extensive ecological surveys within the Order limits and appropriate zones of influence were undertaken. The surveys relevant to HRA were:

a. Non-breeding and breeding birds;

b. Riparian mammals (notably otter); and

c. Aquatic surveys (including fish).

4.3.2 The results of these surveys are presented in **ES Volume III Appendix 8-6: Aquatic Ecology Report EN010152/APP/6.3]** and **ES Volume III Appendix 8-9: Riparian Mammal Report [EN010152/APP/6.3]**. Data obtained in these assessments are discussed in the relevant sections on impact pathways further below.

4.4 Summary

4.4.1 On the basis of the scoping and data gathering exercise documented earlier the following Habitats Sites and potential impact pathways, as shown in Table 6, are considered relevant to this NSER.

Table 6: Relevant Habitats Sites and associated impact pathways

European site	Potential impact pathway
River Derwent SAC	Noise and visual disturbance – otter[2].
Lower Derwent Valley SPA/Ramsar	Loss of functionally linked habitat.
Lower Derwent Valley SAC	Noise and visual disturbance – otter.
Humber Estuary SPA/Ramsar	Noise and visual disturbance. Loss of functionally linked habitat. Water quality. Atmospheric pollution. Introduction of invasive non-native species.
Humber Estuary SAC	Noise and visual disturbance – fish. Water quality. Atmospheric pollution. Introduction of invasive non-native species.

[2] While noise and visual disturbance to qualifying otter is considered, the Scheme will not result in the permanent loss of freshwater or bankside habitat. Therefore, permanent habitat loss in relation to these qualifying features is not considered.

5. Background to Potential Impact Pathways

5.1 Noise and Visual Disturbance

5.1.1 Development can result in noise or visual disturbance of qualifying species in Habitats Sites, during the construction, operational (including maintenance) and decommissioning phases. For example, noise and visual disturbance arising from construction or decommissioning may result in temporary behavioural changes in otter, such as disturbance in holts and displacement from specific stretches of the river. Furthermore, disturbance from construction or decommissioning may result in temporary behavioural changes in qualifying birds (e.g. interruption or cessation foraging, minor and major flight responses). During the operation and maintenance phase, noise emitted from industrial developments may permanently affect site usage of foraging and roosting birds, although this is not an issue for solar farms. Disturbance from site usage by operational site staff, road traffic and operational lighting might also arise. Three of the most important factors determining the magnitude of disturbance from developments on ecological receptors are considered to be individual species sensitivity, proximity of the disturbance source and timing/duration of the disturbance.

5.1.2 Both noise and visual stimuli may elicit disturbance responses, potentially affecting the fitness and survival of qualifying birds. Noise is a complex disturbance parameter requiring the consideration of multiple factors, including its non-linear scale, non-additive effect and source-receptor distance. Bird responses to high noise levels include major flight or the cessation of feeding, both of which might affect the survival of birds, particularly if other stressors are also present (e.g. cold weather, food scarcity).

5.1.3 Generally, research has shown that above noise levels of 84 dB waterfowl show a flight response, while at levels below 55 dB there is no effect on their behaviour (Ref. 25). Therefore, these two thresholds are considered useful as defining two extremes. The same authors have advised that regular noise levels should remain below 70 dB at bird receptors, which will habituate to noise levels below this level (Ref. 26). Generally, noise is attenuated by 6 dB with every doubling of distance from the source. Impact piling, the noisiest construction activity (approx. 110 dB at 0.67 m from source) will thus reduce to 67-68 dB by 100 m away from the source. This implies that the loudest construction noise should have fallen to below disturbing levels by 100 m, and certainly by 200 m, away from the source even without mitigation. Noise levels from less noisy construction activities, such as Horizontal Direct Drilling (HDD) (approximately 85 dB at source), are expected to dissipate over considerably shorter distances. Note that this is a rule of thumb and does not obviate the need for application-level noise modelling. Comparison with baseline noise levels will also be important in any assessment rather than purely using comparison with the 70 dB metric.

5.1.4 The following parameters for the assessment of noise disturbance impacts have been identified in discussions with Natural England on other projects[3]:

[3] Discussions over noise disturbance to SPA/Ramsar took place over several projects, including the Sea Link and Viking CCS Pipeline developments.

a. Changes of 3 dB in noise level compared to the pre-construction baseline are perceptible (although not necessarily disturbing) and should be screened in for AA;

b. Noise levels below 55 dB are unlikely to be disturbing, regardless of the difference to the baseline;

c. Noise levels between 55 dB and 70 dB may be disturbing depending on the degree of change (for example, a change in noise level of 10 dB represents a doubling in loudness and, therefore, likely to be disturbing), nature of the sound (i.e. L_{Amax} or L_{Aeq}), duration of exposure and extent of habitat impacted; and

d. Noise levels above 70 dB are likely to be disturbing unless qualifying birds are already subject to similarly high noise levels as part of their baseline soundscape.

5.1.5 Since it is possible to be confident no disturbance will occur at 55 dB, and 58 dB (being three decibels higher) is the threshold for a difference to be perceptible (rather than disturbing) this has in practice led to agreement on various projects over using a 60 dB contour as the threshold to determine if adverse effects may arise.

5.1.6 Generally, visual stimuli are considered to have a higher disturbance potential than noise stimuli as, in most instances, visual stimuli will elicit a disturbance response at much greater distances than noise. For example, a flight response is triggered in most species when they are approached to within 150 m across a mudflat. Visual disturbance can be exacerbated by workers moving across open habitats undertaking sudden movements and using large machinery. Several species are particularly sensitive to visual disturbance including curlew (taking flight at 275 m), redshank (at 250 m), shelduck (at 199 m) and bar-tailed godwit (at 163 m; Ref. 26).

5.1.7 While an increasing amount of research on visual and noise disturbance to waders and waterfowl from construction works (and other activities) is now available, no peer-reviewed experimental scientific evidence exists relating specifically to the ecological impacts of solar farms (Ref. 27).

5.1.8 In terms of functionality and infrastructure, there are parallels between solar PV developments and onshore wind farms. For example, both require large areas of land to maximise energy yields, generate large amounts of electricity and require ancillary infrastructure to transport electricity to where it is needed within the electricity grid.

5.1.9 There are four broad types of impacts wind farms can have on birds: collision mortality; disturbance displacement; barrier effects; and habitat loss (Ref. 28). Wind turbines have the critical characteristics of large fast-moving parts and structures extending vertically from the ground. Such features are generally absent from solar PV developments, meaning that collision mortality, disturbance displacement and barrier effects are unlikely to be significant issues associated with the Scheme. Scientific and grey literature data based upon carcass searches around solar PV developments, suggest that bird collision risk from Solar PV Panels is very low and considerably lower than collision risk with other associated infrastructure, such as overhead power lines. There is no evidence in the peer-reviewed literature to demonstrate that ecological impacts of solar PV installations, such as glint

and glare, are affecting the flight paths of birds, particularly where these are likely to move through the landscape along a broad front.

5.1.10 Overall, specific regard should be given to assemblage composition when identifying threshold levels for both visual and noise disturbance. It is likely that avian species are differently affected by solar PV developments, depending on the types of habitat present, spatial requirements of ecological receptor species (e.g. flocking species such as pink-footed goose *Anser brachyrhynchus* require large areas of supporting habitat), species-specific foraging behaviour and individual species sensitivity.

5.1.11 Overall, the following Habitats Sites within the Zone of Influence (ZoI) of the Scheme are sensitive to potential noise and visual disturbance, and are taken forward into the following sections:

a. **River Derwent SAC**;

b. **Lower Derwent Valley SAC/SPA/Ramsar**; and

c. **Humber Estuary SAC/SPA/Ramsar**.

5.2 Water Quality

5.2.1 The quality of the water that feeds a Habitats Site is an important determinant of the condition of the habitats and species it supports. Poor water quality can have a range of environmental impacts:

a. At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and detrimental effects are also possible at lower levels, including increased vulnerability to disease and changes in behaviour.

b. Construction activities that involve ground excavations and the stripping of topsoil are associated with a high risk of sediment release in surface runoff. Excessive sedimentation can smother aquatic habitats and plants, increase turbidity and accelerate eutrophication.

c. Eutrophication, the enrichment of water with nutrients, increases plant growth and can result in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In freshwater ecosystems, plant growth is primarily determined by phosphorus (P) concentrations, which are determined by a wide range of sources, including treated sewage effluent from Wastewater Treatment Works and urban surfaces such as roads.

d. Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system of aquatic life, possibly having negative effects on reproductive rates.

5.2.2 Under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref. 29), it is legally required to maintain and/or improve the ecological and chemical status of the water environment, which includes rivers, lakes, wetlands, groundwater, estuaries and coastal waters. There should be no deterioration or prevention of future improvement in the status of waterbodies. Water Framework Directive (WFD) assessments are directly linked to HRA in that consideration must also be given when

undertaking a WFD assessment to the Conservation Objectives of Habitats Sites, including SACs, SPAs and Ramsars.

5.2.3 The magnitude of water quality impacts primarily depends on the appropriate treatment of process water and/or surface runoff. Furthermore, the severity of potential construction and operational water quality impacts is partially determined by the distance between development sites and ecological receptor sites. In this instance, the Scheme does not immediately adjoin any aquatic Habitats Sites with sensitivity to water pollution, but it is hydrologically connected to the Humber Estuary SAC/SPA/Ramsar via the River Don and River Went.

5.2.4 Overall, the following Habitats Sites within the ZoI of the Scheme are sensitive to potential water quality impacts and are taken forward into the following sections**:**

a. **Humber Estuary SAC/SPA/Ramsar**.

5.3 Loss of Functionally-Linked Habitat

5.3.1 While most Habitats Sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not necessarily the case. A diverse array of qualifying species including birds, bats and amphibians are not always confined to the boundary of designated sites.

5.3.2 According to BirdLife Europe (Ref. 30), the main conservation risks associated with solar PV arrays includes habitat loss and habitat fragmentation and/or modification.

5.3.3 Due to the highly mobile nature of waterfowl, it is inevitable that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of the Habitats Site(s) for which they are an interest feature. However, this area will still be essential for maintenance of the structure and function of the interest feature for which the site was designated and land use plans that may affect this land should still therefore be subject to further assessment. This has been underlined by a CJEU ruling C-461/17 (Paragraphs 37 to 40), known as the Holohan ruling (Ref. 12) which confirms the need for an AA to consider the implications of a plan or project on habitats and species outside the Habitats Site boundary, provided that those implications are liable to affect the conservation objectives of the site.

5.3.4 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where Natural England recognised the potential importance of functionally linked land (Ref. 31). For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA were recorded on functionally-linked land outside the designated site boundary, and this required the inclusion of mitigation measures in the relevant plan's policy wording. Another important case study originates from the Mersey Estuary SPA/Ramsar, where functionally-linked land was shown to support a peak survey count of 108% of the 5-year mean peak population of golden plover. This finding led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.

5.3.5 Natural England has published guidance on SSSI Impact Risk Zones (IRZs) (Ref. 32) associated with different types of development on various functional groups of birds (see Table 7). These IRZs provide a high-level screening tool for assessing the risk of planning applications affecting important habitats outside Habitats Site boundaries. The guidance identifies that functionally-linked habitats may extend up to the maximum foraging distances from roost locations, although it also notes that the proportion of designated foraging birds will decrease with distance from the Habitats Site (and consequently the habitat's importance in maintaining the designated population). Importantly, the IRZ guidance note does not define the required abundance threshold needed to meet the criterion of functional habitat linkage. However, Natural Resources Wales and Natural England generally advocate that usage of a land parcel by 1% of the qualifying SPA/Ramsar population is needed for that parcel to be defined as functionally-linked habitat. It should be noted that this is not the only metric of relevance, with frequency of use and proportion of the overall SPA/Ramsar bird species aggregation also being relevant.

5.3.6 With regards to birds, areas of functionally-linked land typically provide habitat for foraging or other ecological functions essential for the maintenance of the designated population (e.g. high-tide roosts for coastal populations).

Table 7: Impact Risk Zones for Different Functional Groups of Birds

Bird Group	Impact Risk Zone (Foraging Distance)
Wintering birds (except wintering waders and grazing wildfowl; and wigeon (*Anas penelope*) and geese)	Up to 500 m.
Dabbling ducks such as teal, mallard and gadwall	Maximum home range of 500 m at coastal sites, but less likely to extend beyond the designated site boundary at inland water bodies.
Wintering waders (except golden plover and lapwing), brent goose (*Branta bernicla*) and wigeon	Maximum foraging distance is 500 m.
Breeding heathland species, including nightjar and stone curlew	Maximum foraging distance of 2 km given in general guidance; tagging data on the birds breeding on Thorne and Hatfield has demonstrated that very few nightjar flew more than 3 km from the Order limits to feed[4]. Nightjar may forage up to 4 km from their roosts, but they will prefer foraging in habitats that lie closer.
Wintering lapwing and golden plover	Maximum foraging distance is 15-20 km. Golden plover can forage up to 15 km from a roost site within a protected site. Lapwing can also

[4] UK9005171 Thorne & Hatfield Moors SPA Published 10 Jul 2024 (naturalengland.org.uk)

Bird Group	Impact Risk Zone (Foraging Distance)
	forage similar distances. Both species use lowland farmland in winter, and it is difficult to distinguish between designated populations and those present within the wider environment. Developments affecting functionally linked land more than 10 km from the Order limits are unlikely to impact significantly on designated populations.
Wintering white-fronted goose (*Anser albifrons),* greylag goose (*Anser answer*), Bewick's swan (*Cygnus columbianus bewickii*), whooper swan, pink-footed goose and wintering bean goose (*Anser fabalis*)	Maximum foraging distance of most goose/swan species is 10 km, although studies have shown that pink-footed geese and barnacle geese will fly up to 20 km from their roosting site to feed. The IRZs for this bird group are based on GIS foraging distribution records (pink-footed goose), British Trust for Ornithology work (barnacle goose), and Wetland Bird Survey (WeBS) and BirdTrack data (Bewick's swan, white-fronted goose and whooper swan).

5.3.7 The identification of an area as functionally-linked habitat is not always a straightforward process. The importance of non-designated land parcels may not be apparent and thus might require the analysis of existing data sources (e.g. Bird Atlases or data from record centres) to be firmly established. In some instances, data may not be available at all, requiring further survey work. Generally, based on professional judgment, it is reasonable to assume that a site of under 2 ha in size is unlikely to support a large enough population of birds to constitute 1% of an SPA/Ramsar population. This is because land parcels of under 2 ha are likely to have limited carrying capacity, higher potential for disturbance and reduced sightlines.

5.3.8 Table 8 lists the habitat preferences and diet of qualifying bird species in the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar and Thorne and Hatfield Moors SPA.

Table 8. Habitat Preferences and Diet of Qualifying Bird Species of the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar and Thorne and Hatfield Moors SPA

Designated Bird Feature	Habitat Preferences[5]	Diet
Bewick's swan	Lakes, ponds and rivers, also farmland and estuaries on migration	Plant material (e.g. tubers, shoots, leaves) in water or flooded pasture
Golden plover	Tundra, wet moor, on migration **pasture** and estuaries	Invertebrates, especially beetles, earthworms, feeds extensively at night

[5] Habitat types or foraging items that are likely to be present within the Order limits are marked in bold.

Designated Bird Feature	Habitat Preferences[5]	Diet
Ruff	Grassy tundra, lakes, **farmland**, on migration mudflat	Invertebrates, especially insects, some plant material (especially winter)
Teal	Lakes, marshes, ponds and shallow streams	Omnivorous, mostly seeds in winter, feeds mostly at night in shallow water
Wigeon	Marsh, lakes, open moor, on migration also estuaries	Mostly leaves, shoots, rhizomes, also some seeds
Whimbrel	Tundra, moor, heath, on migration marsh and estuary	Invertebrates and plant material according to availability; rarely probes deeply
Shoveler	Shallow lakes, marsh, reedbed and wet meadow	Omnivorous, esp. small insects, crustaceans, molluscs, seeds; filters particles with sideways sweeping of bill
Pochard	Lakes and slow rivers on migration also estuaries	Mostly plant material, also small animals
Avocet	Mudflats, lagoons, sandy beaches	Invertebrates, especially insects, crustaceans, worms, but also small fish; sweeps bill from side to side, prey located by touch
Bittern	Reedbed and marshes	Mostly fish, amphibians, insects but wide variety, mostly in shallow water in or near cover
Hen harrier	Moor, marsh, steppe and **fields**	**Mostly, small birds, nestlings and small rodents**
Marsh harrier	Marsh and reedbeds; increasingly nests in **arable farmland**	Animals from ground, especially in marshy areas, preference for easily caught prey
Little tern	Seacoasts, rivers and lakes	Small fish and invertebrates, often hovers before plunge-diving
Bar-tailed godwit	Coastal tundra, on migration mudflats, flooded fields	Invertebrates, esp insects, molluscs, crustaceans and worms

Designated Bird Feature	Habitat Preferences[5]	Diet
Dark-bellied brent goose	Tundra, on migration marshes and estuaries	Eelgrass (*Zostera*), also vegetation by grazing on land or shallow water
Ringed plover	Sandy areas with low vegetation, on migration estuaries	Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs
Grey plover	Tundra, on migration primarily estuaries and other coastal habitats	Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs
Pink-footed goose	Overwintering habitats include river floodplains, wet grassland, **pasture** and **arable fields**	Changing diet in the overwintering period. **Cereal grains** in stubble fields (early autumn), roots and tubers (late autumn), **grass** and **cereal shoots** (spring)
Nightjar	Habitat generalist preferentially foraging in non-forest habitats, such as **semi-natural grassland** and **arable fields**	Wide range of invertebrates (e.g. **moths**, **flies** and **beetles**) caught on the wing

5.3.9 Overall, the following Habitats Sites within the ZoI of the Scheme are sensitive to the potential loss of functionally linked habitat and are taken forward into the following sections:

a. **Thorne and Hatfield Moors SPA**;

b. **Humber Estuary SPA/Ramsar**; and

c. **Lower Derwent Valley SPA/Ramsar**.

5.4 Atmospheric Pollution

5.4.1 Construction and decommissioning of the proposed Scheme has the potential to affect air quality. This is primarily expected due to emissions associated with exhaust emissions from construction vehicles and equipment.

5.4.2 The main pollutants of concern for Habitats Sites are NOx, NH_3 and sulphur dioxide (SO_2) – see Table 9. NH_3 can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges (Ref. 33). NOx can also be toxic to vegetation at very high concentrations (far above the annual average Critical Level). Furthermore, high levels of NOx and NH_3 are likely to increase the total nitrogen (N) deposition, potentially leading to deleterious knock-on effects in recipient ecosystems. An increase in N deposition from the atmosphere is widely known to enhance soil fertility, leading to eutrophication. This often has adverse effects on plant community composition and the overall quality of

semi-natural, nitrogen-limited terrestrial and aquatic habitats (Ref. 34 and Ref. 35).

Table 9: Main Sources and Effects of Air Pollution on Habitats and Species

Pollutant	Source	Effects on Habitats and Species
SO_2	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980 s. Another origin of SO_2 is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the biggest contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 background levels have fallen considerably since the 1970 s and are now not regarded a threat to plant communities. For example, decreases in SO_2 concentrations have been linked to returning lichen species and improved tree health in London (Ref. 36).
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, NH_3 and hydrochloric acid (HCl). Acid deposition from rain has declined by 85% in the last 20 years, with most of this contributed by lower sulphate levels. Although future trends in SO_2 emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced SO_2 levels.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds/plants. Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes and from some chemical processes and vehicle exhausts. It is a naturally occurring trace gas, but	The negative effect of NH_4^+ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For

Pollutant	Source	Effects on Habitats and Species
	ammonia concentrations are directly related to the distribution of livestock. Ammonia reacts with acid pollutants such as the products of SO_2 and NOx emissions to produce fine ammonium (NH_4+) – containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
NOx	Nitrogen oxides are mostly produced in combustion processes. Half of NOx emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 µg/m^3 (micrograms per cubic metre). Deposition of nitrogen compounds (nitrates (NO_3), NO_2 and nitric acid (HNO_3)) contributes to the total N deposition and may lead to both soil and freshwater acidification. In addition, NOx contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
N deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) N emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.

Pollutant	Source	Effects on Habitats and Species
	The N pollutants together are a large contributor to acidification (see above).	N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40 ppb (parts per billion) ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife and can affect buildings. High O_3 concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.

Source: Air Pollution Information System (www.apis.ac.uk)

5.4.3 SO_2 emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as shipping (particularly on a local scale). There will be no material release of SO_2 in the construction, operational or decommissioning phases of the Scheme. Therefore, this atmospheric pollutant is not considered further in this NSER.

5.4.4 NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions) and some vehicles also emit NH_3. The main air quality impact of the Scheme is likely to occur in the construction and decommissioning phases, when construction traffic will lead to the temporary emission of NOx, NH_3 and an overall increase in total N deposition. According to the World Health Organisation (WHO), the Critical Level for NOx for the protection of vegetation is 30µgm^{-3} (micrograms per cubic metre) and the Critical Level for NH_3 when lower plants are present is 1µgm^{-3} (Ref. 37). In addition, ecological studies have determined Critical Loads[6] for atmospheric nitrogen deposition (NOx combined with NH_3).

5.4.5 The Department of Transport's Transport Analysis Guidance (Ref. 15) states that beyond 200 m, the contribution of vehicle emissions from the roadside to local pollution levels is insignificant (refer to Plate 2). This is the distance that is used in this NSER to screen for potential atmospheric pollution impacts associated with the Scheme.

[6] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.

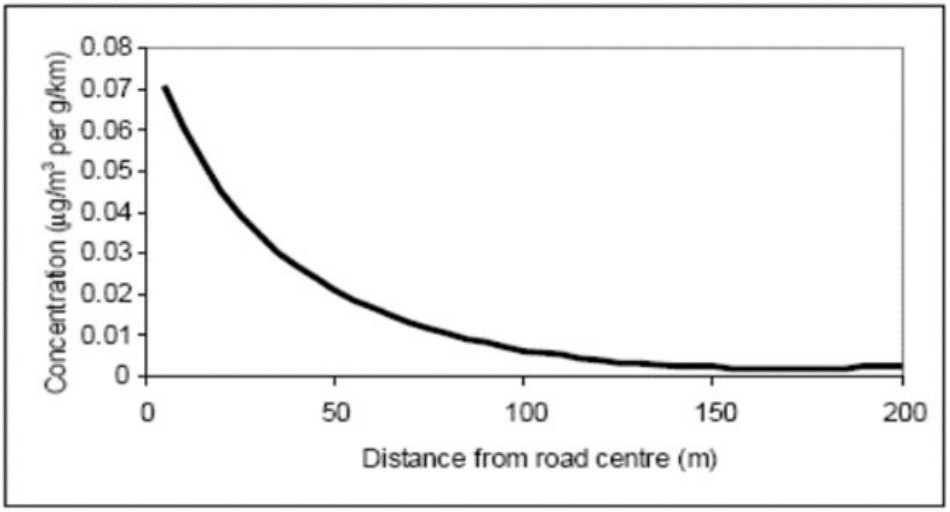


Plate 1: Traffic contribution to concentrations of pollutants at different distances from a road

5.4.6 Overall, the following Habitats Sites within the ZoI of the Scheme are sensitive to atmospheric pollution and are taken forward into the following sections:

a. **Thorne Moor SAC**;
b. **Hatfield Moor SAC**;
c. **Thorne and Hatfield Moors SPA**; and
d. **Humber Estuary SAC/SPA/Ramsar**.

Dust Deposition

5.4.7 Construction and decommissioning activities can generate dust emissions from operating machinery that can cause localised smothering of vegetation or potential health issues in fauna. The effects of dust will depend on the prevailing wind direction, and the transport distance is related to particle size. Dust particle size and chemical composition is important as smaller particles can enter or block stomata and thus interfere with gas exchange, while sufficient coverage may prevent light penetration to the chloroplasts.

5.4.8 Fauna is exposed to air pollutants via three pathways: 1) inhalation of gases or small particles; 2) ingestion of particles suspended in food or water; or, 3) absorption of gases through the skin. It is likely that birds are even more susceptible to gaseous pollutant injury than mammals due to their higher respiratory rates.

5.4.9 For the purposes of screening, according to guidance from the Institute of Air Quality Management (IAQM) (Ref. 14), with respect to possible effects due to dust, "…*an assessment will normally be required where there is…an 'ecological receptor' within: 50 m of the boundary of the site; or 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s)*". In their advice regarding this NSER, Natural England indicated that the potential for dust impacts should be considered up to 200 m from dust-generating activities.

5.4.10 Overall, the following Habitats Sites within the ZoI of the Scheme are sensitive to dust deposition and are taken forward into the following sections:

a. **Thorne Moor SAC**;
b. **Hatfield Moor SAC**;
c. **Thorne and Hatfield Moors SPA**; and
d. **Humber Estuary SPA/Ramsar**.

5.5 Introduction of Invasive Non-Native Species (INNS)

5.5.1 An ‘invasive species’ is a species that is: 1) non-native (or alien) to the ecosystem under consideration, and 2) whose introduction causes or is likely to cause economic or environmental harm, or harm to human health. They can be introduced to an area from various sources, such as ship ballast water, accidental release, construction vehicles and, most often, people. Invasive species can lead to the extinction of native plants and animals, destroy biodiversity, and permanently alter habitats. Any construction project can introduce INNS if inadequate biosecurity protocols are followed, particularly when working in the riverine environment.

5.5.2 Overall, the following Habitats Sites within the ZoI of the Scheme are sensitive to the introduction of INNS and are taken forward into the following sections:

a. **Humber Estuary SAC/SPA/Ramsar**.

6. HRA Stage 1: Screening for Likely Significant Effects

6.1 Introduction

6.1.1 This section evaluates whether the Scheme will result in LSEs on the qualifying features of the River Derwent SAC, Lower Derwent Valley SAC, Lower Derwent Valley SPA/Ramsar and Humber Estuary SPA/Ramsar/SAC. This section only considers impact pathways for which any or all of these European sites have been identified to lie within the ZoI of the Scheme.

6.2 Construction and Decommissioning Phases

Noise and Visual Disturbance (Functionally Linked Habitat)

6.2.1 A range of construction and decommissioning activities will be required for the Scheme, which will involve the presence of site staff and usage of heavy machinery within the Order limits. These activities have the potential to result in noise and visual disturbance to sensitive ecological receptors. The Site Improvement Plan (SIP) for the Humber Estuary SPA/Ramsar (Ref. 21) specifies disturbance as a threat to the integrity of the site, but focuses on recreational disturbance from dog walkers, birders and offroad vehicles at key locations. The accompanying Supplementary Advice on Conservation Objectives (SACO) (Ref. 38) expands on the site's sensitivity to disturbance caused by human activity. It specifies that "…*disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures."* Disturbance is also highlighted as a key threat to the Conservation Objectives of the Lower Derwent Valley SPA/Ramsar and Thorne and Hatfield Moors SPA in the relevant SIPs and SACOs. Significant disturbance is defined to occur where it changes the local distribution/abundance of qualifying birds on a continuing or sustained basis. Given the considerable distances of the SPAs/Ramsars to the Order limits, disturbance to birds within designated site boundaries can be ruled out.

6.2.2 However, disturbance impacts to birds foraging or roosting in functionally linked habitats must also be considered. While the Order limits lies beyond the core foraging distances for all qualifying birds in the Thorne and Hatfield Moors SPA and Lower Derwent Valley SPA/Ramsar (this is further discussed in the section on potential loss of functionally linked habitat), pink-footed goose from the Humber Estuary may forage in agricultural fields up to 20 km from their coastal roosting locations. The Order limits comprises extensive tracts of agricultural land and two seasons of non-breeding bird survey have been undertaken to determine the extent to which pink-footed goose are using habitats adjoining the Order limits. The available bird records indicate that use of the Order limits by pink-footed goose is sporadic at best (as evidenced by only one flock of foraging pink-footed goose being recorded within the Order limits over the two survey seasons). Furthermore, the number of birds recorded within the Order limits (peak count of 67 individuals) was far below the 1% threshold of the WeBS count for the Humber Estuary (most recent 5-year moving average). A peak count of 360 birds was recorded on a single occasion in a field north of the River Went in November 2023, amounting to 1.5% of the Humber Estuary population.

However, this was a single record of a flock approximately 200 m from the PC area and which flew east and beyond the limits of the Survey Area a short while after being recorded. No flocks of that size have been recorded in the Survey Area or Survey Buffer on other occasions. Therefore, it is concluded that agricultural and pasture fields within and adjoining the Order limits are not of significance in terms of functional linkage to the Humber Estuary SPA/Ramsar, with no potential for material visual and noise disturbance impacts to its pink-footed goose population.

6.2.3 Several general characteristics of construction-related disturbance to non-breeding birds must also be considered. It is also noted that any noise and visual disturbance to pink-footed goose would only occur in the first tier of fields adjoining the Order limits. These fields will experience similar disturbance levels from routine farming operations. For example, tractors and other agricultural machinery, with similar noise levels than those generated by tracked excavators (the noisiest type of plant used in the construction phase), will frequently operate in arable plots adjoining the Order limits (e.g. for ploughing, fertilising, spraying and harvesting). This implies that noise levels may, at any time, increase beyond the 55 dB threshold above which disturbance may (though not necessarily will) occur. In practice, elevated noise levels in sub-sections of adjacent fields are considered to be part of the ‘normal’ baseline soundscape associated with the existing agricultural use. In practise, qualifying geese are likely to move to less disturbed parts of affected fields or different fields during periods of elevated noise exposure. Additionally, birds that have historically used particularly disturbed areas or fields, may be habituated to higher noise levels and have significantly higher tolerance thresholds.

6.2.4 Noise and visual disturbance is of particular relevance when construction/decommissioning works are undertaken at the edge of the Order limits, with any works carried out towards the centre of the Scheme having little disturbance potential outside the Order limits. All noise-generating activities carried out for the Scheme will be temporary, with works in a given area typically completed in a matter of weeks. Overall, LSEs of the Scheme on the Humber Estuary SPA/Ramsar regarding noise and visual disturbance to pink-footed goose in functionally linked habitats can be excluded. This impact pathway is screened out from AA.

6.2.5 The Lower Derwent Valley SAC, Humber Estuary SAC and River Derwent SAC are designated for a range of aquatic and/or semi-aquatic species, including sea lamprey, river lamprey, bullhead and otter. All these species are mobile and likely to be frequently using functionally linked habitats beyond the designated site boundary. Otter are known to have extensive home ranges, having been recorded between 12 and 80 km for males (Ref. 39), while both lamprey species are anadromous and expected to use the entire continuum of watercourses from the Humber Estuary to the upper reaches of the River Derwent.

6.2.6 The habitat use of otter is largely confined to river water channels and adjoining banks, where holts and couches represent their most sensitive habitat features. It is considered that the highest proportion of otter activity will occur within or alongside the main rivers adjoining the Order limits, including the River Went (runs along the northern extent of the Solar PV Site) and River Don (adjoins the eastern extent of the Grid Connection Corridor). While they are likely to be of less importance, some otter activity

may also occur along the network of streams of ditches traversing the Order limits, including Fleet Drain, Fenwick Common Drain (both traversing the Solar PV Site), Mill Dike, Wrancarr Drain, Engine Dike and Thorpe Marsh Drain (all traversing the Grid Connection Corridor).

6.2.7 However, while otter are present along the major watercourses adjoining or minor watercourses traversing the Scheme (for example, one otter holt was recorded on the River Went along the northern boundary of the Order limits), these otter are not considered be part of the qualifying population of the River Derwent SAC and Lower Derwent Valley SAC. The shortest hydrological link between the River Derwent SAC and the River Went running past the Scheme is approximately 31 km, downstream along the River Ouse and then back upstream along the Dutch River and River Went. The River Ouse at Goole is very wide and highly tidal, and it is, therefore, considered very unlikely that commuting SAC otter would reach the area surrounding the Scheme via this route. The Dutch River at Goole is also a highly engineered and straightened watercourse, which is unlikely to be preferred commuting/foraging habitat for otter. While it is theoretically feasible that SAC otter could reach the Scheme via other convoluted hydrological routes, this would still involve the crossing of the River Ouse near Barmby on the Marsh, which is a wide a relatively wide waterbody in this area. Otter are widespread and commonly found outside SACs, so there is no reason to assume otter present around the Scheme are linked to the SAC populations.

6.2.8 Following a detailed appraisal of available otter commuting links, it is considered very unlikely that SAC otter would be present in the aquatic environment potentially being impacted by the Scheme. Therefore, LSEs of the Scheme on the River Derwent SAC and Lower Derwent Valley SAC regarding noise/visual disturbance to otter are excluded. This impact pathway is screened out from AA.

6.2.9 While bullhead from the River Derwent SAC may move a limited distance beyond the designated site boundary, they will not be present in aquatic habitats adjoining the Scheme, which would require swimming upstream in the River Don; bullhead are not strong swimmers so this is unlikely. Disturbance impacts to this species are not considered further in this NSER. However, qualifying river lamprey and sea lamprey from the Humber Estuary SAC periodically migrate to upstream spawning grounds and the SAC is hydrologically connected to the River Don and River Went (anadromous migration to the latter would involve swimming upstream in the River Don initially). According to the Don Catchment Rivers Trust, sea lamprey regularly occur in the River Don while river lamprey are still listed as missing due to lack of suitable habitat and water quality.

6.2.10 The Scheme will not involve in-river works, which are considered to have the largest potential for altering the underwater soundscape. Furthermore, no HDD crossings of the River Don and River Went are proposed, the main freshwater bodies in the vicinity of the Scheme. The Order limits is permeated by various smaller streams, ditches and dikes, all of which are hydrologically connected to the River Don and River Went. However, electrofishing surveys carried out in Fleet Drain, Fenwick Common Drain, Ellwood and Fenwick Grange Drain, Hawkhouse Green Dike and Mill Dike, did not identify any protected fish species in these watercourses **(ES Volume III Appendix 8-6: Aquatic Ecology Report [EN010152/APP/6.3])**. Three-

spined stickleback, nine-spined stickleback, stone loach and pike were the only recorded fish species. Therefore, it is considered that vibration disturbance impacts from HDD crossings to river lamprey and sea lamprey within these smaller watercourses can be excluded and there is no potential for LSE.

6.2.11 However, two HDD locations (one crossing Thorpe Marsh Drain and another traversing water features to the west of Thorpe Bank) in the Grid Connection Corridor are situated directly adjoining the River Don. Due to their proximity to this watercourse, there is the potential that acoustical energies from the HDD launching locations will result in substrate vibration along the western bank of the river, which in turn could translate to material particle motion in the water column.

6.2.12 Both species can be impacted by underwater sound which can either be impulsive or continuous in nature and can cause a variety of impacts to fish, ranging from severe physical injury (e.g. rupture of the swim bladder), physical damage to the auditory system (e.g. temporary shifts in hearing thresholds) to behavioural changes, such as disruption of migratory behaviours. Bottom-dwelling species that spend a large proportion of time near substrate are most likely to be negatively impacted by vibration-inducing construction activities. However, lamprey species lack swim bladders and are considered to be low hearing sensitivity fish. Generally, they are less susceptible to barotrauma because they detect particle motion rather than sound pressure.

6.2.13 Notwithstanding this, vibration disturbance to sea and river lamprey is considered here, specifically in relation to individuals that occur in aquatic habitat that is functionally linked to the Humber Estuary SAC. The two lamprey species differ in their core migratory periods, the times during which they are most sensitive to vibration impacts. Following metamorphosis, both lamprey species undertake their seaward migration from early autumn to late winter (September to February). The return of reproductively active river lamprey to upstream spawning locations occurs between October and December, whereas upstream movement of sea lamprey takes place in April and May.

6.2.14 A literature review of the vibration disturbance risks associated with HDD was undertaken by AECOM. This indicates that while there is some evidence for behavioural impacts and physical injury from underwater noise generated by particular construction activities (typically from pile driving, dredging and seismic surveying – construction activities with much larger noise profiles that will not be undertaken for the Scheme), there is little to no evidence of harm from substrate vibration. Based on the likely acoustical energies associated with the Scheme, it is highly unlikely to result in any material substrate vibration or associated noise in the water column that would result in behavioural or physical impacts to lamprey given the large volumes of substrate between the HDD pits and the river (a minimum setback distance of 10 m and a minimum depth of 1.5 m below the bed level, increasing to 5 m for Mill Dike, Wrancarr Drain, Engine Dike and Thorpe Marsh Drain due to the connectivity to the River Don). It should also be noted that the actual drilling activity associated with HDD will be temporary and short-term, with the entire drilling process typically completed within approximately one week.

6.2.15 Therefore, it is concluded that there is no potential for the Scheme to result in LSEs on the Humber Estuary SAC regarding noise disturbance to qualifying fish in the construction or decommissioning phases.

Water Quality

6.2.16 Two of the most important factors influencing the likelihood of potential water quality impacts of developments are the presence of a hydrological connection with and flowpath distance to Habitats Sites. The construction or decommissioning of the Scheme will encompass staggered works across the Order limits with varying distances to the River Went and River Don, the main watercourses flowing into the Humber Estuary SAC/SPA/Ramsar. Furthermore, the Scheme is permeated by various agricultural ditches, drains and dykes, some of which are likely to be ephemeral. However, some ditches and drains may, at times, carry significant volumes of water with hydrological linkages to the River Don and River Went. The shortest distance in hydrological flowpath is via the River Went to the north of the Solar PV Site, which feeds into the SAC/SPA/Ramsar approximately 15.6 km downstream. While, at this distance, attenuation processes and dilution would reduce the volume of toxic and non-toxic pollutants reaching the Habitats Sites, there would still be scope for residual pollutants of reaching sensitive habitats and species.

6.2.17 All aquatic ecosystems are sensitive to water pollution from a wide range of substances, including toxic contaminants, non-toxic contaminants (e.g. nutrients) and sediments. Negative changes in water quality have the potential to directly impact on SAC habitats and species, as well as resulting in cascading effects on SPA/Ramsar wildfowl. The SIP for the Humber Estuary SAC/SPA (Ref. 21) specifies water pollution as the main pressure/threat to its site integrity, comprising both non-toxic and toxic pollutants. There has been a long-standing annual Dissolved Oxygen (DO) sag in the tidal River Ouse, which results in the failure of water quality targets and represents a potential barrier to the upstream migration of sea lamprey. Several point sources (e.g. Capper Pass, Barton and Barrow clay pits) contribute toxic pollutants, such as heavy metals and tributylin.

6.2.18 The Humber Estuary SAC/SPA SACOs both provide further background on the sensitivity of their qualifying features to water pollution, including from toxic contaminants, nutrients, reduced DO concentration and increased turbidity. For example, the coastal lagoons feature in the SAC is particularly sensitive to toxic contaminants, because lagoons are pollutant sinks with limited hydrological exchange with open coastal waters. Most SAC habitats are highly sensitive to increases in turbidity, which result from higher volumes of material being suspended in the water column. High turbidity reduces the amount of light reaching the seabed, level of photosynthesis taking place and nutrient concentrations available to local communities. It can also contribute to fish disease, clogging of filtering organs of suspension feeders and coating of the seabed.

6.2.19 Direct water quality impacts on qualifying waterfowl and waders in the Humber Estuary SPA/Ramsar are unlikely. Water pollution impacts on birds are primarily mediated indirectly through impacts on foraging resources. For example, sedimentation of the riverbed can decrease interstitial flows, reducing oxygen availability for sediment-dwelling invertebrates and, potentially, the pool of foraging resources to non-breeding birds.

Furthermore, most bird species are visual predators, meaning they must visually locate their prey in the riverbed and/or water column.

6.2.20 While it is noted that the Scheme is associated with a range of risks to water quality, there is a legal obligation for construction projects to address water quality impacts. Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses irrespective of whether Habitats Sites are present in the vicinity or not. Therefore, measures to protect the health of the wider aquatic environment will be delivered (set out in the **Framework Construction Environmental Management Plan (CEMP) [EN010152/APP/7.7]**) accompanying the DCO submission), which will also extend protection to the Humber Estuary SAC/SPA/Ramsar.

6.2.21 For example, the following measures will be adopted by the Scheme to minimise the mobilisation of fine particulates in runoff (note this list is not exhaustive):

a. Use and maintenance of temporary lagoons, tanks, bunds and fabric silt fences;

b. Development of a temporary drainage system to prevent contaminated surface runoff from entering land drains and water features within and adjoining the Order limits;

c. Storage of excavated topsoil and subsoil a minimum of 20 m from watercourses or, where this is not possible, adequate covering of stockpiles with geotextile mats and/or seeding to promote vegetation growth;

d. Washing and cleaning of equipment/plant in designated areas within the Scheme where water can be intercepted and treated prior to discharge; and

e. Production of a Water Management Plan that details how water quality will be monitored pre, during and post construction.

6.2.22 The potential for the spillage and leakage of toxic water pollutants (e.g. fuels, oils, chemicals) will be mitigated through implementation of the following measures (note this list is not exhaustive):

a. Adoption of special care with the delivery of concrete and cement since its highly corrosive and alkaline;

b. Storage of fuel and other polluting substances in self-bunded containers or in impermeable bunded areas (with a minimum capacity of 110% of the capacity of any stored containers);

c. Inspection of plant, machinery and vehicles prior to every use to ensure they are in safe working order; only leak-free equipment will be allowed on Site; use of drip trays or plant nappies under static plant;

d. Use of biodegradable hydraulic oils in equipment operated in or over waterbodies as far as reasonably practicable; and

e. Deployment of spill kits and oil-absorbent materials in mobile plant and at high-risk locations, as well as adequate spill response training of construction workers.

6.2.23 Since these protective measures are not included for the bespoke protection of the SAC/SPA/Ramsar, they can be taken into account at the Screening stage of HRA. Overall, given the adequate delivery of measures to safeguard the general water environment, it is concluded that there will be no LSEs of the Scheme on the Humber Estuary SAC/SPA/Ramsar regarding water quality. This impact pathway is screened out from the AA.

Atmospheric Pollution

6.2.24 Several Habitats Sites in the vicinity of the Scheme are sensitive to atmospheric pollution impacts, including the following:

a. Thorne Moor SAC – designated for active and degraded raised bogs with an established CL of 5-10 kg N/ha/yr;

b. Hatfield Moor SAC – designated for degraded raised bog with a CL of 5-10 kg N/ha/yr;

c. Thorne and Hatfield Moors SPA – designated for nightjar that depend on dry heath and temperate continental *Pinus sylvestris* forest; these habitats are associated with a CL of 5-15 kg N/ha/yr;

d. Humber Estuary SAC – designated for a wide range of habitats, with the most air quality sensitive habitat being 'fixed coastal dunes with herbaceous vegetation' with a CL of 5-10 kg N/ha/yr; although the most relevant habitat for the Scheme is Atlantic saltmarsh (CL of 10-20 kg N/ha/yr); and

e. Humber Estuary SPA/Ramsar – designated for a wide range of breeding and non-breeding bird species, the majority of which depend on Atlantic saltmarsh and, therefore, are associated with a CL of 10-20 kg N/ha/yr.

6.2.25 The construction and decommissioning phases of the Scheme are likely to lead to an increase in the number of vehicles on the local highway network for the duration of the works (refer to **ES Volume I Chapter 2: The Scheme [EN010152/APP/6.1]** and **ES Volume I Chapter 13: Transport and Access [EN010152/APP/6.1]**). IAQM guidance (Ref. 40) sets out criteria to establish the need for an air quality assessment for the construction or decommissioning phase of a development as being a change of HDV (Heavy Duty Vehicle) flows of more than 200 Annual Average Daily Traffic (AADT). In the case of the Scheme, HDVs are equivalent to HGVs (as referred to in **ES Volume I Chapter 13: Transport and Access [EN010152/APP/6.1]**), as construction vehicles will not include large buses or coaches.

6.2.26 A review of the local road network adjoining these Habitats Sites indicates that there are no major roads or other routes that would be used by construction traffic within 200 m of the Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA. The closest major road to the Thorne Moor SAC is the M16 approximately 1.4 km west. The Hatfield Moor SAC lies approximately 368 m west of the A614, the closest major traffic artery (which is also the major road that lies closest to the Thorne and Hatfield Moors SPA at approximately 551 m distance). None of these road links lie within the 200 m screening distance for atmospheric pollution impacts. While it is noted that construction traffic can also lead to a significant increase in construction/decommissioning traffic on minor roads, particularly close to or on access roads to developments, the smaller roads on which such traffic

would converge lie far from these Habitats Sites. Therefore, even without a detailed appraisal of the traffic modelling undertaken for the Scheme, atmospheric pollution impacts on the Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA can be excluded.

6.2.27 Traffic modelling work undertaken for the ES considered the likely routing of HGVs, also known as the Affected Road Network (ARN). This included various road links that are anticipated to receive the highest proportion of traffic increase due to the Scheme. While peak HGV construction flows for 2028 (the busiest construction year for the Scheme) along some road links exceed the 200 AADT threshold, none of these lie within 200 m of a Habitats Site. The ARN's only road link with relevance to a Habitats Site (the Humber Estuary SPA/Ramsar/SAC) is ATC3 on the M62 east of Junction 35, which would lead HGV traffic across the SPA/Ramsar/SAC northeast of Booth. However, modelling data indicate that this road link would only receive a peak increase of 19 AADT, which is far below the 200 AADT screening threshold and only represents a 0.04% increase on the projected 2028 base AADT, and would by its nature be temporary. The traffic movements include all HGVs associated with the construction of the Solar PV Site and Grid Connection Corridor.

6.2.28 Overall, due to traffic modelling undertaken in support of the ES, it is concluded that there will be no LSEs of the Scheme on the Thorne Moor SAC, Hatfield Moor SAC, Thorne and Hatfield Moors SPA and Humber Estuary SPA/Ramsar/SAC regarding atmospheric pollution in the construction and decommissioning phases. This impact pathway is screened out from AA.

Dust Deposition

6.2.29 Operating machinery and techniques employed in the construction or decommissioning phases of the Scheme have the potential to increase local dust levels with knock-on effects on ecological receptors. Dust deposition is of particular concern for plants, due to its direct interference with gaseous exchange by blocking stomata. However, any dust suspended in the water column of aquatic habitats may also affect the turbidity, temperature and other water quality parameters. This can trigger changes in community composition and affect the ability of bird species to feed, many of which are visual foragers.

6.2.30 IAQM guidance (Ref. 14) states that an assessment of dust impacts is usually required where there is an ecological receptor within 50 m of the boundary of a construction (or decommissioning) site or within 50 m of the ARN used by construction or decommissioning vehicles. Furthermore, Natural England have advised on other schemes that the potential impact zone for dust deposition should extend up to 200 m from construction/decommissioning works. The closest Habitats Sites with sensitivity to dust deposition are the Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA. However, there are no roads within 200 m of these sites that form part of the ARN of the Scheme. Therefore, any dust deposition impacts of the Scheme to these Habitats Sites can be excluded.

6.2.31 While it is possible that birds from the Humber Estuary SPA/Ramsar forage in functionally linked agricultural fields adjoining the Order limits, it is

considered that birds foraging in functionally linked agricultural fields are not particularly sensitive to indirect impacts arising from dust deposition (whereas birds associated with aquatic habitats within the designated site boundary are). As highlighted in the previous section on atmospheric pollution, the ARN of the Scheme encompasses the M62, which crosses the Humber Estuary SAC/SPA/Ramsar to the northeast of Booth. Dust released from construction/decommissioning traffic arising from the Scheme could be deposited on qualifying SAC habitats and impede the ability of SPA/Ramsar birds to forage adequately.

6.2.32 The **Framework CEMP [EN010152/APP/7.7]** that is being developed in support of the Scheme comprises an extensive list of measures to minimise negative impacts from dust deposition. Some of the following measures will help minimise the release of dust into the air and, subsequently, the aquatic environment:

a. Dust-generating activities will be carried out as far away from ecological receptors as possible (in this case the River Went and River Don);

b. Stockpiles of earth or other materials will be covered, seeded or fenced to prevent wind whipping;

c. Cutting, grinding and sawing equipment will be fitted with suitable dust suppression techniques, such as water sprays or local extraction;

d. Ensuring an adequate water supply on the Order limits for effective dust/particulate matter suppression;

e. Adequate covering of vehicles entering and leaving the Order limits to prevent the escape of fine particulates; and

f. Use of water-assisted dust sweepers on internal tracks, access roads and local roads to prevent the trackout of fine materials.

6.2.33 These standard mitigation measures have proven effective to prevent the release of excessive amounts of dust from construction sites and will help protect the sensitive aquatic habitats/species in the Humber Estuary SAC. The rates of dust deposition to the River Don and River Went (functionally linked habitat for sea and river lamprey), as well as qualifying intertidal saltmarsh and mudflats in the SAC itself (supporting habitat for SPA/Ramsar birds) would be reduced to acceptable levels. Since these measures are included in the CEMP to safeguard the health of the wider aquatic environment (a legal requirement; see section on water quality), rather than specifically to protect Habitats Sites, they can be taken into account at the Screening stage of the HRA.

6.2.34 Therefore, it is concluded that the Scheme will not result in LSEs on the Humber Estuary SAC/SPA/Ramsar regarding dust deposition and this impact pathway is screened out from AA.

Introduction of INNS

6.2.35 There are several legislative instruments relating to INNS. The purpose of this legislation is to prevent and reduce the negative economic and environmental impacts of these species. Key legislation identifies species for which mitigation is required, specifically:

a. Species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref. 41); and

b. Species of special concern and Schedule 2 species as per the Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (IASO) (Ref. 42).

6.2.36 Taken together, the relevant legislation makes it an offence to plant, or otherwise cause to grow (including allowing to spread) listed species in the wild. If transported off-site, there is a duty of care with regards to the disposal of any part of the plant that may facilitate establishment in the wild and cause environmental harm (as per the Environmental Protection Act 1990 [Ref. 43]).

6.2.37 While it is not illegal to have any of the identified INNS on a property, even when growing on managed land, the spread of Schedule 9 WCA species should be kept under control such that the species is not having an appreciable adverse impact on habitats and their native biodiversity.

6.2.38 Therefore, appropriate biosecurity measures will be implemented while works are carried out during the construction and decommissioning phases of any scheme to prevent the spread of INNS, irrespective of whether there are Habitats Sites in the vicinity. The **Framework CEMP [EN010152/APP/7.7]** considers the potential of the Scheme to introduce and/or spread INNS beyond the Order limits during the construction and decommissioning phases, such as through vehicles, machinery and people. It secures the following mitigation measures to prevent INNS from becoming a significant issue for the wider environment:

a. Completion of pre-construction surveys to provide an update on the presence, if any, and location of any INNS within the Order limits;

b. Establishing a Biosecurity Plan prior to construction which incorporates measures that ensure no INNS are introduced and/or exported from the Order limits (e.g. setting up toolbox talks for construction staff to ensure they can identify INNS and respond accordingly; adequate cleaning of clothing, footwear and vehicles that are used in infested areas; adequate containment, collection and disposal of water used for cleaning contaminated items); and

c. Setting up works exclusion zones around any future infestations of INNS and consulting of a suitably qualified ecologists for advice.

6.2.39 Overall, given that the above measures will be put in place to protect the general environment, LSEs of the Scheme on any Habitats Sites regarding the introduction of INNS can be excluded and this impact pathway is screened out from AA.

6.3 Operation and Maintenance Phase

Loss of Functionally Linked Habitat

6.3.1 The following European sites have been scoped out from further assessment[7]:

6.3.2 Thorne and Hatfield Moors SPA – The site is 9.24 km away from the Order limits with no hydrological connection. The closest main road is 1.7 km to the

[7] Natural England were consulted on the draft HRA on 28 September 2023 and a Discretionary Advice Service response was received on 20 October 2023. No comments were made on scoping out ~~the Skipwith Common SAC,~~ Thorne & Hatfield Moors SPA and Thorne Moor SAC.

east (A161); therefore, air quality impacts can be scoped out due to the lack of a pathway. The site is designated for its breeding population of nightjar *Caprimulgus europaeus* which, although known to fly long distances to feed (up to 6 km from the nest site [Ref. 44] and generally up to 3 km from Thorne and Hatfield Moors SPA), favour deciduous woodland, open oak scrubland, young conifer plantations and heathland. These habitats are absent within the Scheme boundary. Moreover, Natural England internal guidance (Ref. 32) and the Supplementary Advice on the Conservation Objectives for the SAC indicates that the zone of influence for these species is within 3 km of the SPA boundary. For these reasons this site can be scoped out.

6.3.3 Thorne Moor SAC – The site is 9.24 km away from the Order limits with no hydrological connection. The closest major road is over 1 km to the west (M18); therefore, air quality impacts can be scoped out due to the lack of a pathway. For these reasons, plus the non-mobile nature of the qualifying features (i.e. raised bog), this site can be scoped out.

6.3.4 The Thorne and Hatfield Moors SPA is designated for breeding nightjar, which are mobile and utilise a range of foraging habitats beyond the designated site boundary. The Humber Estuary SPA/Ramsar and Lower Derwent Valley SPA/Ramsar are designated for mobile, non-breeding bird species. Many of their qualifying non-breeding bird species will forage or roost beyond the respective designated site boundaries to varying degrees.

6.3.5 The SACO for the Thorne and Hatfield Moors SPA indicates that the location of feeding areas supporting nightjar is often poorly understood. However, monitoring at other Habitats Sites suggests that nightjar focus on particularly rich feeding sites, often avoiding superficially similar habitats closer to their breeding sites. Tagging studies of nightjar in the SPA indicate that birds typically forage within 3 km of the SPA boundary, with only few individuals travelling further off-site. Natural England's guidance on IRZs places breeding nightjar in Bird Group 4 with a maximum foraging distance of up to 4 km. At its closest, the SPA lies approximately 8.6 km from the Order limits, suggesting it is very unlikely that qualifying nightjar from the SPA are using the agricultural fields within the Order limits. Therefore, it is concluded that will be no LSEs of the Scheme on the Thorne and Hatfield Moors SPA regarding the loss of functionally linked habitat.

6.3.6 The Humber Estuary SPA/Ramsar and Lower Derwent Valley SPA/Ramsar lie approximately 14.2 km and 17 km from the Scheme respectively. The SACOs for both Habitats Sites accentuate the importance of foraging habitats beyond the designated site boundaries for overwintering waders and waterfowl. For example, the SACO for the Humber Estuary SPA/Ramsar specifies that the extent, distribution and availability of suitable supporting habitat (both within and outside the site boundary) should be restored to support the breeding and non-breeding bird species throughout all relevant stages of their life cycle, including moulting, roosting, loafing and feeding. It also mentions the types of habitat that support the designated bird species in the overwintering period, which includes inland areas of wet grassland and agricultural land (both of which are present within the Order limits). The bird features in the Lower Derwent Valley SPA/Ramsar have similar requirements for functionally linked roosting and foraging habitats.

6.3.7 At approximately 17 km from the Lower Derwent Valley SPA/Ramsar, the Order limits lie beyond the core foraging ranges for any of the relevant

qualifying species. The qualifying species requiring consideration in relation to the SPA/Ramsar with the largest maximum foraging ranges are golden plover and lapwing. Both species have maximum foraging ranges of between 15-20 km in general Natural England guidance (Bird Group 5 in Natural England's guidance) and are strongly associated with wet grassland and agricultural fields. Moreover, the IRZ advice also highlights that '*Developments affecting functionally linked land more than 10 km from the site are unlikely to impact significantly on designated populations.*' Even if they do forage further, survey data for this project has identified only small numbers of both species within the survey area. Small numbers of lapwing were recorded throughout the survey period, but never more than 38 birds, while a flock of 35 golden plover were recorded on a single occasion in January 2024. In conclusion, there will be no LSEs of the Scheme on the Lower Derwent Valley SPA/Ramsar regarding the loss of functionally linked habitat.

6.3.8 The Humber Estuary SPA/Ramsar lies approximately 14.2 km from the Order limits at its closest, placing it beyond the core foraging distance for most of its qualifying species that have associations with various types of functionally linked habitats (including black-tailed godwit, brent goose, curlew, dunlin, golden plover, lapwing, mallard, redshank, ruff, shelduck, teal, whimbrel, wigeon, greylag goose, little egret, crane, hen harrier and marsh harrier). However, pink-footed goose, which are not listed on the SPA citation but occur at site levels of more than 1% of the national population and, therefore, require consideration, have core foraging ranges of up to 20 km. Pink-footed goose, which arrive in the UK around October, roost on coastal flats, sandbanks and undisturbed water, but forage in extensive areas of farmland. Their diet changes as winter progresses, including cereal grains in stubble fields (early autumn), roots and tubers (e.g. potatoes, carrots; late autumn) and grass/cereal shoots (spring). While foraging, pink-footed goose generally disperse into smaller groups of hundreds to several thousands.

Results of 2022/23 and 2023/24 Non-Breeding Bird Surveys

6.3.9 The Order limits of the Scheme, which is situated in a largely undisturbed rural landscape, encompass extensive tracts of agricultural fields, all of which are potentially suitable for overwintering pink-footed goose. To establish use of the habitats by wintering pink-footed goose, two seasons of non-breeding Vantage Point (VP) bird surveys were carried out within the Order limits (including a 500 m buffer area surrounding the Order limits) between January 2023 to February 2023 and September 2023 to April 2024[8]. The records of pink-footed goose obtained in these surveys are presented in Table 10.

Table 10: Records of Pink-Footed Goose Obtained in 2022/23 and 2023/24 Non-Breeding Bird Surveys

Jan 2023	Feb 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2023	Mar 2023	Aug 2024
0	0	0	67	360	1	0	0	0	NA

[8] It is to be noted that the precise extent of the areas covered differed between the two seasons of non-breeding bird surveys due to changes in the proposed Order limits. However, the data nonetheless provide a useful two-year snapshot of bird use of habitats within and adjoining the Order limits.

6.3.10 The peak count of 360 birds was recorded on a single occasion in a field north of the River Went in November 2023, amounting to 1.5% of the Humber Estuary population. This flock flew east and beyond the limits of the Survey Area a short while after being recorded. These individuals occurred in the survey buffer zone and **not** on any land parcels within the Order limits that are to be developed for the Scheme. Several flocks of pink-footed goose (including one of up to 600 individuals) were observed overflying on migration, but not setting down in the Survey Area.

6.3.11 Only two flocks of pink-footed goose were recorded on the ground foraging within the Order Limits, on single dates in October 2023. A flock of 28 individuals was observed in a pasture field in the northeast of the Order Limits and another flock of 39 birds (totalling a peak monthly count of 67 individuals) foraged in an arable field in the south of the Order Limits. Both flocks occurred at abundances far below the 1% population threshold, the latter representing 0.2% of the Humber Estuary pink-footed goose population[9].

6.3.12 Clearly, the above data indicate that the fields encompassed by the Scheme are utilised by pink-footed goose on an infrequent basis and in low abundances. Pink-footed goose appear to use these fields as a stopover on migration to other parts of the UK, such as is required to accommodate their shifting foraging preferences throughout the overwintering period (from cereals and root vegetables in early to mid-winter to grassland in late winter to spring). If the arable fields were functionally linked to the Humber Estuary SPA/Ramsar, pink-footed goose would have been expected to occur in arable fields within the Order limits more frequently and in higher abundances, particularly in the early winter months.

Conclusion

6.3.13 Non-breeding bird data from two wintering survey seasons (both in terms of peak monthly abundances and frequencies of use), indicate that none of the fields within the Order limits are functionally-linked to the Humber Estuary SPA/Ramsar. While the Order limits lies approximately 14.2 km from the Humber Estuary SPA/Ramsar, which is within the maximum foraging distance for pink-footed goose, it is considered that a large proportion of qualifying individuals will spend most of their time foraging in arable fields and/or pastoral grassland much closer to the SPA/Ramsar.

6.3.14 The potential loss of fields used by pink-footed goose must also be viewed in the context of the South Yorkshire arable landscape, which provides extensive areas cropped with cereals and root vegetables. Only an exceedingly small proportion of the overall arable foraging resource will be impacted. Furthermore, the suitability of individual fields will change frequently depending on cropping and harvesting regimes, which makes it unlikely that specific fields (i.e. the ones covered by the Solar PV Site) form a key foraging resource for pink-footed goose.

6.3.15 Overall, there will be no LSEs of the Scheme on the Humber Estuary SPA/Ramsar regarding the loss of functionally-linked habitat for pink-footed

[9] As per the most recent WeBS 5-year moving average for the site.

goose in the operation and maintenance phase[10]. This impact pathway is screened out from AA.

Visual Disturbance (Within Functionally Linked Habitats)

6.3.16 The operation and maintenance phase of the Scheme, including any maintenance activities required, has the potential to result in visual disturbance to mobile qualifying birds overflying or utilising habitats adjoining the Solar PV Site. It should be noted that the non-breeding bird surveys undertaken in support of the Scheme, indicate that the fields within and adjoining the Order limits are only used infrequently and by a small number of pink-footed goose. Over two seasons of surveying, only a single observation of pink-footed goose exceeded the 1% threshold of the Humber Estuary SPA/Ramsar population. While the area adjoining the Order limits is not considered functionally linked to the SPA/Ramsar, this impact pathway is considered here for completeness.

6.3.17 Visual disturbance to SPA/Ramsar birds can arise through various pathways. For example, the presence of Solar PV Panels may visually disturb birds that are foraging in close-by arable fields, particularly where species have a known preference for expansive open vistas. In turn, such disturbance may lead to reduced foraging times or, if sufficiently great, individuals abandoning formerly suitable foraging plots (known as 'disturbance displacement'). However, unlike wind turbines, Solar PV Panels have much shorter heights (maximum height of up to 3.5 m) and, therefore, are unlikely to be regarded as disturbing elements in the landscape. Furthermore, the height of the Solar PV Panels falls within that of existing habitat features in the landscape, such as hedgerows, trees and more extensive treelines, and surveys for the Scheme have recorded only small numbers of SPA/Ramsar birds meaning any change in openness would not affect them significantly. Therefore, it is considered that the Solar PV Panels will not result in any material impacts on qualifying birds through obstruction of flight corridors, reduction in openness and disturbance in adjoining functionally linked habitat parcels.

6.3.18 It is anticipated that there will be up to two permanent site staff in the operation and maintenance phase, based at the Operations and Maintenance Hub. Additional staff and/or visitors will be present on an ad hoc basis when needed, equating to an average of four additional workers per month. Maintenance works would include periodic vegetation management, equipment maintenance and repair works. Therefore, any potential for visual disturbance from maintenance works would be minimal, intermittent and at or below the level of disturbance from farming practices pre-construction, particularly when only considering the small zone along the edge of the Order limits in which visual disturbance to adjoining habitats would be relevant. Overall, therefore, maintenance activities required for the Scheme would not result in visual disturbance impacts to functionally linked habitats.

[10] Technically it should be noted that the loss of functionally linked habitat commences in the construction phase when site staff and construction plant is likely to lead to noise and visual disturbance to birds using arable habitat within the Order limits (assessed as a separate impact pathway). Furthermore, emerging development structures will lead to the physical disappearance of the usable habitat area. Some degree of functionally linked habitat loss will also continue into the decommissioning phase, when activities within the Scheme would continue to lead to the loss of usable habitat. However, any loss of functionally linked habitat will not be permanent outside the operation and maintenance phase and this impact pathway is, therefore, not assessed for the construction/decommissioning phases.

6.3.19 Cumulatively, the Solar PV Panels associated with the Scheme comprise an extensive surface with the potential to reflect sunlight. There is some indication that Solar PV Panels may be associated with several ecological knock-on effects. For example, in specific conditions, reflected polarised light is attractive to some polarotactic insects, which may attempt to lay eggs on what they perceive as a water surface (Ref. 45). In turn, this may impact qualifying bird species that forage on these insects (although it is to be noted that neither golden plover or pink-footed goose are birds that feed on the wing), resulting in increased energy expenditure and injury/death through collision with the Solar PV Panels. Furthermore, there is evidence that some birds may be at heightened collision risk as they approach reflective surfaces to drink (Ref. 46).

6.3.20 **ES Volume I Chapter 2: The Scheme [EN010152/APP/6.1]** provides background on the design specifications of the Scheme. It identifies that the Solar PV Panels comprise two layers of toughened, low reflectivity glass. Given that reflection from the Solar PV Panels will be minimal due to the technology utilised, this would further reduce any glint and glare effects on overflying birds.

6.3.21 Furthermore, it is considered that qualifying birds are likely to transit through the landscape surrounding the Scheme on a broad front, as there are no topographical and geographical features that would concentrate bird movements in particular corridors. The exposure time to any potential glint and glare from polarised light will be extremely low and this impact pathway has been scoped out from further assessment in the ES.

6.3.22 **ES Volume III Appendix 14-2: Glint and Glare Assessment [EN010152/APP/6.3]** has been undertaken to evaluate the potential of the Scheme to result in undesirable solar reflections at a range of receptors (e.g. residential, road and rail). It is accepted that these receptors are different in geographic location and sensitivity than overflying or landing birds, but they represent the best available data to evaluate the potential magnitude of solar reflection impacts on birds. The results of the Glint and Glare Assessment indicate that there is no potential for impacts with actual visibility at any of the identified receptors, providing corroborating evidence for the low impact potential to qualifying birds.

6.3.23 Overall, there will be no LSEs of the Scheme regarding visual disturbance impacts in the operation and maintenance phase, including obstruction of flight movements, disturbance displacement, from maintenance activities and glint and glare. Therefore, this impact pathway is screened out from AA.

Water Quality

6.3.24 The sensitivity of the Humber Estuary SAC/SPA/Ramsar to water quality impacts was established in the relevant LSEs section on the construction and decommissioning phases (Paragraph 6.2.17 and following paragraphs). Furthermore, it was also identified that the Order limits is hydrologically linked to these Habitats Sites via the River Don and River Went. While attenuation and dilution processes will somewhat protect the SAC/SPA/Ramsar from aquatic pollutants, there remains a residual risk of water quality impacts of the Scheme in the operation and maintenance phase.

6.3.25 Water quality impacts may arise from several sources in the operation and maintenance phase of the Scheme, including:

a. Runoff from hardstanding associated with the Scheme, including Field Stations, permanent access roads, link boxes and Solar PV Panels;

b. Maintenance activities, such as the routine cleaning operations required for Solar PV Panels; and

c. Sewage generated by operational site staff.

6.3.26 As highlighted above, various elements of the operational Scheme will encompass impermeable surfaces that may lead to the accumulation and runoff of water containing toxic or non-toxic contaminants. Attenuation of surface runoff from the impermeable surfaces in the BESS Area and On-Site Substation will be delivered through a Framework Drainage Strategy **(ES Volume III Appendix 9-4: Framework Drainage Strategy [EN010152/APP/6.3])** that ensures no net increase in runoff rates and delivers water quality treatment. The key component that will reduce contamination in the BESS Area is a 131 m long swale that runs on a north-south axis along the western side of the BESS Containers. In the On-Site Substation, water quality treatment will be achieved via a 12 x12 m attenuation basin in the southwest, receiving runoff from the filter drain and car park area. Both attenuation features are associated with sufficient mitigation indices for total suspended solids, metals and hydrocarbons.

6.3.27 To prevent pooling of water and runoff channelisation beneath Solar PV Panels (both associated with potential risks to water quality), these will be held above the ground surface on the elevated Solar PV Mounting Structures. This avoids sealing the ground with an impermeable surface layer and allows for continued ground infiltration. Additionally, planting with native grassland mix will ensure that vegetation beneath the Solar PV Panels contributes to the interception and absorption of runoff.

6.3.28 As highlighted in relation to water quality impacts in the construction/decommissioning phases, there is a legal framework that protects all aquatic habitats from pollution. Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses irrespective of whether Habitats Sites are present in the vicinity or not. Since any measures to avoid water quality impacts are included for the protection of the general environment and not specifically to safeguard Habitats Sites, they can be taken into account at the Screening stage of HRA. Therefore, due to the measures discussed above, LSEs of the Scheme on the Humber Estuary SAC/SPA/Ramsar regarding water quality impacts from surface runoff in the operation and maintenance phase can be excluded. This impact pathway is screened out from AA.

6.3.29 It is anticipated that there will be up to two permanent site staff during the operation and maintenance phase of the Scheme, implying that the total volume of sewage generated will be correspondingly low. The Scheme will not have a permanent discharge to existing wastewater treatment infrastructure. Sewage produced in the Operations and Maintenance Hub will be directed to an on-site septic tank for treatment prior to discharge. Any sludge settling on the bottom of the tank would be emptied by road tanker as and when required. Therefore, there will be no release of untreated effluent into the wider aquatic environment. In more distant parts of the Scheme,

where use of the Operations and Maintenance Hub is not feasible, self-contained portable welfare units will be deployed that securely store any sewage produced. These will be emptied by specialist licensed contractors, such that there is no potential for the leakage of untreated sewage into the aquatic environment. Overall, it is concluded that there will be no LSEs of the Scheme regarding water quality impacts from sewage effluent in the operation and maintenance phase. Therefore, this impact pathway is screened out from AA.

6.3.30 Solar PV Panel cleaning in the operation and maintenance phase as part of maintenance activities will be undertaken using a tractor-mounted systems with a rotating ‘car-wash’ type brush, assuming a worst-case, two-year cleaning cycle. The cleaning water will not contain chemical cleaning products due to the risk of damage to Solar PV Panels. Overall, therefore, it is concluded that there will be no LSEs of the Scheme regarding water quality impacts from cleaning of Solar PV Panels in the operation and maintenance phase. Therefore, this impact pathway is screened out from AA.

7. In-combination Assessment

7.1 Introduction

7.1.1 Whilst there is no legal definition of what constitutes a ‘plan’ or ‘project’ for the purposes of the Habitats Regulations, Planning Inspectorate advises in Paragraph 3.12 of Advice Note 10 (Ref. 2) that the following developments should be considered for the HRA in-combination assessment:

a. Projects that are under construction;

b. Permitted application(s) not yet implemented;

c. Submitted application(s) not yet determined;

d. All refusals subject to appeal procedures not yet determined;

e. Projects on the Planning Inspectorate’s National Infrastructure Programme of Projects (Ref. 47); and

f. Projects identified in the relevant development plan (and emerging development plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and the degree of uncertainty which may be present.

7.1.2 The relevant plans and projects with a potential for in-combination effects are shown in Table 11.

Table 11. Plans and Projects with the Potential for In-Combination Effects

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
21/02567/FULM Enso Green Holdings I Limited Installation of a 49.9 MW solar farm and battery storage facility with associated infrastructure on a 133.52 ha site.	4.4 km	No information on anticipated construction start date. Construction phase to last approximately 7 months.	Approved on 15 March 2022	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for the proposal is provided on the City of Doncaster planning portal. However, the HRA Screening for the Scheme (i.e. Fenwick Solar Farm) indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). Measures to be in compliance with legislation will also need to be delivered by in-combination plans and projects. The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
22/01536/FUL and 22/01537/LBC Miles Demolition of Grade II listed 'Lily Hall' and erection of one replacement residential farmworker's dwelling and associated works.	0.2 km	No information on anticipated construction start date. Construction phase to last approximately 10 months.	Approved on 17 November 2023	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for the proposal is provided on the City of Doncaster planning portal.

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate ‘in combination’ with other plans or projects.

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
23/01746/FULM Nel Nicholson Installation of a 180 MW battery energy facility and association works on a 3.70 ha site.	0.5 km	No information on anticipated construction start date. Construction phase to last approximately 18 months.	Approved on 30 April 2024	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for this proposal is provided on the City of Doncaster planning portal. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
19/03034/FULM Carbon Action Ltd/Pilkington UK Ltd Excavation of approximately 4 million tonnes of by-product material comprising mostly silica sand and also soda lime glass and iron oxides (also known as burgy) from previous glass manufacturing and the reinstatement of the	0.6 km	No information on anticipated construction start date and duration. Expected to be operational for a period of up to 40 years.	Pending consideration	There is theoretical potential for effects including noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for this proposal is provided on the City of Doncaster planning portal. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
flood plain, creating new habitats.				the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
20/01774/TIPA BH Energy Gap (Doncaster) Ltd	1.7 km	No information on anticipated construction start date and duration.	Approved on 16 August 2022	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
The construction of an energy recovery facility involving the thermal treatment of residual waste and associated infrastructure including engineering, access, landscape, ground and landscaping works.				construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for this proposal is provided on the City of Doncaster planning portal. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
Ref.23/01082/SCRE Novus Renewable Services Limited Request for a screening opinion in relation to a joint solar farm and energy storage development on approximately 61.7 ha located off The Balk, Almholme, Doncaster.	1.7 km	No information on anticipated construction start date. Construction phase to last approximately 24 months.	Screening Opinion provided on 04 July 2023	There is theoretical potential for effects including noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for this proposal is provided on the City of Doncaster planning portal. The Screening Opinion provided by City of Doncaster Council highlights the potential impact of the solar farm development on overwintering birds associated with aquatic habitats and agricultural landscapes, although it concludes that an Environmental Impact Assessment (EIA) will likely not be required. The HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate ‘in combination’ with other plans or projects.

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
22/02088/FULM P and H Maxwell The installation of a 2.5 MW solar PV array, 0.9 MW green hydrogen plant and associated landscaping	3.9 km	No information on anticipated construction start date. Construction phase to last approximately 3-4 months. Given that the agreed expiry date for the planning consent was May 2023, there is no potential for a construction phase overlap with the Scheme.	Approved on 11 May 2023	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No HRA for this proposal is provided on the City of Doncaster planning portal. The Ecological Impact Assessment (EcIA) provided on the planning portal City of Doncaster Council does not identify hydrological connections to any surface waterbodies or non-breeding bird use of the site. Furthermore, this HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
08/01077/OUTA Yorkshire Choice Homes Construction Outline application for mixed use redevelopment of land at and to the south of Askern Saw Mill comprising the	2.9 km	No information on anticipated construction start date and duration.	Approved on 11 July 2013	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites.

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
erection of up to 220 dwellings, up to 310 sqm of Class A1 use, up to 310 sqm of Class A3 use, up to 560 sqm of Class A4 use, up to 1400 sqm of Class B1(c) use, up to 8550 sqm of Class B2 use and setting out of Public Open Space and a locally equipped area of play and retention of 3.81 ha of open storage area in B8 use and existing building on approximately 15.17 ha of land.				No EIA or HRA for this proposal are provided on the City of Doncaster planning portal. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				effects that may operate 'in combination' with other plans or projects.
23/02634/FULM Enviromena Project Management UK Ltd Installation of ground mounted photovoltaic farm with associated infrastructure, engineering works, access, and landscaping.	8.8 km	No information on anticipated construction start date. Construction phase to last approximately 3-4 months.	Pending consideration	There is theoretical potential for effects including noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. No EIA or HRA for this proposal are provided on the North Yorkshire planning portal. The Preliminary Ecological Appraisal (PEA) completed for the development highlights the presence of arable fields, modified grassland and rivers/streams within the site, which implies there could be potential interactions with the impact pathways identified for the Scheme. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS).

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
NSIP Eggborough CCGT Eggborough Power Limited The construction and operation of a new	6.5 km	Construction was anticipated to start in 2019. Construction phase to last approximately 3 years, with the development being completed by 2022.	Approved on 20 September 2018.	Potential for effects on Habitats sites have been identified regarding noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
CCGT generating station with a capacity of up to 2,500 MW, new gas pipeline to the NTS and other associated development.				and maintenance phase) in relation to the identified Habitats Sites. HRA and ES for this proposal are available online on the Planning Inspectorate website. The HRA undertaken in support of the development identified that surface water quality impacts in the construction phase and operational atmospheric pollution effects were the main impact pathways associated with the proposal. However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
NSIP Helios Renewable Energy Project Enso Green Holdings D Limited The installation of ground mounted solar arrays, energy storage and associated development comprising grid connection infrastructure and other infrastructure	10 km	Construction to start no earlier than 2027. Construction phase to last approximately 12 months, with the development being completed by 2029.	Pending consideration	There is theoretical potential for effects including noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. HRA and ES for this proposal are available online on the Planning Inspectorate website. The HRA accompanying this development assessed the potential for habitat loss and disturbance in relation to the Lower Derwent Valley SPA/Ramsar and Humber Estuary SPA/Ramsar. Data from two seasons of non-

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
integral to the construction, operation, and maintenance of the development for the generation of over 50 MW of electricity.				breeding bird surveys (2021/22 and 2022/23), indicated no regular usage of surveyed fields by qualifying species and with abundances far below the relevant 1% population thresholds (no functional linkage was concluded). Potential visual and noise disturbance impacts on qualifying birds were excluded based on the distance to designated site boundaries and the habitats adjoining the development no constituting functionally linked habitat. Furthermore, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.
NSIP Tween Bridge Solar Farm RWE Renewables UK Solar and Storage Limited The project will comprise the construction, operation, management and decommissioning of a ground mounted solar PV electricity generating facility	10 km	No information on anticipated construction start date and duration.	Pending consideration	There is theoretical potential for effects, including noise/visual disturbance, water quality, atmospheric pollution (dust deposition; all construction/decommissioning phases) and loss of functionally linked habitat (operation and maintenance phase) in relation to the identified Habitats Sites. An EIA Scoping Report for this proposal is available online on the Planning Inspectorate website. The EIA Scoping Report identifies several impact pathways for the construction, operational and decommissioning phases of the development, including supporting habitat

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
exceeding 50 MW output capacity, together with associated works including substation, energy storage and green infrastructure.				loss, temporary disturbance, fragmentation/severance of commuting routes and pollution (e.g. from vehicle movements, dust release and surface runoff). However, the HRA Screening for the Scheme indicates that LSEs of the Scheme can be excluded either due to an effective absence of a linking pathway to Habitats Sites or due to adoption of mandatory measures to protect the general environment (e.g. in relation to water quality, dust deposition and the spread of INNS). The legal requirements to protect water quality and prohibit spread of INNS have been set specifically to account for multiple projects occurring simultaneously. Dust will only affect sites relatively short distance from the works even if the absence of mitigation and the mitigation is designed to entirely reduce large particle dispersion and deposition to trivial levels even when considered alongside other plans or projects. No impact pathways have been screened out on the basis of the individual contribution of the Scheme being inconsequential; for example, SPA/Ramsar bird numbers recorded in surveys are sufficiently low

Application Reference, Name and Description	Approx. Distance from Order limits	Construction Programme	Status of Project	Assessment
				and/or infrequent that the site does not constitute functionally linked land for any SPA or Ramsar site. As such there are no residual effects that may operate 'in combination' with other plans or projects.

8. Conclusions

8.1 Overview

8.1.1 This NSER assessed the potential for the Scheme to result in LSEs on Habitats Sites within 20 km of the Order limits. Overall, 10 Habitats Sites were determined to lie within the potential Zone of Influence of the Scheme, including the Thorne Moor SAC, Hatfield Moor SAC, Thorne and Hatfield Moors SPA, Humber Estuary SAC, Humber Estuary SPA, Humber Estuary Ramsar, River Derwent SAC, Lower Derwent Valley SPA, Lower Derwent Valley Ramsar and Lower Derwent Valley SAC.

8.1.2 LSEs of the Scheme were assessed in the context of these Habitats Sites in relation to the following impact pathways:

a. Noise and visual disturbance (all phases of development; construction, operation and decommissioning);

b. Water quality (all phases of development);

c. Atmospheric pollution (including dust deposition; construction and decommissioning);

d. Introduction of INNS (construction and decommissioning); and

e. Loss of functionally-linked habitat (operation).

8.1.3 LSEs of the Scheme, both alone and in-combination, could be excluded for all impact pathways due to the effective absence of an impact. The following sub-headings outline the key evidence and main conclusions regarding the identified impact pathways.

8.2 Noise and Visual Disturbance – Construction and Decommissioning Phases

8.2.1 This NSER assessed potential construction/decommissioning noise and visual disturbance impacts to qualifying birds associated with the Thorne and Hatfield Moors SPA, Lower Derwent Valley SPA/Ramsar and Humber Estuary SPA/Ramsar. However, the Scheme falls beyond the core foraging ranges for all qualifying species in the Thorne and Hatfield Moors SPA and Lower Derwent Valley SPA/Ramsar, meaning that the area adjoining the Order limits is deemed not to constitute functionally-linked habitat to these Habitats Sites. Therefore, there is not potential for visual and noise disturbance impacts to the qualifying birds for which these sites are designated.

8.2.2 Infrequent observations of low numbers of pink-footed goose, qualifying species of the Humber Estuary SPA/Ramsar, were recorded within the bird survey buffer zone surrounding the Order limits. Given this, arable fields and pasture adjoining the Scheme are not considered to be functionally-linked to the Humber Estuary SPA/Ramsar and no material visual and noise disturbance on pink-footed goose will occur which could give rise to an LSE.

8.2.3 Potential noise and visual disturbance effects of the Scheme in functionally-linked habitats were also considered in relation to qualifying river and sea lamprey (Humber Estuary SAC) and foraging/commuting otter (River

Derwent SAC, Lower Derwent Valley SAC). However, no HDD will cross the River Don and River Went (the main watercourses linked to the Humber Estuary SAC) and other HDD in the Grid Connection Corridor are separated from the water column by a minimum of 10 m, with any vibration impact being sufficiently dampened by the ground. Therefore, it is concluded that there will be no LSEs of the Scheme on the Humber Estuary SAC regarding vibration/noise disturbance to anadromous fish.

8.2.4 It was concluded that the riverbanks and water column of the River Don and River Went are unlikely to represent functionally-linked habitat for commuting otter from the River Derwent SAC and Lower Derwent Valley SAC. While otter are known to have extensive home ranges, the closest direct route for otter from these SACs to the Scheme would require crossing of a tidal part of the estuary at Goole. It is much more likely that the qualifying population in the River Derwent SAC and Lower Derwent Valley SAC are limited to the northern side of the River Ouse. Therefore, it is concluded that there will be no LSEs of the Scheme on the River Derwent SAC and Lower Derwent Valley SAC regarding visual and noise disturbance to otter.

8.3 Water Quality – Construction, Operational and Decommissioning Phases

8.3.1 There are no Habitats Sites with sensitivity to aquatic pollution immediately adjoining the Scheme. However, the Scheme lies in close proximity to the River Don and River Went, both of which are hydrologically linked to the Humber Estuary SAC/SPA/Ramsar some distance downstream. Run-off containing non-toxic (e.g. sediments, nutrients) and toxic (fuels, oils, paints, solvents) pollutants is a risk factor in the construction and decommissioning phases of the Scheme, whereas run-off from impermeable surfaces is identified as a potential water quality threat in the operation and maintenance phase.

8.3.2 However, all development proposals, including the Scheme, are legally obliged to prevent a deterioration in water quality under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, regardless of whether Habitats Sites are present. Therefore, as highlighted in the **Framework CEMP [EN010152/APP/7.7]**, water quality protection measures will be delivered in support of the Scheme that will also safeguard the Humber Estuary SAC/SPA/Ramsar. These measures are not specifically included for the protection of Habitats Sites, and it is therefore permissible to consider them at the Screening stage of HRA.

8.3.3 Overall, it is concluded that there will be no LSEs of the Scheme on the Humber Estuary SAC/SPA/Ramsar regarding water quality in the construction, operational and decommissioning phases. These impact pathways are screened out from AA.

8.4 Atmospheric Pollution (Dust Deposition) – Construction and Decommissioning Phases

8.4.1 A review of the available road network indicated that there are no major roads within 200 m of the Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA, for all of which LSEs regarding atmospheric

pollution could be excluded. Traffic modelling undertaken for the ES highlighted that only one link in the Scheme's ARN fell within 200 m of a Habitats Sites, ATC3 on the M62 east of Junction 35. However, the projected increase in peak HGV AADT flows due to the Scheme amounts to a negligible increase of 0.05% on the 2028 AADT base figure and falls considerably below the 100 AADT screening threshold for potentially significant air quality effects.

8.4.2 Potential dust deposition impacts on habitats that are functionally-linked to the Humber Estuary SAC/SPA/Ramsar were also considered, both in relation to deposition on foraging resources of overwintering birds and the River Don/River Went used by anadromous sea lamprey and river lamprey. However, a range of mitigation measures included in the **Framework CEMP [EN010152/APP/7.7]** (a mandatory inclusion in all development schemes for the protection of the wider water environment) will help prevent the release of excessive amounts of dust from construction sites/vehicles and protect the sensitive aquatic habitats/species in the Humber Estuary SAC/SPA/Ramsar. Therefore, it is concluded that the Scheme will not result in LSEs on the Humber Estuary SAC/SPA/Ramsar regarding dust deposition and this impact pathway is screened out from AA.

8.5 Introduction of INNS – Construction and Decommissioning Phases

8.5.1 The highest risk of introducing INNS is present in the construction and decommissioning phases of the Scheme. It is an offence to plant, distribute or otherwise cause the growth of species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 species as per the Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended). Where there is a risk of introducing or transporting such species off-site, there is a duty of care to prevent their establishment in the wild and cause environmental harm (as per the Environmental Protection Act 1990).

8.5.2 Therefore, to align with this legislation, appropriate biosecurity measures must be implemented during the construction and decommissioning phases of any scheme to prevent the spread of INNS, regardless of the presence of pathways to any Habitats Sites. Therefore, LSEs of the Scheme regarding the introduction of INNS can be excluded and this impact pathway is screened out from AA.

8.6 Loss of Functionally-Linked Habitat – Operation and Maintenance Phase

8.6.1 The potential for the Scheme to result in the loss of habitat that is functionally-linked to the Thorne and Hatfield Moors SPA, Humber Estuary SPA/Ramsar and Lower Derwent Valley SPA/Ramsar was assessed. A review of the IRZs for qualifying species in the Thorne and Hatfield Moors SPA and Lower Derwent Valley SPA/Ramsar indicated that the Order limits falls beyond the core foraging ranges for all relevant qualifying species. Therefore, it was concluded that there is no potential for the Scheme to result in the loss of functionally-linked habitat for these Habitats Sites.

8.6.2 While the Scheme falls within the core foraging range of pink-footed goose (20 km) from the Humber Estuary SPA/Ramsar, two seasons of non-

breeding bird surveys support the conclusion that the arable fields and pasture within the Order limits are not functionally-linked for these species. Records of pink-footed goose were irregular and bird counts were considerably below 1% of the most recent WeBS 5-year annual average (with only a single record in the survey buffer zone exceeding the 1% threshold). Furthermore, extensive tracts of suitable alternative agricultural habitats are available much closer to the Humber Estuary SPA/Ramsar. Overall, it is concluded that the habitats within the Order limits are not functionally-linked to the Humber Estuary SPA/Ramsar and there is no potential for the Scheme to result in LSEs regarding this impact pathway.

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Abbreviations

Abbreviation/Term	Meaning
AIL	Abnormal Indivisible Load
AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
ARN	Affected Road Network
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CL	Critical Load
CJEU	Court of Justice of the European Union
DCO	Development Consent Order
DO	Dissolved Oxygen
EEA	European Economic Area
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
IRZ	Impact Risk Zone
JNCC	Joint Nature Conservation Committee
LSE	Likely Significant Effect
MAGIC	Multi-Agency Geographic Information for the Countryside
MW	Megawatt
NE	Natural England
NH3	Ammonia
NOx	Nitrogen Oxides
NPPF	National Planning Policy Framework
NSER	No Significant Effects Report
NSIP	Nationally Significant Infrastructure Project

Abbreviation/Term	Meaning
NTS	National Transmission System
NUTS	Nomenclature of Territorial Units for Statistics
PA2008	Planning Act 2008
PEA	Preliminary Ecological Appraisal
RIS	Ramsar Information Sheet
SAC	Special Area of Conservation
SACO	Supplementary Advice on Conservation Objectives
SCI	Site of Community Importance
SSSI	Site of Special Scientific Interest
SPA	Special Protection Area
VP	Vantage Point
WCA	Wildlife and Countryside Act 1981
WFD	Water Framework Directive
WHO	World Health Organization
WeBS	Wetland Bird Survey
ZoI	Zone of Influence

Appendix A Figures

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

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LEGEND

Order limits

Land not included in the Order limits

NOTES

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

Indicative Site Layout Over-view Sheet

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

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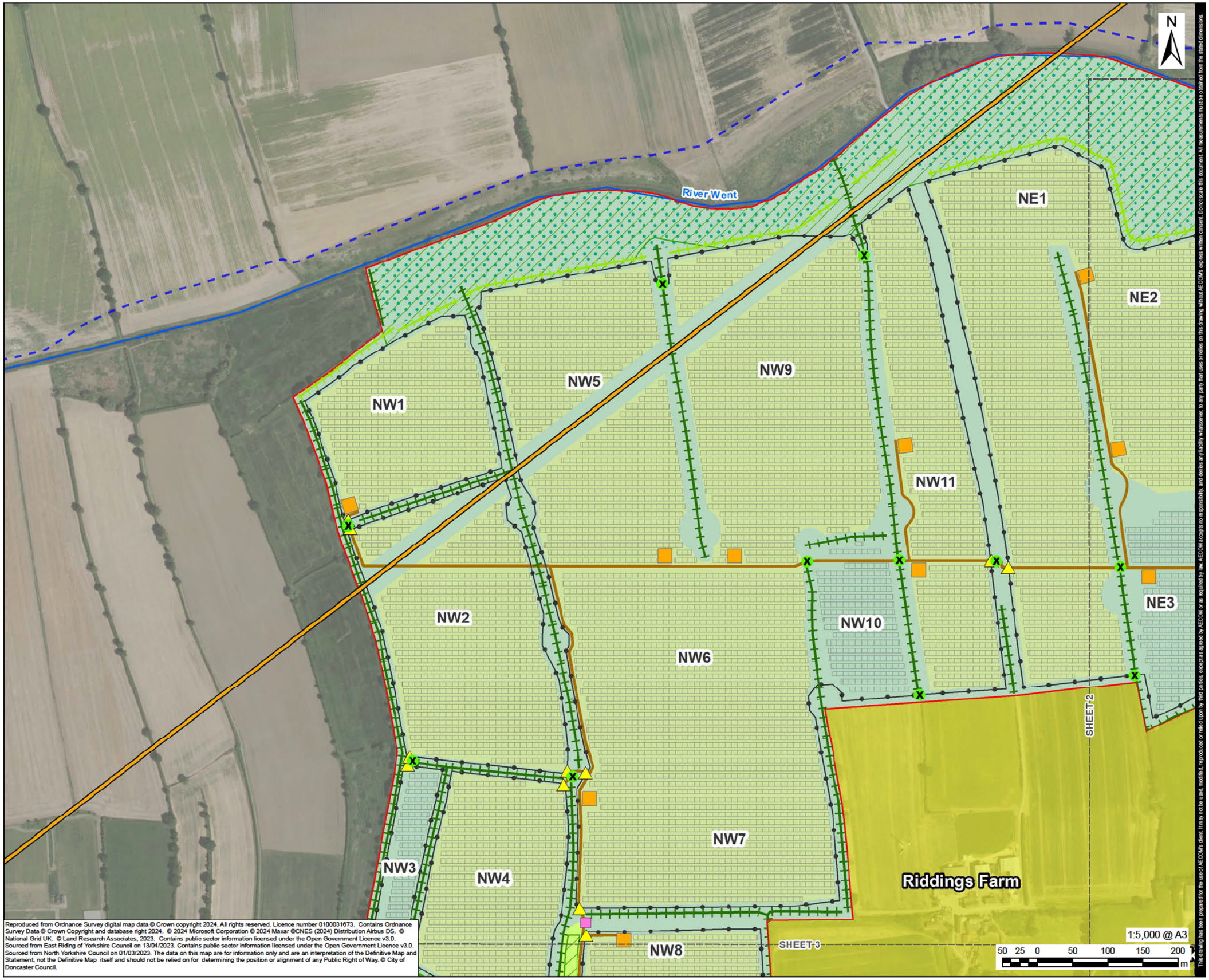

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LEGEND

- Order limits
- Land not included in the Order limits
- Existing Public Right of Way
- Watercourse
- High Pressure Fuel Pipeline
- Solar PV Panels
- Field Station
- Internal Access Track
- Perimeter Fencing
- Access Gate
- Bridge Option
- Hedge Removal
- Ecology Mitigation Area
- Proposed Native Hedgerow / Vegetated Boundary
- Proposed Gapping Up of Existing Hedgerows / Hedgerows with Trees
- Proposed Riparian Edge Hedgerow and Trees
- Conservation and Enhancement of the Existing Open Riparian Mosaic, Including the Creation of Some Wet Grassland
- Proposed Native Scrub
- Proposed Neutral Grassland (Good Condition)
- Proposed Neutral Grassland (Moderate Condition)
- Proposed Modified Grassland

ISSUE PURPOSE

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FIGURE TITLE

Indicative Site Layout Sheet
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Figure 1

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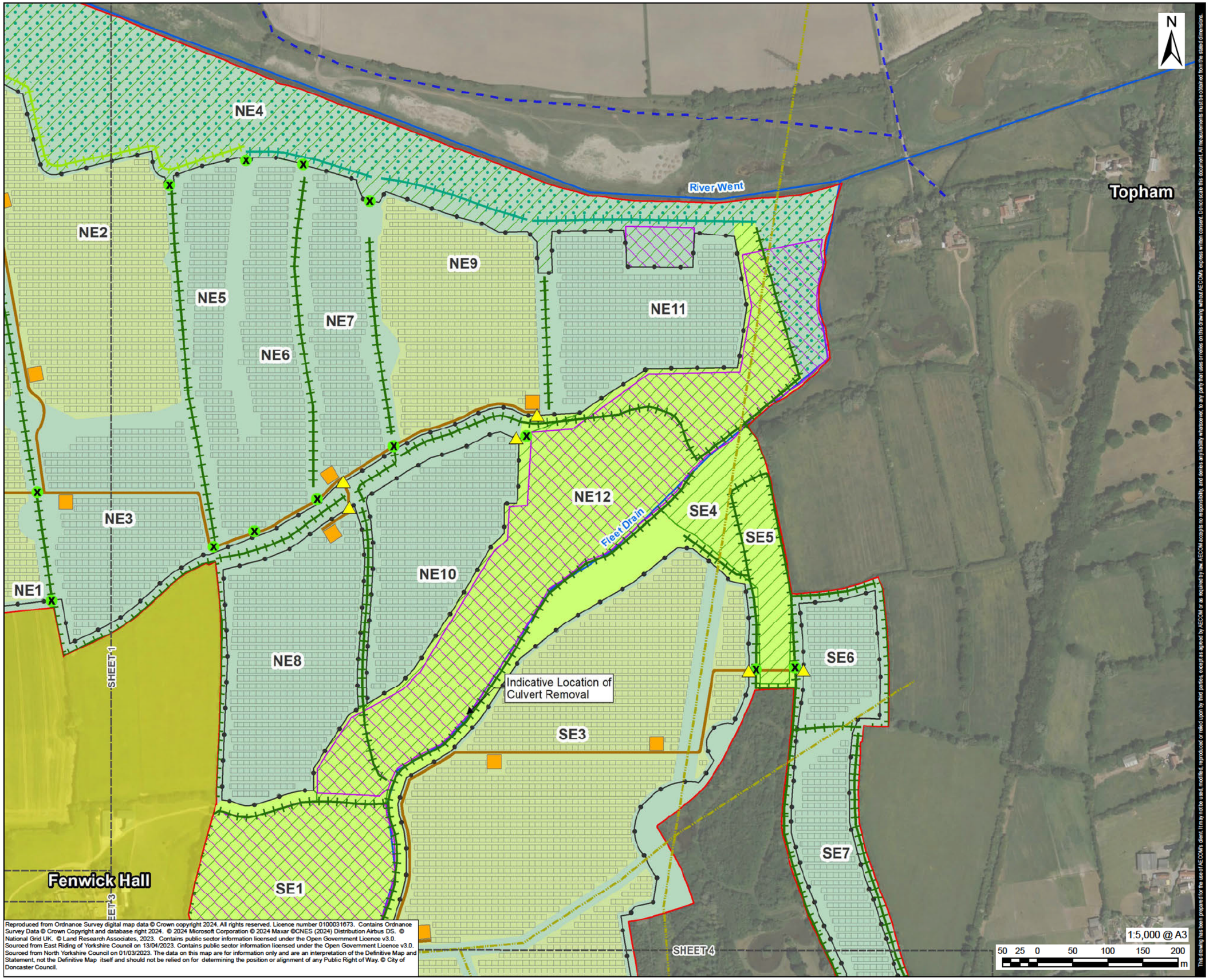

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LEGEND

- Order limits
- Land not included in the Order limits
- Existing Public Right of Way
- Watercourse
- Existing Overhead Line (OHL)
- Solar PV Panels
- Field Station
- Internal Access Track
- Perimeter Fencing
- Access Gate
- Hedge Removal
- Ecology Mitigation Area
- Heritage Buffer Area
- Proposed Gapping Up of Existing Hedgerows / Hedgerows with Trees
- Proposed Riparian Edge Hedgerow and Trees
- Proposed Gapping Up of Hedgerows / Hedgerows with Trees with Wet-Loving Species
- Conservation and Enhancement of the Existing Open Riparian Mosaic, Including the Creation of Some Wet Grassland
- Proposed Neutral Grassland (Good Condition)
- Proposed Neutral Grassland (Moderate Condition)
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FIGURE TITLE

Indicative Site Layout Sheet
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FIGURE NUMBER

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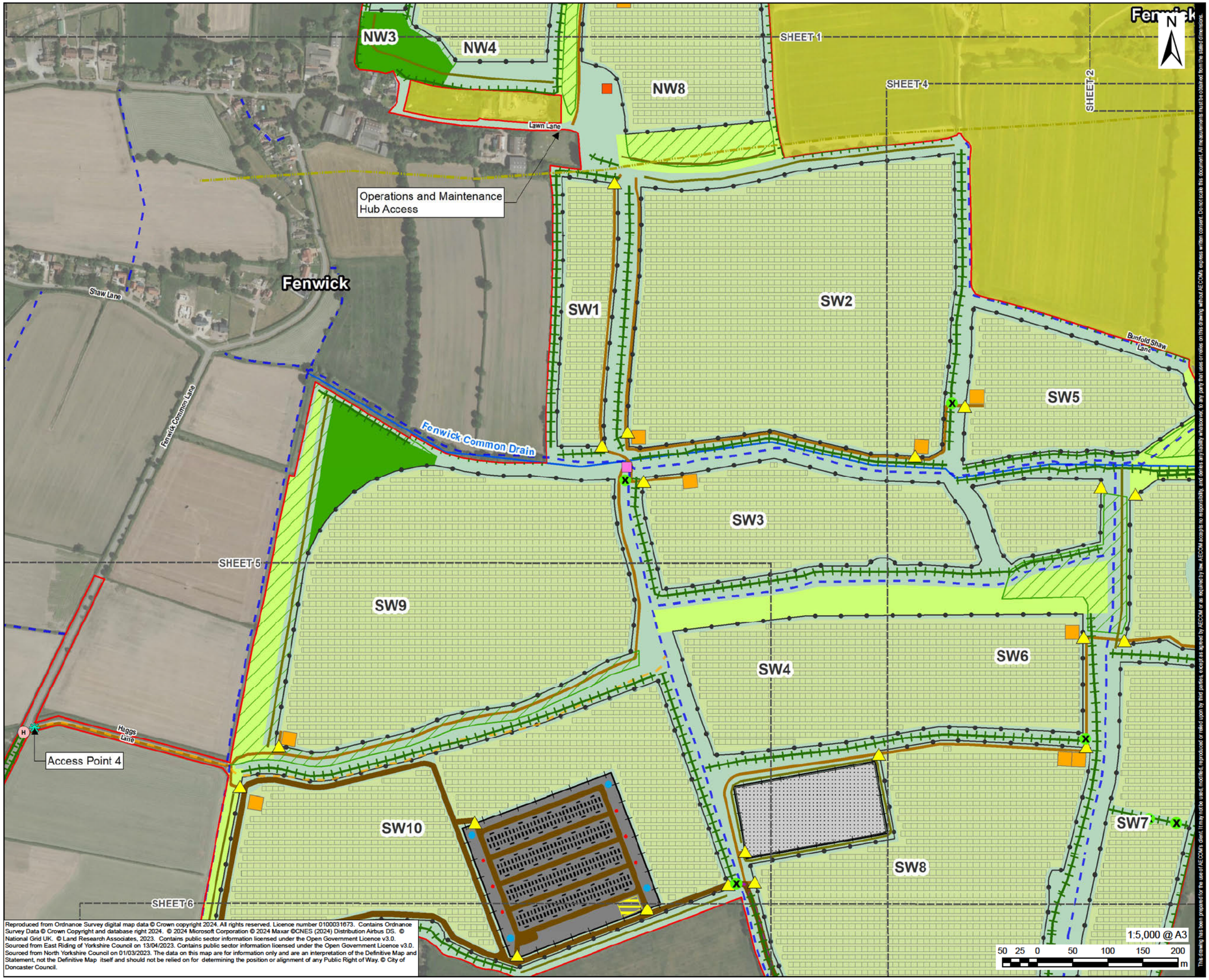

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LEGEND

- Order limits
- Land not included in the Order limits
- Existing Public Right of Way
- Proposed Permanent Public Right of Way Diversion
- Proposed Temporary Public Right of Way Diversion
- Watercourse
- Existing Overhead Line (OHL)
- Solar PV Panels
- Field Station
- Internal Access Track
- BESS Fire Service Access Track
- On-Site Substation
- BESS Area
- BESS
- BESS Control
- Water Tank
- Fire Hydrant
- Operations & Maintenance Hub
- Pallisade Fencing
- Perimeter Fencing
- Site Access
- Access Gate
- Bridge Option
- HGV Access
- Hedge Removal
- Ecology Mitigation Area
- Proposed Native Hedgerow / Vegetated Boundary
- Proposed Gapping Up of Existing Hedgerows / Hedgerows with Trees
- Proposed Native Scrub
- Proposed Neutral Grassland (Good Condition)
- Proposed Neutral Grassland (Moderate Condition)
- Proposed Modified Grassland

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FIGURE TITLE

DRAFT Indicative Site Layout
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FIGURE NUMBER

Figure 3

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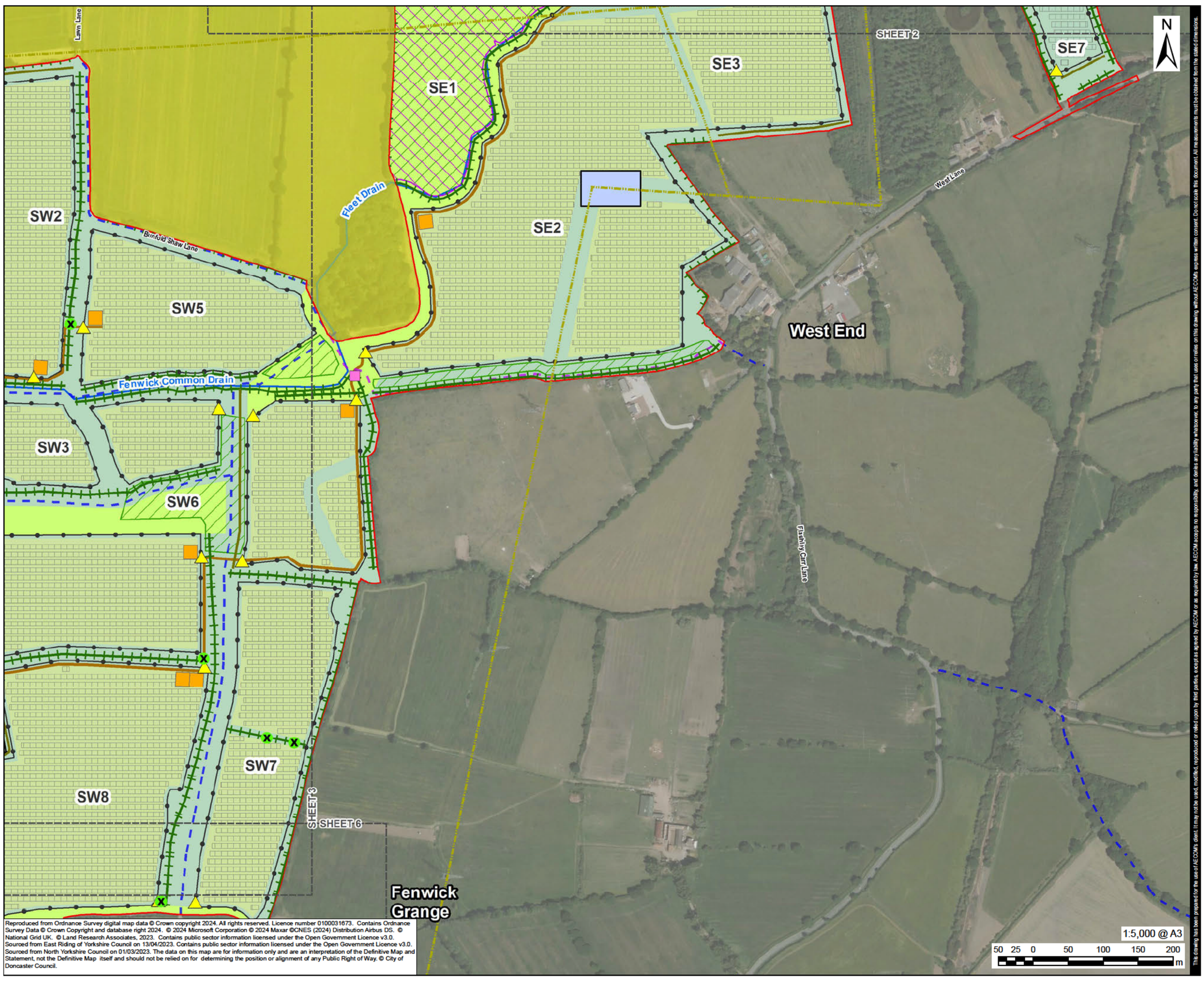

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LEGEND

- Order limits
- Land not included in the Order limits
- Existing Public Right of Way
- Proposed Permanent Public Right of Way Diversion
- Watercourse
- Existing Overhead Line (OHL)
- Solar PV Panels
- Field Station
- Internal Access Track
- On-Site Substation
- Grid Connection Line Drop Compound
- Pallisade Fencing
- Perimeter Fencing
- Access Gate
- Bridge Option
- Hedge Removal
- Ecology Mitigation Area
- Heritage Buffer Area
- Proposed Native Hedgerow / Vegetated Boundary
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- Proposed Neutral Grassland (Good Condition)
- Proposed Neutral Grassland (Moderate Condition)
- Proposed Modified Grassland

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FIGURE TITLE

Indicative Site Layout Sheet
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FIGURE NUMBER

Figure 1

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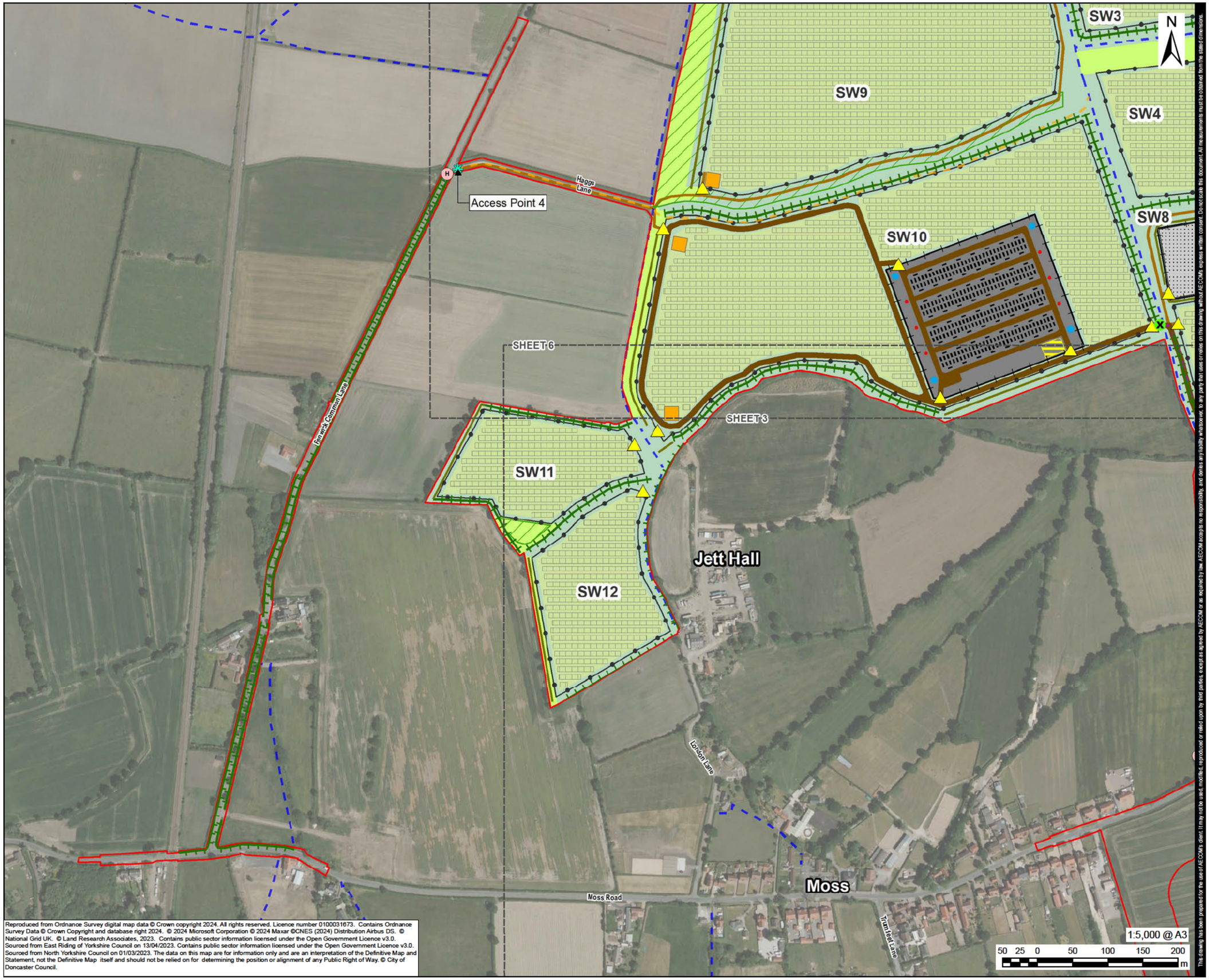

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LEGEND

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- Existing Public Right of Way
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- Field Station
- Internal Access Track
- BESS Fire Service Access Track
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- BESS Area
- BESS
- BESS Control
- Water Tank
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- Proposed Modified Grassland

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FIGURE TITLE

Indicative Site Layout Sheet
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FIGURE NUMBER

Figure 1

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Pinfold Lane
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LEGEND
- Order limits
- Existing Public Right of Way
- Proposed Permanent Public Right of Way Diversion
- Proposed Temporary Public Right of Way Diversion
- Solar PV Panels
- Field Station
- BESS Fire Service Access Track
- BESS Area
- BESS
- BESS Control
- Water Tank
- Fire Hydrant
- Pallisade Fencing
- Perimeter Fencing
- Site Access
- Access Gate
- Bridge Option
- Fire Service Access
- HGV Access
- Hedge Removal
- Ecology Mitigation Area
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- Proposed Neutral Grassland (Moderate Condition)
- Proposed Modified Grassland

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FIGURE TITLE
Indicative Site Layout Sheet
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FIGURE NUMBER
Figure 1

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LEGEND

- Order limits
- Existing Public Right of Way
- Site Access

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

Indicative Site Layout Sheet 7 of 11

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

Filename: I:\5004 - Information Systems\60698207_Fenwick_Solar_Farm\02_Maps\Environmental Statement\HRA\ECO_HRA_Fig3_DRAFT_IndicativeSiteLayoutPlan_A3L_20240919_R0.mxd

AECOM

PROJECT

Fenwick Solar Farm

CLIENT

Fenwick Solar Project Limited

CONSULTANT

AECOM Limited
Midpoint,
Alencon Link
Basingstoke, RG21 7PP
www.aecom.com

LEGEND

- Order limits
- Existing Public Right of Way
- Watercourse
- Site Access

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

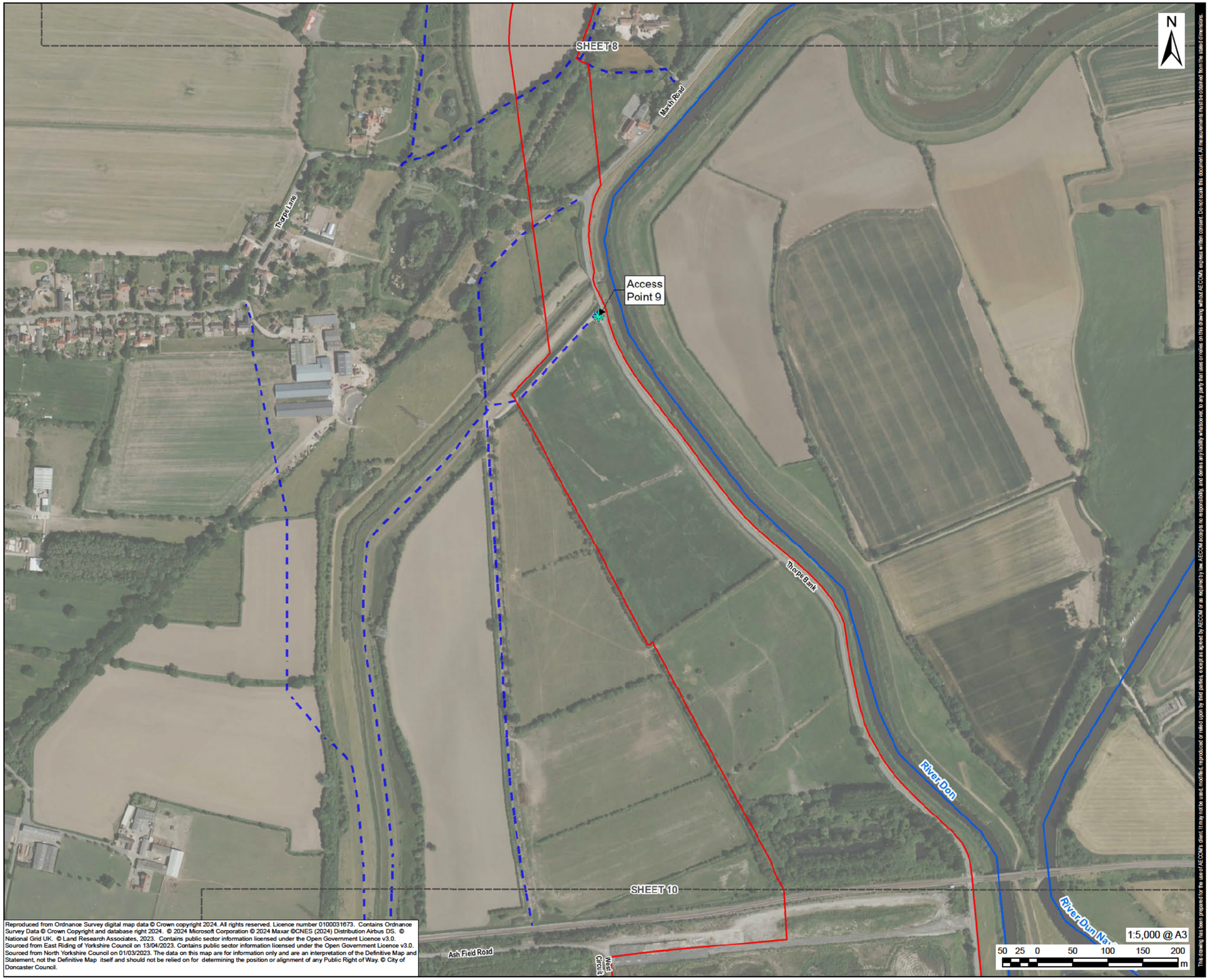
Indicative Site Layout Sheet 8 of 11

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

Filename: 15004 - Information Systems\60698207_Fenwick_Solar_Farm\02_Maps\Environmental Statement\HRA\ECO_HRA_Fig3_DRAFT_IndicativeSiteLayoutPlan_A3L_20240919_R0.mxd



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LEGEND

- Order limits
- Existing Public Right of Way
- Watercourse
- Site Access

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

Indicative Site Layout Sheet
9 of 11

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

Filename: I:\5004 - Information Systems\60698207_Fenwick_Solar_Farm\02_Maps\Environmental Statement\HRA\ECO_HRA_Fig3_DRAFT_IndicativeSiteLayoutPlan_A3L_20240919_R0.mxd

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LEGEND

- Order limits
- Existing Public Right of Way
- Watercourse
- Site Access

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

Indicative Site Layout Sheet 10 of 11

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: AK Approved: DW Date: 2024-09-19

Filename: 15004 - Information Systems\60698207_Fenwick_Solar_Farm\02_Maps\Environmental Statement\HRA\ECO_HRA_Fig3_DRAFT_IndicativeSiteLayoutPlan_A3L_20240919_R0.mxd

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Alencon Link
Basingstoke, RG21 7PP
www.aecom.com

LEGEND

Order limits

Existing Public Right of Way

ISSUE PURPOSE

Habitats Regulation Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

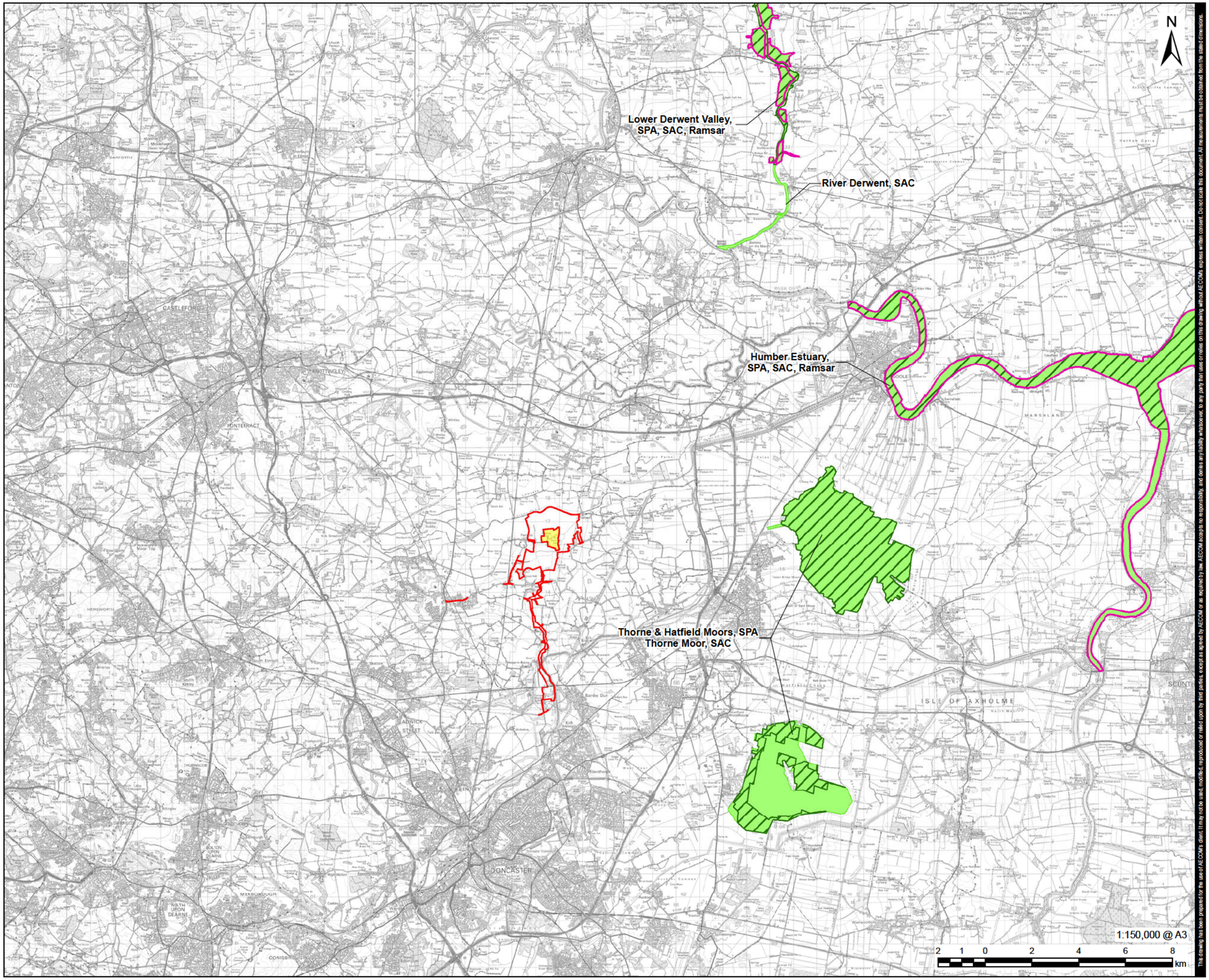
Indicative Site Layout Sheet
11 of 11

FIGURE NUMBER

Figure 1

Revision: 0 Drawn: LP Checked: JW Approved: DW Date: 2024-09-17

Filename: I:\5004 - Information Systems\60698207_Fenwick_Solar_Farm\02_Maps\Environmental Statement\HRA\ECO_HRA_Fig4_HabitatSitesZoneofInfluence_A3L_20240903_R0.mxd



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CLIENT

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LEGEND

- Order limits
- Land not included in the Order limits
- Ramsar
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)

NOTES

ISSUE PURPOSE

Habitats Regulations Assessment

PROJECT NUMBER

60698207

FIGURE TITLE

Habitats Sites within the Zone of Influence of the Scheme

FIGURE NUMBER

Figure 2

Appendix B Table of Habitats Sites and Impact Pathways

Table 12: Summary of impact pathways and qualifying features for each Habitats Site and stage of the Scheme considered in this HRA.

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
Screening	Construction/decommissioning	Noise and visual disturbance	Thorne & Hatfield Moors SPA	a. Nightjar (breeding)
			Lower Derwent Valley SPA	a. Bewick's swan (non-breeding) b. Wigeon (non-breeding) c. Teal (non-breeding) d. Shoveler (breeding) e. Golden plover (non-breeding) f. Ruff (non-breeding) g. Waterbird assemblage
			Lower Derwent Valley Ramsar	**Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (31,942 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Wigeon

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				b. Teal
			Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage
			Humber Estuary Ramsar	**Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck
			River Derwent SAC	a. River lamprey b. Sea lamprey c. Bullhead d. Otter
			Lower Derwent Valley SAC	a. Otter
			Humber Estuary SAC	a. Sea lamprey b. River lamprey
		Water Quality	Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding)

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage
			Humber Estuary Ramsar	**Ramsar criterion 1** Near-natural estuary with various component habitats **Ramsar criterion 3** Breeding colony of grey seal **Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				<u>Ramsar criterion 8</u> The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.
			Humber Estuary SAC	Annex I habitats that are a primary reason for selection of this site: a. Estuaries b. Mudflats and sandflats not covered by seawater at low tide Annex II habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Sandbanks which are slightly covered by sea water all the time b. Coastal lagoons (*priority feature) c. *Salicornia* and other annuals colonising mud and sand d. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Annex II species present as a qualifying feature, but not a primary reason for selection of this site: a. Sea lamprey b. River lamprey c. Grey seal
		Atmospheric pollution	Thorne Moor SAC	Annex I habitats that are a primary reason for selection of this site: a. Degraded raised bogs still capable of natural regeneration

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
		(including dust deposition)	Hatfield Moor SAC	Annex I habitats that are a primary reason for selection of this site: a. Degraded raised bogs still capable of natural regeneration
			Thorne & Hatfield Moors SPA	a. Nightjar (breeding)
			Humber Estuary SAC	Annex I habitats that are a primary reason for selection of this site: a. Estuaries b. Mudflats and sandflats not covered by seawater at low tide Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Coastal lagoons b. *Salicornia* and other annuals colonising mud and sand c. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) d. Spartina swards (*Spartinion maritimae*) e. Embryonic shifting dunes f. Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') g. Fixed coastal dunes with herbaceous vegetation ('grey dunes')
			Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding)

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage (including teal *Anas crecca*, wigeon *Anas penelope*, mallard *Anas platyrhynchos*, turnstone *Arenaria interpres*, pochard *Aythya farina*, brent goose *Branta bernicla bernicla*, goldeneye *Bucephula clangula*, sanderling *Calidris alba*, ringed plover *Charadrius hiaticula*, oystercatcher *Haematopus ostralegus*, curlew *Numenius arquata*, whimbrel *Numenius phaeopus*, grey plover *Pluvialis squatarola*, shelduck *Tadorna tadorna*, greenshank *Tringa nebularia*, lapwing *Vanellus vanellus*[11])
			Humber Estuary Ramsar	**Ramsar criterion 1** Near-natural estuary with various component habitats **Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6**

[11] It is to be noted that only waterbird assemblage species with an identified nitrogen Critical Load range on APIS are listed here.

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck
		Introduction of INNS	Humber Estuary SAC	Annex I habitats that are a primary reason for selection of this site: a. Estuaries b. Mudflats and sandflats not covered by seawater at low tide Annex II habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Sandbanks which are slightly covered by sea water all the time b. Coastal lagoons (*priority feature) c. *Salicornia* and other annuals colonising mud and sand d. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Annex II species present as a qualifying feature, but not a primary reason for selection of this site: a. Sea lamprey b. River lamprey

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
			Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage
			Humber Estuary Ramsar	**Ramsar criterion 1** Near-natural estuary with various component habitats **Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck **Ramsar criterion 8** The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.
	Operation	Loss of functionally linked habitat	Thorne & Hatfield Moors SPA	a. Nightjar (breeding)
			Lower Derwent Valley SPA	a. Bewick's swan (non-breeding) b. Wigeon (non-breeding) c. Teal (non-breeding) d. Shoveler (breeding) e. Golden plover (non-breeding) f. Ruff (non-breeding) g. Waterbird assemblage
			Lower Derwent	**Ramsar criterion 5** Assemblages of international importance

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
			Valley Ramsar	Species with peak counts in winter (31,942 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Wigeon b. Teal
			Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage
			Humber Estuary Ramsar	**Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl)

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				Ramsar criterion 6 Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck
		Visual disturbance (within functionally linked habitats)	Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding) k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
			Humber Estuary Ramsar	**Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck
		Water quality	Humber Estuary SPA	a. Bittern (breeding/non-breeding) b. Shelduck (non-breeding) c. Marsh harrier (breeding) d. Hen harrier (non-breeding) e. Avocet (breeding/non-breeding) f. Golden plover (non-breeding) g. Knot (non-breeding) h. Dunlin (non-breeding) i. Ruff (non-breeding) j. Black-tailed godwit (non-breeding)

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				k. Bar-tailed godwit (non-breeding) l. Redshank (non-breeding) m. Little tern (breeding) n. Waterbird assemblage
			Humber Estuary Ramsar	**Ramsar criterion 1** Near-natural estuary with various component habitats **Ramsar criterion 3** Breeding colony of grey seal **Ramsar criterion 5** Assemblages of international importance Species with peak counts in winter (153,934 waterfowl) **Ramsar criterion 6** Species/populations occurring at levels of international importance Species with peak counts in winter a. Golden plover b. Knot c. Dunlin d. Black-tailed godwit e. Bar-tailed godwit f. Redshank g. Shelduck

HRA Stage	Stage of Scheme	Impact Pathway	Habitats Sites	Qualifying Features
				<u>Ramsar criterion 8</u> The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.
			Humber Estuary SAC	Annex I habitats that are a primary reason for selection of this site: a. Estuaries b. Mudflats and sandflats not covered by seawater at low tide Annex II habitats present as a qualifying feature, but not a primary reason for selection of this site: a. Sandbanks which are slightly covered by sea water all the time b. Coastal lagoons (*priority feature) c. *Salicornia* and other annuals colonising mud and sand d. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Annex II species present as a qualifying feature, but not a primary reason for selection of this site: a. Sea lamprey b. River lamprey c. Grey seal

Appendix C Habitat Site Citations

1. Thorne Moor SAC

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0012915**

SITENAME **Thorne Moor**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
B	UK0012915

1.3 Site name

Thorne Moor

1.4 First Compilation date	1.5 Update date
1995-06	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	1995-06
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

Back to top

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.8975	53.63833333

2.2 Area [ha]:

1911.02

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE1	East Yorkshire and Northern Lincolnshire
UKE3	South Yorkshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

Back to top

3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
7110	X		95.55	0	M	D			
7120			1815.47	0	G	A	B	C	A

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

4. SITE DESCRIPTION

Back to top

4.1 General site character

Habitat class	% Cover
N07	28.0
N16	13.0
N23	32.0
N08	19.0
N06	8.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: nutrient-poor,acidic,peat,clay,peat,acidic,nutrient-poor 2 Terrestrial: Geomorphology and landscape: floodplain,lowland,floodplain,lowland

4.2 Quality and importance

Degraded raised bogs still capable of natural regeneration for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	I01		B
H	J02		B
H	G05		I
H	H04		B
H	K02		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A06		I
H	A02		I
H	A04		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): [redacted]

5. SITE PROTECTION STATUS (optional)

Back to top

5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	54.4	UK04	100.0		

6. SITE MANAGEMENT

Back to top

6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
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7120	Degraded raised bogs still capable of natural regeneration	57
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7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
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9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

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B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
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C	≤ 2%	58

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CODE	DESCRIPTION	PAGE NO
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C	Average or reduced conservation	59

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3.2 Degree of conservation (abbreviated to 'Con.' in data form)

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B	Population not-isolated, but on margins of area of distribution	63
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3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

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C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
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N05	Shingle, Sea cliffs, Islets	65
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N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

2. Thorne & Hatfield Moors SPA

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK9005171**

SITENAME **Thorne and Hatfield Moors**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
A	UK9005171

1.3 Site name

Thorne and Hatfield Moors

1.4 First Compilation date	1.5 Update date
2000-08	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	2000-08
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.898055556	53.63777778

2.2 Area [ha]:

2438.46

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE3	South Yorkshire
UKE1	East Yorkshire and Northern Lincolnshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A224	Caprimulgus europaeus			r	66	66	p		G	C		B	

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N06	10.0
N16	14.0
N08	21.0
N07	28.0
N23	26.0
N17	1.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: sand,peat,clay,nutrient-poor,acidic 2 Terrestrial: Geomorphology and landscape: lowland,floodplain

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Caprimulgus europaeus 1.9% of the GB breeding population 5 count peak mean 1993, 1995-1998

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	E06		B
H	G01		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A02		I
H	B02		I
H	D05		I
H	A06		I
H	A04		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	34.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

X	Yes	Name: Thorne and Hatfield Moors: The Humberhead Peatlands National Nature Reserve (NNR) Management Plan provides management infomation related to this site. This is available from Natural England. Link:
	No, but in preparation	
	No	

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
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3180	Turloughs	57
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A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
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U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
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UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

3. Hatfield Moor SAC

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

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https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0030166**

SITENAME **Hatfield Moor**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
B	UK0030166

1.3 Site name

Hatfield Moor

1.4 First Compilation date	1.5 Update date
2003-03	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	2003-03
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

Back to top

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.943888889	53.54361111

2.2 Area [ha]:

1359.45

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE3	South Yorkshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

Back to top

3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
7120			1196.32	0	G	B	B	C	B

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N23	59.0

N08	9.0
N17	2.0
N06	7.0
N07	12.0
N15	5.0
N16	6.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: peat,nutrient-poor,acidic,sand 2 Terrestrial: Geomorphology and landscape: floodplain,lowland

4.2 Quality and importance

Degraded raised bogs still capable of natural regeneration for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	I01		B
H	G05		I
H	H04		B
H	J02		B
H	K02		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A02		I
H	A04		I
H	D05		I
H	B02		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	23.6	UK04	100.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

X	Yes	Name: Hatfield Moor: The Humberhead Peatlands National Nature Reserve (NNR) Management Plan provides management infomation related to this site. This is available from Natural England. Link:
	No, but in preparation	
	No	

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
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J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
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L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
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UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

4. River Derwent SAC

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

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- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

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Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

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https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE	**UK0030253**
SITENAME	**River Derwent**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0030253

1.3 Site name

River Derwent

1.4 First Compilation date	1.5 Update date
2001-03	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	2001-03
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.927777778	53.9175

2.2 Area [ha]:

397.87

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE2	North Yorkshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

Back to top

3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
3260			0.4	0	G	C	C	B	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site					Site assessment			
G	Code	Scientific Name	S	NP	T	Size	Unit	Cat.	D.qual.	A|B|C|D	A|B|C		

						Min	Max				Pop.	Con.	Iso.	Glo
I	1092	Austropotamobius pallipes			p				P	DD	D			
F	1163	Cottus gobio			p				C	DD	C	B	C	C
F	1099	Lampetra fluviatilis			p				C	DD	C	B	C	B
F	1096	Lampetra planeri			p				P	DD	D			
M	1355	Lutra lutra			p				C	DD	C	B	C	C
F	1095	Petromyzon marinus			p				R	DD	C	C	B	C
F	1106	Salmo salar			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N10	3.0
N06	95.0
N07	2.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: clay,mud,neutral,alluvium 2 Terrestrial: Geomorphology and landscape: valley,floodplain,lowland

4.2 Quality and importance

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation for which the area is considered to support a significant presence. Petromyzon marinus for which the area is considered to support a significant presence. Lampetra fluviatilis for which this is considered to be one of the best areas in the United Kingdom. Cottus gobio for which the area is considered to support a significant presence. Lutra lutra for which the area is considered to support a significant presence.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
	Threats		

Positive Impacts			
	Activities,	Pollution	

Rank	and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	I01		B
H	J02		B
H	H02		B
H	A02		I

Rank	management [code]	(optional) [code]	inside/outside [i|o|b]
H	A02		I
H	A06		I
H	B02		I
H	A03		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	0.7	UK04	100.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

5. Humber Estuary SPA

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE	**UK9006111**
SITENAME	**Humber Estuary**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
A	UK9006111

1.3 Site name

Humber Estuary

1.4 First Compilation date	1.5 Update date
2007-08	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	2007-08
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
0.0569	53.5497

2.2 Area [ha]:

37630.24

2.3 Marine area [%]

89.5

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKZZ	Extra-Regio
UKF3	Lincolnshire
UKE1	East Yorkshire and Northern Lincolnshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment		
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C	
						Min	Max				Pop.	Con.	Iso.
B	A052	Anas crecca			w	2322	2322	i		G	C		C
B	A050	Anas penelope			w	5044	5044	i		G	C		C
B	A053	Anas platyrhynchos			w	2456	2456	i		G	C		C
B	A169	Arenaria interpres			w	629	629	i		G	C		C
B	A059	Aythya ferina			w	719	719	i		G	C		C
B	A062	Aythya marila			w	127	127	i		G	C		C
B	A021	Botaurus stellaris			r	2	2	cmales	P	G	B		C
B	A021	Botaurus stellaris			w	4	4	i		G	B		C
		Branta											

B	A675	bernicla bernicla			w	2098	2098	i		G	C		C
B	A067	Bucephala clangula			w	467	467	i		G	B		C
B	A144	Calidris alba			c	818	818	i		G	B		C
B	A144	Calidris alba			w	486	486	i		G	B		C
B	A672	Calidris alpina alpina			c	20269	20269	i		G	B		C
B	A672	Calidris alpina alpina			w	22222	22222	i		G	B		C
B	A143	Calidris canutus			w	28165	28165	i		G	B		C
B	A143	Calidris canutus			c	18500	18500	i		G	B		C
B	A137	Charadrius hiaticula			c	1766	1766	i		G	C		C
B	A137	Charadrius hiaticula			w	403	403	i		G	C		C
B	A081	Circus aeruginosus			r	10	10	bfemales	P	G	B		B
B	A082	Circus cyaneus			w	8	8	i		G	C		C
B	A130	Haematopus ostralegus			w	3503	3503	i		G	C		C
B	A157	Limosa lapponica			w	2752	2752	i		G	B		C
B	A616	Limosa limosa islandica			w	1113	1113	i		G	B		C
B	A616	Limosa limosa islandica			c	915	915	i		G	B		C
B	A160	Numenius arquata			w	3253	3253	i		G	C		C
B	A158	Numenius phaeopus			c	113	113	i		G	C		C
B	A151	Philomachus pugnax			c	128	128	i		G	C		C
B	A140	Pluvialis apricaria			w	30709	30709	i		G	B		C
B	A141	Pluvialis squatarola			w	1704	1704	i		G	B		C
B	A141	Pluvialis squatarola			c	1590	1590	i		G	B		C
B	A132	Recurvirostra avosetta			w	59	59	i		G	C		B
B	A132	Recurvirostra avosetta			r	64	64	p		G	C		B
B	A195	Sterna albifrons			r	51	51	p		G	B		C
		Tadorna											

B	A048	tadorna			w	4464	4464	i		G	B		C
B	A164	Tringa nebularia			c	77	77	i		G	C		C
B	A162	Tringa totanus			w	4632	4632	i		G	B		C
B	A162	Tringa totanus			c	7462	7462	i		G	B		C
B	A142	Vanellus vanellus			w	22765	22765	i		G	C		C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B	WATR	Waterbird assemblage			153934	153934	i						X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N06	0.6
N03	4.6

N04	0.8
N02	93.6
N07	0.3
Total Habitat Cover	99.89999999999998

Other Site Characteristics

1 Terrestrial: Soil &
Geology: mud,shingle,alluvium,sandstone,sand,neutral,clay,limestone,sedimentary,sandstone,shingle,sand,neut
Terrestrial: Geomorphology and landscape: lowland,floodplain,coastal,lowland,floodplain,coastal 3 Marine:
Geology: sand,gravel,mud,sedimentary,clay,sandstone/mudstone,shingle,limestone/chalk,clay,sedimentary,sanc
Marine: Geomorphology: shingle bar,islands,intertidal sediments (including sandflat/mudflat),cliffs,estuary,intertidal sediments (including sandflat/mudflat),islands,lagoon,estuary,subtidal sediments (including sandbank/mudbank),shingle bar,cliffs

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Botaurus stellaris (Europe - breeding) 10.5% of the population in Great Britain 2000-2002 Circus aeruginosus 6.3% of the population in Great Britain 1998-2002 Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding) 8.6% of the population in Great Britain 1998-2002 Sterna albifrons (Eastern Atlantic - breeding) 2.1% of the population in Great Britain 1998-2002 Over winter the area regularly supports: Botaurus stellaris (Europe - breeding) 4% of the population in Great Britain 1998/9 to 2002/3 Circus cyaneus 1.1% of the population in Great Britain 1997/8 to 2001/2 Limosa lapponica (Western Palearctic - wintering) 4.4% of the population in Great Britain 1996/7 to 2000/1 Pluvialis apricaria [North-western Europe - breeding] 12.3% of the population in Great Britain 1996/7 to 2000/1 Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding) 1.7% of the population in Great Britain 1996/7 to 2000/1 On passage the area regularly supports: Philomachus pugnax (Western Africa - wintering) 1.4% of the population in Great Britain 1996-2000 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Calidris alpina alpina (Northern Siberia/Europe/Western Africa) 1.7% of the population 1996/7 to 2000/1 Calidris canutus (North-eastern Canada/Greenland/Iceland/North-western Europe) 6.3% of the population 1996/7 to 2000/1 Limosa limosa islandica (Iceland - breeding) 3.2% of the population 1996/7 to 2000/1 Tadorna tadorna (North-western Europe) 1.5% of the population 1996/7 to 2000/1 Tringa totanus (Eastern Atlantic - wintering) 3.6% of the population 1996/7 to 2000/1 On passage the area regularly supports: Calidris alpina alpina (Northern Siberia/Europe/Western Africa) 1.5% of the population 1996-2000 Calidris canutus (North-eastern Canada/Greenland/Iceland/North-western Europe) 4.1% of the population 1996-2000 Limosa limosa islandica (Iceland - breeding) 2.6% of the population 1996-2000 Tringa totanus (Eastern Atlantic - wintering) 5.7% of the population 1996-2000 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 153934 waterfowl (5 year peak mean 1991/92-1995/96) Including: Botaurus stellaris , Branta bernicla bernicla , Tadorna tadorna , Anas penelope , Anas crecca , Anas platyrhynchos , Aythya ferina , Aythya marila , Bucephala clangula , Haematopus ostralegus , Recurvirostra avosetta , Charadrius hiaticula , Pluvialis apricaria [North-western Europe - breeding], Pluvialis squatarola , Vanellus vanellus , Calidris canutus , Calidris alba , Calidris alpina alpina , Philomachus pugnax , Limosa limosa islandica , Limosa lapponica , Numenius phaeopus , Numenius arquata , Tringa totanus , Tringa nebularia , Arenaria interpres

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	K01		I
H	I01		B
H	G01		I
H	M02		B
H	M01		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A02		I
H	D05		I
H	B02		I
H	D05		I
H	A04		I
H	A03		I

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes
☐	No, but in preparation
☒	No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

7. MAP OF THE SITES

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INSPIRE ID:

Map delivered as PDF in electronic format (optional)

☐ Yes ☒ No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

6. Humber Estuary Ramsar

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 31 August 2007

3. Country:

UK (England)

4. Name of the Ramsar site:

Humber Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

The boundary has been extended

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

053 32 59 N 000 00 03 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Kingston-upon-Hull

The Humber Estuary is located on the boundary between the East Midlands Region and the Yorkshire and the Humber Region, on the east coast of England bordering the North Sea.

Administrative region: City of Kingston upon Hull; East Riding of Yorkshire; Humberside; Lincolnshire; North East Lincolnshire; North Lincolnshire

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 37987.8

Min. -13
Max. 10
Mean No information available

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 3, 5, 6, 8

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.

It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens (Elymus repens)* saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon.

Ramsar criterion 3

The Humber Estuary Ramsar site supports a breeding colony of grey seals *Halichoerus grypus* at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad *Bufo calamita*.

Ramsar criterion 5

Assemblages of international importance:

153,934 waterfowl, non-breeding season

(5 year peak mean 1996/97-2000/2001)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Eurasian golden plover, *Pluvialis apricaria*

altifrons subspecies – NW Europe, W Continental Europe, NW Africa population

17,996 individuals, passage, representing an average of 2.2% of the population

(5 year peak mean 1996-2000)

Red knot, *Calidris canutus*

islandica subspecies

18,500 individuals, passage, representing an average of 4.1% of the population

(5 year peak mean 1996-2000)

Dunlin, *Calidris alpina*
alpina subspecies – Western Europe (non-breeding) population
20,269 individuals, passage, representing an average of 1.5% of the population
(5 year peak mean 1996-2000)

Black-tailed godwit, *Limosa limosa*
islandica subspecies
915 individuals, passage, representing and average of 2.6% of the population
(5 year peak mean 1996-2000)

Common redshank, *Tringa totanus*
brittanica subspecies
7,462 individuals, passage, representing an average of 5.7% of the population
(5 year peak mean 1996-2000)

Common shelduck, *Tadorna tadorna*
Northwestern Europe (breeding) population
4,464 individuals, wintering, representing an average of 1.5% of the population
(5 year peak mean 1996/7-2000/1)

Eurasian golden plover, *Pluvialis apricaria*
altifrons subspecies – NW Europe, W Continental Europe, NW Africa population
30,709 individuals, wintering, representing an average of 3.8% of the population
(5 year peak mean 1996/7-2000/1)

Red knot, *Calidris canutus*
islandica subspecies
28,165 individuals, wintering, representing an average of 6.3% of the population
(5 year peak mean 1996/7-2000/1)

Dunlin, *Calidris alpina*
alpina subspecies – Western Europe (non-breeding) population
22,222 individuals, wintering, representing an average of 1.7% of the population
(5 year peak mean 1996/7-2000/1)

Black-tailed godwit, *Limosa limosa*
islandica subspecies
1,113 individuals, wintering, representing an average of 3.2% of the population
(5 year peak mean 1996/7-2000/1)

Bar-tailed godwit , *Limosa lapponica*
lapponica subspecies
2,752 individuals, wintering, representing an average of 2.3% of the population
(5 year peak mean 1996/7-2000/1)

Common redshank, *Tringa totanus*
brittanica subspecies
4,632 individuals, wintering, representing an average of 3.6% of the population
(5 year peak mean 1996/7-2000/1)

Ramsar criterion 8
The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
153934 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	17996 individuals, representing an average of 2.2% of the population (1996-2000)
Red knot , *Calidris canutus islandica*, W & Southern Africa	18500 individuals, representing an average of 4.1% of the population (1996-2000)
(wintering)	
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	20269 individuals, representing an average of 1.5% of the population (1996-2000)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	915 individuals, representing an average of 2.6% of the population (1996-2000)
Common redshank , *Tringa totanus totanus*,	7462 individuals, representing an average of 5.7% of the population (1996-2000)

Species with peak counts in winter:

Common shelduck , *Tadorna tadorna*, NW Europe	4464 individuals, representing an average of 1.5% of the population (1996/7 to 2000/1)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	30709 individuals, representing an average of 3.8% of the population (1996/7 to 2000/1)
Red knot , *Calidris canutus islandica*, W & Southern Africa	28165 individuals, representing an average of 6.3% of the population (1996/7 to 2000/1)
(wintering)	
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	22222 individuals, representing an average of 1.7% of the population (1996/7 to 2000/1)

Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	1113 individuals, representing an average of 3.2% of the population (1996/7 to 2000/1)
Bar-tailed godwit , *Limosa lapponica lapponica*, W Palearctic	2752 individuals, representing an average of 2.3% of the population (1996/7 to 2000/1)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, shingle, sand, mud, clay, alluvium, sedimentary, sandstone, sandstone/mudstone, limestone/chalk, gravel, nutrient-rich
Geomorphology and landscape	lowland, coastal, floodplain, shingle bar, intertidal sediments (including sandflat/mudflat), estuary, islands, cliffs
Nutrient status	eutrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Cleethorpes, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/cleethorpes.html) Max. daily temperature: 13.1° C Min. daily temperature: 6.4° C Days of air frost: 29.0 Rainfall: 565.4 mm Hrs. of sunshine: 1521.9

General description of the Physical Features:

The Humber estuary is approximately 70 km long from the limit of saline intrusion on the River Ouse at Boothferry to the estuary mouth at Spurn Head, where it enters the North Sea. The area of the estuary is approx. 365 km2, and it has a width of 6.6 km at the mouth.

The Humber is a macro-tidal estuary with a tidal range of 7.4 m, the second-largest range in the UK and comparable to other macro-tidal estuaries worldwide. It is a shallow and well mixed estuary, with an average depth of 6.5m rising to 13.2 m at the mouth.

The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. Suspended sediment concentrations are high, and are derived from a variety of sources, including marine sediments and eroding boulder clay along the Holderness coast. This is the northernmost of the English east coast estuaries whose structure and function is intimately linked with soft eroding shorelines.

Upstream from the Humber Bridge, the navigation channel undergoes major shifts from north to south banks. This section of the estuary is noteworthy for extensive mud and sand bars, which in places form semi-permanent islands.

The estuary covers the full salinity range from fully marine at the mouth of the estuary (Spurn Head) to the limit of saline intrusion on the Rivers Ouse and Trent)). A salinity gradient from north to south bank is observed in the outer estuary, due to the incoming tide flowing along the north bank, while the fresh water keeps to the south bank as it discharges to the sea. As salinity declines upstream, reedbeds and brackish saltmarsh communities fringe the estuary..

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17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Humber catchment covers an area of ca. 24,240 km2, more than 20% of the land area of England. Average annual precipitation in the upland areas of the catchment is as much as 1000 mm. Average freshwater flow into the Humber estuary from the rivers is 250 m3s-1, ranging from 60 m3s-1 in drier periods to 450 m3s-1 in wet periods. Peak flows of up to 1500 m3s-1 have been recorded during floods. The rivers Trent and Ouse, which provide the main fresh water flow into the Humber, drain large industrial and urban areas to the south and west (River Trent), and less densely populated agricultural areas to the north and west (River Ouse). The Trent/Ouse confluence is known as Trent Falls.

On the north bank of the Humber estuary the principal river is the river Hull, which flows through the city of Kingston-upon-Hull, and has a tidal length of 32 km, up to the Hempholme Weir. The Hull provides only about 1% of the freshwater input to the estuary. On the south bank, the River Ancholme enters the Humber at South Ferriby, but the tide is excluded by a sluice and a tidal lock. Altogether, the total tidal length of rivers and estuary is 313 km.

There are several major urban centres within the river catchments. Nottingham, Leicester, and the West Midlands/Birmingham conurbation are drained by the Trent, the Leeds-Bradford area in West Yorkshire is drained by the Aire/Calder and the Sheffield/Rotherham/Doncaster area in South Yorkshire is drained by the Don. There are also large rural regions, whose populations are currently experiencing high population growth, while the urban areas are showing a small decline. The 1992 population for the Ouse catchment was 4.1 million, and for the Trent catchment was 7.1 million. The population of Humberside, which comprises North and North-east Lincolnshire, the East Riding of Yorkshire, and Kingston-upon-Hull (Hull), was just under 0.9 million. Land use around the estuary itself is 50-98% agricultural, within only two areas of high population/ industry – the major conurbation around Kingston-upon-Hull (Hull) on the north bank, and several large industrial areas around Grimsby/ Immingham/ Cleesthorpes on the south bank.

The area around the Humber estuary is low-lying, and much land-claim of wetlands and supratidal zones, as well as parts of the intertidal zone, was carried out in the past two centuries. The mid to

outer estuary (Humber Bridge to Spurn Point) changed from a region of low water erosion in the 19th century to one of accretion in the 20th century, nonetheless a net loss of intertidal zone of some 3000 ha has taken place since the mid-19th century. Around the estuary some 894 km2 of land are below the 5 m contour, protected by extensive coastal defences. Most of the sediment entering the estuary comes from the North Sea, and a large part of it is believed to come from the continuing erosion of the Holderness Cliffs, which form the coastline to the north of the estuary mouth at Spurn Head. The estuary currently has approximately 1,775 ha of saltmarsh

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
F	Estuarine waters	66.8
G	Tidal flats	26.4
H	Salt marshes	4.7
E	Sand / shingle shores (including dune systems)	0.8
7	Gravel / brick / clay pits	0.5
Q	Saline / brackish lakes: permanent	0.3
J	Coastal brackish / saline lagoons	0.3
Other	Other	0.1
9	Canals and drainage channels	0.01
Y	Freshwater springs	0.01

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Description

Much of the intertidal area of the Humber Estuary consists of mudflats with fringing saltmarsh. There are smaller areas of intertidal sand flats, and sand dunes. The saltmarsh is both eroding and accreting; although coastal squeeze is resulting in net losses, and cord grass Spartina anglica is a major colonising species. In areas of reduced salinity such as the Upper Humber there are extensive areas of common reed Phragmites australis with some sea club-rush Bolboschoenus maritimus. Mid-level saltmarsh tends to be much more floristically diverse, and in the higher level marsh with its dendritic network of drainage channels, salt pans and borrow pits grasses dominate with thrift Armeria maritima where the marsh is grazed by cattle and sheep. Extensive areas of eel grass Zostera marina and Z. nolti have been known to occur at Spurn Bight, although in recent years records are limited. Behind the sandflats of the Cleethorpes coast the mature sand-dune vegetation contains some locally and nationally rare species including chestnut flat sedge Blysmus rufus, bulbous meadow grass Poa bulbosa and dense silky-bent Apera interrupta. The sand dunes, which cap the shingle spit that forms Spurn Peninsula are dominated by marram grass Ammophila arenaria and patches of dense sea buckthorn Hippophae rhamnoides.

Ecosystem services

Aesthetic

Education

Food

Recreation

Storm/wave protection

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species Information

Species Information

Birds

Species currently occurring at levels of national importance:

Great bittern, *Botaurus stellaris*
stellaris subspecies – W Europe, NW Africa (breeding) population
2 booming males, breeding, representing an average of 10.5% of the GB population
(3 year mean 2000-2002)

Eurasian marsh harrier, *Circus aeruginosus*
Europe population
10 females, breeding, representing an average of 6.3% of the GB population
(5 year mean 1998-2002)

Pied avocet, *Recurvirostra avosetta*
Western Europe (breeding) population
64 pairs, breeding, representing an average of 8.6% of the GB population
(5 year mean 1998-2002)

Little tern, *Sterna albifrons*
albifrons subspecies, Western Europe (breeding) population
51 pairs, breeding, representing an average of 2.1% of the GB population
(5 year mean 1998-2002)

Dark-bellied brent goose, *Branta bernicla*
bernicla subspecies
2,098 individuals, wintering, representing an average of 2.1% of the GB population
(5 year peak mean 1996/7-2000/1)

Eurasian wigeon, *Anas penelope*
Northwestern Europe (non-breeding) population
5,044 individuals, wintering, representing an average of 1.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Common teal, *Anas crecca*
crecca subspecies, Northwestern Europe (non-breeding population)
2,322 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Common pochard, *Aythya ferina*
Northeastern & Northwestern Europe (non-breeding) population
719 individuals, wintering, representing an average of 1.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Greater scaup, *Aythya marila*
marila subspecies, Western Europe (non-breeding) population
127 individuals, wintering, representing an average of 1.7% of the GB population
(5 year peak mean 1996/7-2000/1)

Common goldeneye, *Bucephala clangula*
clangula subspecies, Northwestern & Central Europe (non-breeding) population
467 individuals, wintering, representing an average of 1.9% of the GB population
(5 year peak mean 1996/7-2000/1)

Great bittern, *Botaurus stellaris*
stellaris subspecies – W Europe, NW Africa (breeding) population
4 individuals, wintering, representing an average of 4.0% of the GB population
(5 year peak mean 1998/9-2002/3)

Hen harrier, *Circus cyaneus*
Europe population
8 individuals, wintering, representing an average of 1.1% of the GB population
(5 year peak mean 1997/8-2001/2)

Eurasian oystercatcher, *Haematopus ostralegus*
ostralegus subspecies
3,503 individuals, wintering, representing an average of 1.1% of the GB population
(5 year peak mean 1996/7-2000/1)

Pied avocet, *Recurvirostra avosetta*
Western Europe (breeding) population
59 individuals, wintering, representing an average of 1.7% of the GB population
(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*
hiaticula subspecies
403 individuals, wintering, representing an average of 1.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Grey plover, *Pluvialis squatarola*
squatarola subspecies, Eastern Atlantic (non-breeding) population
1,704 individuals, wintering, representing an average of 3.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Northern lapwing, *Vanellus vanellus*
Europe (breeding) population
22,765 individuals, wintering, representing an average of 1.1% of the GB population
(5 year peak mean 1996/7-2000/1)

Sanderling, *Calidris alba*
Eastern Atlantic (non-breeding) population

486 individuals, wintering, representing an average of 2.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Curlew, *Numenius arquata*
arquata subspecies
3,253 individuals, wintering, representing an average of 2.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Ruddy turnstone, *Arenaria interpres*
interpres subspecies, Northeastern Canada & Greenland (breeding) population
629 individuals, wintering, representing an average of 1.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*
psammodroma subspecies
1,766 individuals, passage, representing an average of 5.9% of the GB population
(5 year peak mean 1996-2000)

Grey plover, *Pluvialis squatarola*
squatarola subspecies, Eastern Atlantic (non-breeding) population
1,590 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Sanderling, *Calidris alba*
Eastern Atlantic (non-breeding) population
818 individuals, passage, representing an average of 2.7% of the GB population
(5 year peak mean 1996-2000)

Ruff, *Philomachus pugnax*
Western Africa (non-breeding) population
128 individuals, passage, representing an average of 1.4% of the GB population
(5 year peak mean 1996-2000)

Whimbrel, *Numenius phaeopus*
islandicus subspecies
113 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Common greenshank, *Tringa nebularia*
Northwestern Europe (breeding) population
77 individuals, passage, representing an average of 5.5% of the GB population
(5 year peak mean 1996-2000)

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Aquatic vegetation (e.g. reeds, willows, seaweed)
Archaeological/historical site
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation

Sport fishing
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Public/communal	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	+
Fishing: recreational/sport	+	+
Gathering of shellfish	+	+
Bait collection	+	+
Permanent arable agriculture		+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	+
Industrial water supply	+	+
Industry	+	+
Sewage treatment/disposal	+	+
Harbour/port	+	+

Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Mineral exploration (excl. hydrocarbons)		+
Oil/gas exploration	+	+
Transport route	+	+
Domestic water supply		+
Urban development		+
Non-urbanised settlements		+
Military activities	+	+
Horticulture (incl. market gardening)		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Disturbance to vegetation through cutting / clearing	1	Reedbeds being cut and cleared on margins of pits associated with angling. Management agreements and enforcement to address.	+		
Vegetation succession	1	Lack of reedbed management leading to scrub encroachment. Management agreement to address.	+		
Water diversion for irrigation/domestic/industrial use	1	Abstraction causes reduced freshwater input. Review of consents well advanced but not yet implemented.	+	+	
Overfishing	2	Substantial lamprey by-catch in eel nets in River Ouse.		+	
Pollution – domestic sewage	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. Review of consents well advanced but not yet implemented.	+	+	+
Pollution – agricultural fertilisers	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. To be addressed through Catchment Sensitive Farming Initiatives and implementation of Water Framework Directive.	+	+	+
Recreational/tourism disturbance (unspecified)	1	Particularly illegal access by motorised recreational vehicles and craft. Control through management scheme.	+		

Other factor	1	Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level rise and fixed defences. The Humber Flood Risk Management Strategy has been developed and is being implemented.	+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Overfishing - Overfishing – to be considered through an 'in-combination' assessment of possible factors as part of the Review of Consents exercise.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	+
Management agreement	+	+
Site management statement/plan implemented	+	
Area of Outstanding National Beauty (AONB)		+
Special Area of Conservation (SAC)	+	
IUCN (1994) category IV	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.
Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
Seal populations are monitored by the Sea Mammal Research Unit
Humber Wader Ringing Group
Spurn Bird Observatory
National Nature Reserve monitoring

Environment.
Institute of Estuarine & Coastal Studies, Hull: various
Industrial Concerns: monitoring on behalf of companies such as Associated British Ports and BP
Environment Agency monitoring: various
Geomorphological studies associated with shoreline management planning
National Nature Reserve monitoring

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

There are a four National Nature Reserves with associated facilities within the Ramsar site (Spurn, Far Ings, Donna Nook and Saltfleetby – Theddlethorpe Dunes) and a number of other visitor, information and/or education centres including the Spurn Bird Observatory, the Cleethorpes Discovery Centre, Water's Edge and Far Ings. A wide range of Humber wide and area-specific information is available through a range of media (eg leaflets, displays, internet etc) including 'Humber Estuary European Marine Site Codes of Conduct' developed with a range of stakeholders to cover a range of recreational and educational activities and 'Coastal Futures' – a partnership project working with local communities affected by flood risk and associated issues including managed realignment includes proactive education work within schools.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.
Sailing: marinas at Brough, Winteringham, Hull, Grimsby and South Ferriby.

Bathing etc: Cleethorpes (some 6m visitors/yr).

Walking/Horse riding: throughout

Beach fishing, match sea-fishing, non-commercial bait digging.

Non-commercial samphire collection

Wildfowling

Tourist amusements: Cleethorpes.

Bird watching: throughout but particularly at Blacktoft Sands RSPB reserve and the four National Nature Reserves.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Site-relevant references

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7. Humber Estuary SAC

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0030170**

SITENAME **Humber Estuary**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
B	UK0030170

1.3 Site name

Humber Estuary

1.4 First Compilation date	1.5 Update date
2007-08	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	2007-08
Date site confirmed as SCI:	2008-12
Date site designated as SAC:	2009-12
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.734722222	53.58916667

2.2 Area [ha]:

36657.15

2.3 Marine area [%]

91.6

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE1	East Yorkshire and Northern Lincolnshire
UKF3	Lincolnshire
UKZZ	Extra-Regio

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
1110			1656.9	0	P	C	A	C	C
1130			36657.15	0	G	B	B	B	B
1140			9384.23	0	G	B	B	B	B
1150	X		7.33	0	G	C	C	B	C
1210				0		D			
1310			47.65	0	P	C	C	B	C
1320			135.63	0	G	D			
1330									

			784.46	0	G	C	B	C	C
2110			18.33	0	G	C	A	C	C
2120			14.66	0	G	C	B	C	C
2130	X		14.66	0	G	C	C	C	C
2160			65.98	0	G	C	B	C	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
F	1102	Alosa alosa			p				P	DD	D			
F	1103	Alosa fallax			p				P	DD	D			
M	1364	Halichoerus grypus			p	1800	1800	i		G	C	B	B	C
F	1099	Lampetra fluviatilis			p				P	DD	A	B	C	C
F	1095	Petromyzon marinus			p	251	500	i		M	B	C	C	C
M	1365	Phoca vitulina			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N03	4.4
N07	0.4
N04	0.4
N02	94.9
Total Habitat Cover	100.10000000000002

Other Site Characteristics

1 Terrestrial: Soil & Geology: shingle,sedimentary,sandstone,neutral,mud,sand,alluvium,clay 2 Terrestrial: Geomorphology and landscape: coastal,floodplain,lowland 3 Marine: Geology: gravel,mud,sedimentary,sand,sandstone/mudstone,clay,shingle,limestone/chalk 4 Marine: Geomorphology: shingle bar,lagoon,islands,estuary,subtidal sediments (including sandbank/mudbank),intertidal sediments (including sandflat/mudflat),cliffs

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time for which the area is considered to support a significant presence. Estuaries for which this is considered to be one of the best areas in the United Kingdom. Mudflats and sandflats not covered by seawater at low tide for which this is considered to be one of the best areas in the United Kingdom. Coastal lagoons for which the area is considered to support a significant presence. Salicornia and other annuals colonising mud and sand for which the area is considered to support a significant presence. Atlantic salt meadows (Glauco-Puccinellietalia maritimae) for which the area is considered to support a significant presence. Embryonic shifting dunes for which the area is considered to support a significant presence. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Shifting dunes along the shoreline with Ammophila arenaria (?white dunes?) for which the area is considered to support a significant presence. Dunes with Hippophae rhamnoides for which the area is considered to support a significant presence. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Fixed dunes with herbaceous vegetation (?grey dunes?) for which the area is considered to support a significant presence. Petromyzon marinus for which the area is considered to support a significant presence. Lampetra fluviatilis for which the area is considered to support a significant presence. Halichoerus grypus for which the area is considered to support a significant presence.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	M01		B
H	E02		O
H	J02		B
H	H02		B
H	K01		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	D05		I
H	A02		I
H	B02		I
H	A04		I

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation

advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	1.8	UK04	100.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes
☐	No, but in preparation
☒	No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

8. Lower Derwent Valley SPA

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE	**UK9006092**
SITENAME	**Lower Derwent Valley**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
A	UK9006092

1.3 Site name

Lower Derwent Valley

1.4 First Compilation date	1.5 Update date
1993-06	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	1993-06
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.926111111	53.88444444

2.2 Area [ha]:

1090.87

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE2	North Yorkshire
UKE1	East Yorkshire and Northern Lincolnshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

Back to top

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	G
B	A056	Anas clypeata			r	50	50	p		G	B		C	
B	A052	Anas crecca			w	10	10	Bfemales		G	B		C	
B	A050	Anas penelope			w	9323	9323	i		G	B		C	
B	A037	Cygnus columbianus bewickii			w	47	47	i		G	C		C	
B	A151	Philomachus pugnax			w	133	133	i		G	A		C	
B	A140	Pluvialis apricaria			w	6000	6000	i		G	B		C	

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)

- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B	WATR	Waterbird assemblage			40616	40616	i						X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N07	24.0
N10	65.0
N16	1.0
N06	10.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: sedimentary,neutral,clay,sand,alluvium,nutrient-poor,peat 2 Terrestrial: Geomorphology and landscape: floodplain,valley,lowland

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Cygnus columbianus bewickii (Western Siberia/North-eastern & North-western Europe) 0.7% of the GB population 5 year peak mean 1991/92-1995/96 Philomachus pugnax (Western Africa - wintering) 19% of the GB population 5 year peak mean 1991/92-1995/96 Pluvialis apricaria [North-western Europe - breeding] 2.4% of the GB population 5 year peak mean 1991/92-1995/96 ARTICLE 4.2 QUALIFICATION (79/409/EEC) During the breeding season

the area regularly supports: Anas clypeata (North-western/Central Europe) 5% of the population in Great Britain 5 year mean 1986/7-1990/1 Over winter the area regularly supports: Anas crecca (North-western Europe) 1.5% of the population 5 year peak mean 1991/92-1995/96 Anas penelope (Western Siberia/North-western/North-eastern Europe) 0.7% of the population 5 year peak mean 1991/92-1995/96 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 40616 waterfowl (5 year peak mean 1991/92-1995/96) Including: Cygnus columbianus bewickii , Anas penelope , Anas crecca , Pluvialis apricaria [North-western Europe - breeding], Philomachus pugnax

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	J02		B
H	A04		I
H	G01		I
H	K02		I
H	I01		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	D05		I
H	A04		I
H	A03		I
H	A02		I
H	B02		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	45.4		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes
☐	No, but in preparation
☒	No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
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SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
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N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
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N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
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A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
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I03	Introduced genetic material, GMO	65
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J02	Human induced changes in hydraulic conditions	65
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K01	Abiotic (slow) natural processes	65
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K03	Interspecific faunal relations	65
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L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
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U	Unknown threat or pressure	65
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5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

9. Lower Derwent Valley Ramsar

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 08 June 1993

3. Country:

UK (England)

4. Name of the Ramsar site:

Lower Derwent Valley

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

53 53 04 N 00 55 34 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: York

The site lies approximately 10 km east of York, much of it on the boundary between North Yorkshire and East Yorkshire.

Administrative region: East Riding of Yorkshire; North Yorkshire; York

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 915.45

Min. 4
Max. 7
Mean 5

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Lower Derwent Valley represents one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK. These grasslands, which were formerly widespread, are now very restricted in distribution due to agricultural improvement. The river and these floodlands play a substantial role in the hydrological and ecological functioning of the internationally important Humber basin.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2, 4, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The site represents one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK.

The river and flood meadows play a substantial role in the hydrological and ecological functioning of the Humber Basin.

Ramsar criterion 2

The site has a rich assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates as well as a leafhopper, *Cicadula ornata* for which Lower Derwent Valley is the only known site in Great Britain.

Ramsar criterion 4

The site qualifies as a staging post for passage birds in spring. Of particular note are the nationally important numbers of Ruff, *Philomachus pugnax* and Whimbrel, *Numenius phaeopus*.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
31942 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):
Species with peak counts in winter:

Eurasian wigeon , *Anas penelope*, NW Europe	8350 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian teal , *Anas crecca*, NW Europe	4200 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, sand, clay, alluvium, peat, nutrient-poor, sedimentary

Geomorphology and landscape	lowland, valley, floodplain
Nutrient status	mesotrophic
pH	circumneutral
Salinity	fresh
Soil	mainly mineral
Water permanence	usually seasonal / intermittent
Summary of main climatic features	Annual averages (High Mowthorpe, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/high_mowthorpe_.html) Max. daily temperature: 11.6° C Min. daily temperature: 5.1° C Days of air frost: 52.5 Rainfall: 729.4 mm Hrs. sunshine: 1397.9

General description of the Physical Features:

The Lower Derwent Valley is a major floodplain system holding a series of neutral alluvial flood meadows, fens, swamps, valley mires, alder *Alnus glutinosa* woodlands and other freshwater habitats lying adjacent to the River Derwent, Pocklington Canal and The Beck.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Yorkshire River Derwent catchment area covers approximately 2000 km² and includes the River Derwent, River Rye, Sea Cut, River Hertford, Costa Beck, Bielby Beck, Pocklington Canal and other tributaries. The rivers rise in the Vales of Pickering and York, Yorkshire Wolds and North York Moors before joining the River Derwent which joins the River Ouse at a tidal barrage at Barmby.

The River Derwent, its tributaries and associated wetlands are highly valued for nature conservation, ecology and landscape. The river is used extensively for public water supply and for recreation.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Flood water storage / desynchronisation of flood peaks, Maintenance of water quality (removal of nutrients), Water supply

19. Wetland types:

Inland wetland

Code	Name	% Area
4	Seasonally flooded agricultural land	81.9
Ts	Freshwater marshes / pools: seasonal / intermittent	8.7
M	Rivers / streams / creeks: permanent	6.6
Tp	Freshwater marshes / pools: permanent	2.2
W	Shrub-dominated wetlands	0.4
Xf	Freshwater, tree-dominated wetlands	0.2

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The Lower Derwent Valley contains extensive species-rich flood meadows, fens, swamps and wet woodland. The main vegetation types over 20 ha in extent are MG4; MG7c; MG8; MG9; MG13; S5; S19; S28; *Carex acuta* in swamps and fens; OV32.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Lathyrus palustris, Sium latifolium, Oenanthe silaifolia, Persicaria laxiflora, Potamogeton trichoides

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Black-necked grebe , *Podiceps nigricollis nigricollis*, Europe, N Africa	11 pairs, representing an average of 35.4% of the GB population (5 year mean 1994-1998)
Great bittern , *Botaurus stellaris stellaris*, W Europe, NW Africa	1 individuals, representing an average of 4.7% of the GB population (5 year mean 1994-1998)
Garganey , *Anas querquedula*, W Africa/Europe	15 pairs, representing an average of 65.2% of the GB population (5 year mean 1994-1998)
Common quail , *Coturnix coturnix*, Europe	41 pairs, representing an average of 7.9% of the GB population (5 year mean 1994-1998)
Spotted crake , *Porzana porzana*, Europe	9 individuals, representing an average of 12.3% of the GB population (5 year mean 1994-1998)
Black-headed gull , *Larus ridibundus*, N & C Europe	2240 pairs, representing an average of 1.7% of the GB population (5 year mean 1994-1998)

Species with peak counts in winter:

Whooper swan , *Cygnus cygnus*, Iceland/UK/Ireland	63 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
Gadwall , *Anas strepera strepera*, NW Europe	286 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Mallard , *Anas platyrhynchos platyrhynchos*, NW Europe	3850 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Northern pintail , *Anas acuta*, NW Europe	295 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)

Northern shoveler , *Anas clypeata*, NW & C Europe	232 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Water rail , *Rallus aquaticus*, Europe	8 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/9-2002/3)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	4800 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	115 individuals, representing an average of 16.4% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Panagaeus cruxmajor, Dytiscus dimidiatus, Saprinus virescens, Hydraena palustris, Atheta terminalis, Parphotistus nigricornis, Hypera diversipunctata, Rhamphomyia phyoprocta, Hilara brevittata, H. merula, Dolichopus cilifemoratus, Herrostomus angustifrons, Antichaeta analis, A. obliviosa, Dichetophora finlandica

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Archaeological/historical site
Environmental education/ interpretation
Livestock grazing
Non-consumptive recreation
Scientific research
Traditional cultural

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

---

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Recreation	+	+
Current scientific research	+	
Commercial forestry		+
Fishing: recreational/sport	+	+
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Grazing (unspecified)	+	+
Hay meadows	+	+
Hunting: recreational/sport	+	+
Sewage treatment/disposal	+	+
Flood control	+	
Irrigation (incl. agricultural water supply)	+	+
Transport route		+
Domestic water supply	+	+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Water diversion for irrigation/domestic/industrial use	1		+		
Reservoir/barrage/dam impact: flooding	1		+		

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	+
Site management statement/plan implemented	+	
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.
Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
Migratory whimbrel.
All important breeding birds.
Otter populations.

Environment.
Biological and chemical water quality (routine).

Miscellaneous.
Research has been undertaken under the Lower Derwent Project into the hydrological and ecological functioning of the river, ings and associated features of wildlife interest.
Eutrophication and its effects on invertebrate communities.
Habitat requirements of farmland birds.

Flora.
NVC survey has been undertaken for much of the site.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Guided walks and lectures are available on request. There are interpretation panels on the site and a site leaflet is available. The site is well used as an educational facility for schools, work-experience placements and for undergraduate/postgraduate demonstrations, placements and projects. It is also used by NGOs for staff development.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

There is no significant regular use of the site for recreation or tourism.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

ADAS (1990) *Botanical monitoring North Duffield Carrs, North Yorkshire*. Unpublished report from ADAS Land Management Services, to British Coal Corporation

Crackles, FE (1990) *The flora of the East Riding of Yorkshire*. University of Hull, Hull

Environment Agency/ Yorkshire Water/ English Nature (2000) *Lower Derwent modelling study: Hydrological modelling report*

Environment Agency/ Yorkshire Water/ English Nature (2000) *Lower Derwent modelling study: Hydraulic and water quality modeling report*

Environment Agency/ Yorkshire Water/ English Nature (2000) *Lower Derwent modelling study: Ecological model*

Environment Agency/ Yorkshire Water/ English Nature (2000) *Lower Derwent Project phase I (1997-2000): Model application, analysis and conclusions*

Gibbons, B (1994) Reserve focus: The Lower Derwent Valley, Yorkshire *British Wildlife*, **5**(6), 381-383

Key, RS (1986) *Review of invertebrate sites in England: Humberside*. Nature Conservancy Council, Peterborough (Invertebrate Site Register Report No. 651)

Key, RS (1987) *Rare and notable species in Yorkshire and Humberside: Species ecology and site occurrence*. Nature Conservancy Council, Peterborough (Invertebrate Site Register Report No. 82)

Mather, JR (1986) *The birds of Yorkshire*. 1st edn. Croom Helm, London

Ratcliffe, DA (ed.) (1977) *A Nature Conservation Review. The selection of biological sites of national importance to nature conservation in Britain*. Cambridge University Press (for the Natural Environment Research Council and the Nature Conservancy Council), Cambridge (2 vols.)

Pritchard, DE, Housden, SD, Mudge, GP, Galbraith, CA & Pienkowski, MW (eds.) (1992) *Important Bird Areas in the United Kingdom including the Channel Islands and the Isle of Man*. Royal Society for the Protection of Birds, Sandy.

Shirt, DB (ed.) (1987) *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content. Volume 3: Site accounts*. Joint Nature Conservation Committee, Peterborough www.jncc.gov.uk/UKSPA/default.htm

Tolhurst, SA (1987) *A survey of the aquatic flora of the Pocklington Canal, Yorkshire 1986*. Nature Conservancy Council, Peterborough (Contract surveys, No. 4)

Trinder, C. (1990) *Lower Derwent Valley NVC Project – Phase 1*. Nature Conservancy Council North-East England Region (unpublished report)

Woodroffe, G (1998) Reinforcing otter populations of the Derwent and Esk catchments in North Yorkshire. *British Wildlife*, **9**(3), 145-153

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**

Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

10. Lower Derwent Valley SAC

STANDARD DATA FORM for sites within the ‘UK national site network of European sites’

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the SPA homepage and SAC homepage on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

https://jncc.gov.uk/

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0012844**

SITENAME **Lower Derwent Valley**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0012844

1.3 Site name

Lower Derwent Valley

1.4 First Compilation date	1.5 Update date
1996-01	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	1996-01
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.930555556	53.88805556

2.2 Area [ha]:

921.26

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKE2	North Yorkshire
UKE1	East Yorkshire and Northern Lincolnshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
6510			368.5	0	M	A	A	A	A
91E0	X		9.21	0	M	C	C	B	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species	Population in the site	Site assessment

G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
M	1355	Lutra lutra			p				C	DD	C	A	C	C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N10	64.0
N07	30.0
N16	2.0
N09	1.0
N06	3.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: clay,mud,alluvium,sand,peat,neutral 2 Terrestrial: Geomorphology and landscape: floodplain,lowland,valley

4.2 Quality and importance

Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) for which this is considered to be one of the best areas in the United Kingdom. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) for which the area is considered to support a significant presence. Lutra lutra for which the area is considered to support a significant presence.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	H04		B
H	K02		I
H	A04		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A06		I
H	A04		I
H	A03		I
H	B02		I

H	I01		B	H	A02		I
H	G01		I	H	D05		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	45.4		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

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