

Tween Bridge Solar Farm

Environmental Statement

Appendix 7.1: Baseline Habitats and Desk Study Report

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(a)

Document Reference: 6.3.7.1

August 2025

Revision 1

Habitat Survey Report



Tween Bridge Solar Farm
August 2025



**Tyler
Grange**

TG Report No. 16413_R10c_RR

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Section 1: Introduction

Introduction

- 1.1. Tyler Grange was commissioned to undertake ecological surveys in relation to 'The Scheme' of a renewable energy generating project; comprising ground-mounted solar photovoltaic ('PV') arrays, together with on-site energy storage and associated infrastructure. The Scheme is located on land to the east of the town of Thorne and to the west of the town of Crowle (the 'Order Limits').
- 1.2. This report details results from habitat and field surveys undertaken by Tyler Grange in August 2024 and June/July 2025 by Tyler Grange. The objectives of this report are to provide information regarding the habitats within and immediately surrounding the Order Limits.
- 1.3. This report presents the detailed field survey methodology and should be read with reference to the Ecology & Nature Conservation Chapter 7 within the Environmental Statement (ES). This report should also be read alongside the Avian Ecology Ltd. Habitat Report provided as Appendix 1 which includes full methods and results of surveys from 2022.



Section 2: Methodology

Survey Methodology 2022

- 2.1. Habitat surveys were undertaken by Avian Ecology Ltd. in 2022, and the full methodology and results are presented within Appendix 1, to be read alongside this report.

Survey Methodology 2024 and 2025

- 2.2. Following updates to the Order Limits a habitat survey was undertaken on new areas in August 2024 and June/July 2025 by Tyler Grange.
- 2.3. In addition, a high level walkover of the entire Order Limits was undertaken in June 2025 to confirm no significant change in habitats had occurred.

'Extended' Phase I Habitat Survey and UKHabs

- 2.4. The methods used during the surveys broadly followed methods used in an 'extended' Phase I habitat survey¹ and entailed recording the main plant species and classifying and mapping habitat types with reference to the Habitat Definitions provided by the UK Habitat Classification Working Group².
- 2.5. Additionally, the habitats identified were evaluated for their potential to support legally protected and notable fauna species. Where access allowed, adjacent habitats were also considered in order to assess the Order Limits within the wider landscape and to provide information with which to assess possible impacts within the context of the Order Limits boundary.
- 2.6. All habitats were assessed utilising the relevant condition criteria for the relevant habitat type which included confirming 'pass' / 'fail' criteria taken from the UK Habitat/Phase 1 methodology where necessary.

¹ Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough.

² UKHab Ltd. (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)



Section 3: Results

- 3.1. The full extent of habitats recorded across the site during all surveys is shown on Figure 1.

Survey Results 2022

- 3.2. Full habitat survey results from Avian Ecology Ltd are included in **Appendix 1**. Surveys undertaken in 2022 recorded and mapped all habitat types within the Order Limits at that time.

Survey Results 2024 and 2025

- 3.3. The majority of the survey area comprised large, open arable fields used for a range of cereal and non-cereal cropping. The habitats can be seen on Figure 1 – Habitat Features with pond locations shown in Appendix 2.
- 3.4. As part of the arable regime, fields are at times seeded with nitrogen fixing mixtures. These fields were typically bounded by a network of drainage ditches, hedgerows of varying structure, and lines of trees. Species composition was consistent with those recorded in 2022 and included in **Appendix 1**, with a summary below.
- 3.5. Many of the ditches across the survey area adjacent to arable fields were of low water quality, often lacking marginal or aquatic vegetation and shaded by scrub along their banks. Some of the larger Internal Drainage Board (IDB) drains within the area were more open and less shaded, supporting better water quality and a greater diversity of marginal vegetation.
- 3.6. The hedgerows within the survey area were generally gappy and species-poor, with many dominated by a limited number of common species such as willow *Salix* sp. , hawthorn *Crataegus monogyna* and / or blackthorn *Prunus spinosa*.
- 3.7. Areas of scrub associated with ditches and field margins were typically dominated by bramble *Rubus fruticosus* and were subject to regular disturbance from farming activities. Some small areas of more diverse scrub were recorded in association with less disturbed areas.
- 3.8. Smaller areas of modified grassland were present, typically used for grazing or silage, alongside wet grassland depressions and grassland field margins of varying width and species diversity.
- 3.9. Areas of tall ruderal vegetation were recorded along field boundaries, typically dominated by common ruderal species.



- 3.10. Lines of trees were scattered throughout the site, alongside small areas of woodland comprising species such as silver birch *Betula pendula*, oak *Quercus robur*, ash *Fraxinus excelsior*, and poplar *Populus* Sp., with ground flora typically including bare ground, bramble, and bracken *Pteridium aquilinum*.
- 3.11. A number of ponds of varying size and quality were also present, with some dry and others supporting marginal vegetation.
- 3.12. Areas of hardstanding associated with existing roads and tracks were present across the Order Limits.

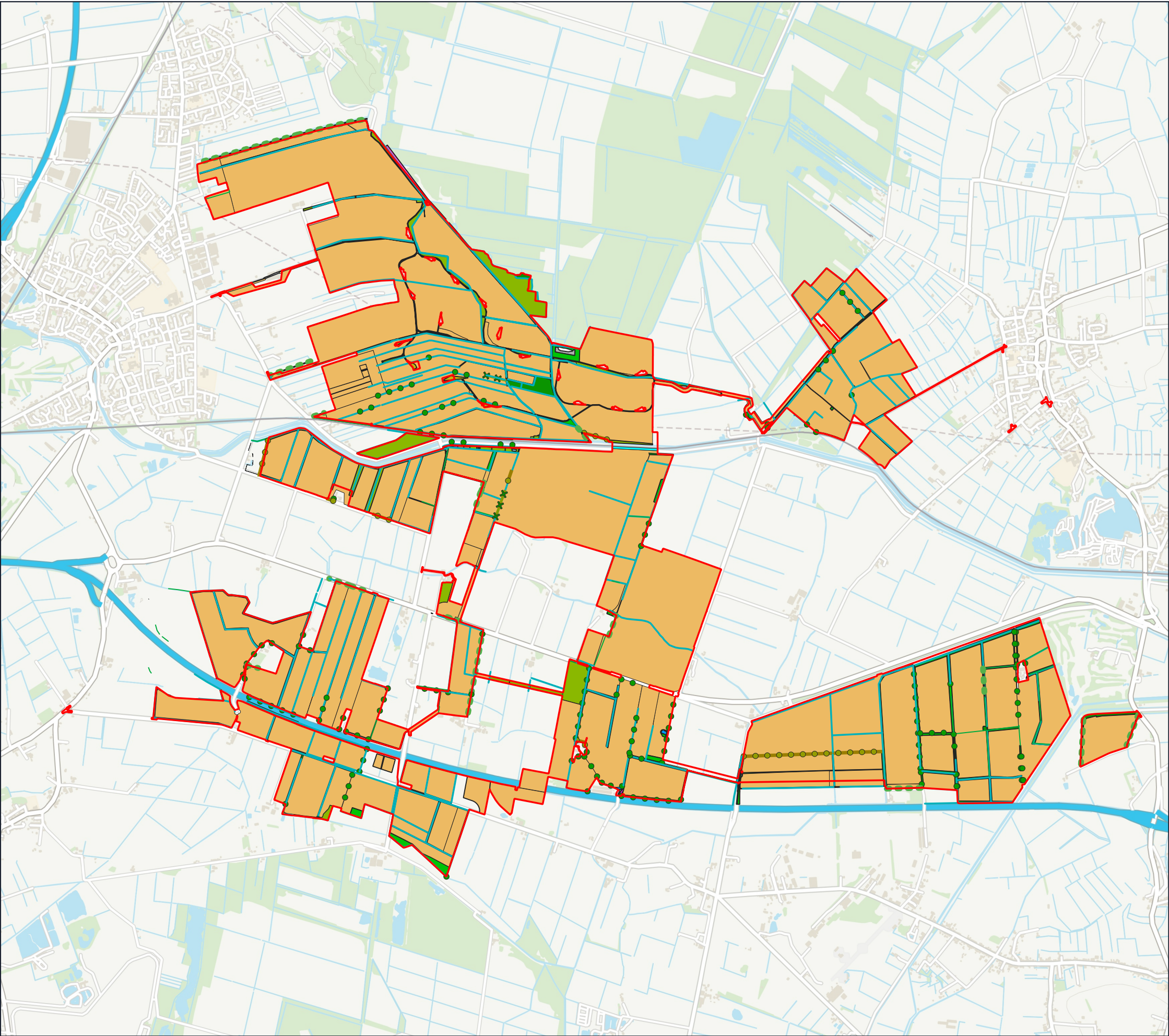
Habitat Summary

- 3.13. The habitat surveys undertaken across 2022, 2024, and 2025 have confirmed that the habitats within the Order Limits have remained consistent over time, with no significant changes recorded since the initial 2022 surveys by Avian Ecology Ltd.
- 3.14. The habitats within the Order Limits continue to comprise predominantly arable farmland bounded by drainage ditches, hedgerows, and occasional lines of trees, alongside smaller areas of scrub, modified grassland, and wet depressions, with limited areas of woodland and ponds also present. This provides confidence that the ecological baseline is robust, ensuring that the ecological impact assessment remains accurate and enabling appropriate mitigation, enhancement, and biodiversity considerations to be effectively integrated into the development of The Scheme.

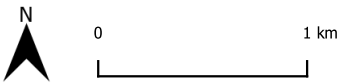


Figure 1 : Habitat Features_JS_RR





- Legend
- Habitats
- Arable
 - Reedbeds
 - Bracken
 - Modified Grassland
 - Bramble Scrub
 - Mixed Scrub
 - Canal
 - Ponds (see Pond Location Plan - Appendix 2)
 - Buildings
 - Developed Land; Sealed Surface
 - Artificial Unvegetated, Unsealed Surface & Bare Ground
 - Wet Woodland
 - Other Woodland; Broadleaved
 - Other Neutral Grassland
- Linear Habitats
- Native Hedgerow
 - Native Hedgerow with Trees
 - Native Hedgerow with Trees and Ditch
 - Non-native & Ornamental Hedgerow
 - Ditches
 - Line of Trees
 - Line of Trees with Ditch



Project	Tween Bridge
Drawing Title	Habitat Features Plan
Scale	As Shown (Approximate)
Drawing No.	16413/P13b
Date	August 2025
Checked	JS/RR



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Appendix 1: Avian Ecology Ltd. Habitat Report



Tween Bridge Solar Farm
on behalf of Pegasus Planning Limited

Technical Appendix 7.1: Baseline Habitats & Desk Study Report



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V1	19/07/2023	Draft for client review	K Love <i>BSc (Hons.)</i>	B.Walker <i>MSc MCIEEM</i>
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This report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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FIGURES

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Figure 2: Statutory Designated Sites Plan

Figure 3: Non-statutory Designated Sites Plan

Figure 4A: Habitat Plan (Overview)

Figure 4B: Habitat Plan (Map 1)

Figure 4C: Habitat Plan (Map 2)

Figure 4D: Habitat Plan (Map 3)

Figure 4E: Habitat Plan (Map 4)

Figure 5: Pond Location Plan

ANNEXES

Annex 1: Photographs

Annex 2: Non-statutory Designated Sites

1 INTRODUCTION

1.1 Background

- 1.1.1 This Technical Appendix report provides details of habitat surveys and desk-study (biological records search) commissioned in relation to The Scheme. The report provides baseline information and should be read with reference to the Ecology and Nature Conservation Chapter 7 of the Preliminary Environmental Information Report (PEIR) and the corresponding chapter within the Environmental Statement (ES).
- 1.1.2 Surveys and desk study were undertaken in relation to The Scheme of a renewable energy generating project; consisting of ground-mounted solar photovoltaic ('PV') arrays, together with on-site energy storage and associated infrastructure. The Scheme is located on land to the east of the town of Thorne and to the west of the town of Crowle (the 'Draft Order Limits') as illustrated on **Figure 1**.

1.2 Study Area

- 1.2.1 The study area for The Scheme has been based on 'zones of influence' for different ecological features which may be affected by biophysical changes as a result of The Scheme and associated activities. The zones of influence that extend beyond the direct land-take required for The Scheme have been identified based upon the nature of the project and the construction, operation, and decommissioning activities to be undertaken, informed by the consultation and Scoping process and Chartered Institute of Ecology and Environmental Management ('CIEEM')¹ and Natural England guidance, where available².

1.3 Draft Order Limits Overview

- 1.3.1 The Draft Order Limits encompasses a series of connected agricultural land parcels, predominately composed of arable fields. Fields are bound by a series of watercourses as well as hedgerows, fences, and tree lines. A woodland copse is present within the Draft Order Limits as well as a number of ponds.
- 1.3.2 The Tween Bridge Wind Farm is located within the Draft Order Limits, and consists of twenty-two operational wind turbines. The Stainforth and Kneadby Canal also intersects the centre of the Draft Order Limits spanning from west to east.
- 1.3.3 In the wider context, the Draft Order Limits is surrounded by extensive areas of farmland and areas of woodland, with areas of lowland peat bog (Thorne & Hatfield Moors) located to the north and south of the Draft Order Limits.
- 1.3.4 The Draft Order Limits location is provided in **Figure 1** and habitat maps are presented as **Figures 4A-4E**.

¹ Chartered Institute of Ecology and Environmental Management 'Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine'. CIEEM (2022).

² Where specific guidance documents do not stipulate specific required zones of influence from a proposed Site, professional judgement has been applied based on the understanding of the site and developments similar in nature, size, and scale to the Proposed Development.

1.4 Scope

1.4.1 The objectives of the baseline presented within this report are to:

- Identify the proximity of any designated sites for nature conservation interest;
- Provide baseline information on the current habitats and ecological features both within the Draft Order Limits and immediate surrounding area; and,
- Identify the presence or potential presence of any protected species or habitats.

1.5 Legislative Framework, Planning Policy and Guidance

1.5.1 During the preparation of this Report, reference has been made to the following key pieces of legislation, planning policy and guidance listed in **Table 1.1** below.

Table 1.1: Key legislation, planning policy and guidance.

International
<ul style="list-style-type: none">• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention')³;• Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the 'the Bern Convention'⁴; and,• UNESCO convention on the protection of the World Cultural and Natural Heritage (1972)⁵.
National
<ul style="list-style-type: none">• The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019⁶;• The 'Conservation of Habitats and Species Regulations 2017 (as amended);• The Wildlife and Countryside Act 1981 (as amended);• The Environment Act 2021⁷;• Countryside and Rights of Way Act 2000;• The Invasive Alien Species (Enforcement and Permitting) Order 2019⁸;• Natural England European Protected Species Policies⁹• Protection of Badgers Act 1992;• Hedgerow Regulations 1997;• Natural Environment and Rural Communities (NERC) Act (2006);• The National Planning Policy Framework 2 (NPPF2, 2021)¹⁰;• The United Kingdom Biodiversity Action Plan (UK BAP);• Wildlife licensing: comment on new policies for European protected species licence (Natural England. 2016)¹¹

³ <https://www.ramsar.org/>

⁴ <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104>

⁵ <https://whc.unesco.org/en/convention/>

⁶ <https://www.legislation.gov.uk/uksi/2019/579/contents/made>

⁷ <https://services.parliament.uk/Bills/2019-21/environment.html>

⁸ <https://www.legislation.gov.uk/uksi/2019/527/introduction/made>

⁹ <https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences>

¹⁰ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹¹ <https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-new-policies-for-european-protected-species-licences>

- European protected species policies for mitigation licences (Natural England. 2022)¹²
- Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Natural England. 2022)¹³
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development;
- BS 8683:2021 Process for designing and implementing Biodiversity Net Gain; and,
- Biodiversity Net Gain. Good practice principles for development¹⁴.

Local

- Lincolnshire Biodiversity Action Plan¹⁵;
- The North Lincolnshire Local Development Framework¹⁶;
- Doncaster Biodiversity Action Plan¹⁷;
- Doncaster Council Core Strategy 2011 – 2026¹⁸;
- Doncaster Policies Map¹⁹; and,
- Doncaster Local Plan 2015-2035²⁰.

1.5.2 The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following the United Kingdom's (UK's) withdrawal from the European Union (EU) with only relatively minor changes that came into force on 31st December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019. They are hereafter referred to as the 'Habitats Regulations'.

1.5.3 The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify habitats and species of nature conservation priority on a UK (UK BAP) and Local (LBAP) scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006, and so are also relevant in the context of this legislation.

¹² <https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences>

¹³ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

¹⁴ <https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/>

¹⁵ <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0>

¹⁶ <https://m.northlincs.gov.uk/public/planningreports/corestrategy/adoptedddpd/FullCoreStrategy.pdf>

¹⁷ <https://www.doncaster.gov.uk/services/environmental/doncaster-biodiversity-action-plan>

¹⁸ <https://doncaster.moderngov.co.uk/Data/Council/201102211000/Agenda/rpt%2010%20Core%20Strategy%20Publication%20Draft.pdf>

¹⁹ <https://maps.doncaster.gov.uk/portal/apps/webappviewer/index.html?id=c8073f15e63849d6a28a509e1eec6c76>

²⁰ <https://www.doncaster.gov.uk/services/environmental/doncaster-biodiversity-action-plan>

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected, priority and otherwise notable species and habitats within proximity to the Draft Order Limits as follows:

- Non-statutory designated sites for nature conservation within 2km of the Draft Order Limits;
- National statutory designated sites for nature conservation, within 5km of the Draft Order Limits;
- International statutory designated sites for nature conservation, within 10km of the Draft Order Limits; and,
- Existing records of protected, priority and otherwise notable fauna and flora species within 2km of the Draft Order Limits²¹.

2.1.2 The following key sources were consulted:

- Natural England (NE) and Joint Nature Conservation Committee (JNCC) websites²²;
- The Multi Agency Geographic Information for the Countryside (MAGIC) website²³;
- The Woodland Trust Ancient Tree Inventory²⁴;
- The Natural England Open Data Geoportal²⁵;
- Greater Lincolnshire Nature Partnership (GLNP)²⁶; and,
- Doncaster Biological Records Centre (DoBRC)²⁷.

2.1.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area, including potential ponds and watercourses.

2.2 Field Surveys

Extended Habitat Survey

2.2.1 An extended habitat survey of the Draft Order Limits was undertaken on the 2nd and 3rd March 2022, 30th March 2022 and 10th to 12th August 2022. All surveys were completed by suitably qualified and experienced ecologists.

2.2.2 The survey methodology followed the UK industry standard UKHab methodology (UK Habitat Classification Working Group. 2020²⁸), with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM_ *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017)²⁹.

²¹ Existing records of protected, priority and otherwise notable species within 2km of the Site have been limited to the preceding 10 year period, unless more historic records are considered pertinent to the Site and Proposed Development.

²² <http://jncc.defra.gov.uk/>

²³ <https://magic.defra.gov.uk/MagicMap.aspx>

²⁴ <https://ati.woodlandtrust.org.uk/>

²⁵ <https://naturalengland-defra.opendata.arcgis.com/>

²⁶ <https://glnp.org.uk/>

²⁷ <https://www.doncaster.gov.uk/services/planning/local-record-centre>

²⁸ <https://ukhab.org/ukhab-documentation/>

²⁹ CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

- 2.2.3 All habitats were mapped and described using a series of 'target notes' (TNs) to the highest level of UK habitat classification as possible, with each individual habitat feature being assigned to a primary habitat and then described with secondary codes if applicable. The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.
- 2.2.4 The extent of the Draft Order Limits and habitats as surveyed are shown on **Figures 4A-4E** with accompanying photographs in **Annex 1**.

2.3 Limitations

Extended Habitat Survey

- 2.3.1 An extended habitat survey does not constitute a detailed botanical survey or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the Draft Order Limits in order to:
- Broadly identify the nature conservation value of the Draft Order Limits and assess the significance of any potential impacts on habitat/species recorded; and/or,
 - Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).
- 2.3.2 The extended habitat survey visits were undertaken in March 2022 and August 2022 and therefore partially outside the optimal period for botanical surveys (approximately April to September). Surveys undertaken during March are not considered to be a significant limitation to the assessment since the majority of the Draft Order Limits comprised intensively managed agricultural habitat. However, further habitat surveys of the Draft Order Limits are due to be undertaken in August/September 2023 which will update the 2022 data within the optimal survey period.
- 2.3.3 In addition, due to the evolution of the Draft Order Limits, a small section has not been subject to an extended habitat survey. When considered alongside the Scheme as a whole, the small size of this area in combination of location within an intensively managed agricultural landscape this is not considered to be an limitation to the assessment at this time.
- 2.3.4 Further habitat surveys are due to be undertaken in August 2023, which will cover the entirety of the Draft Order Limits (at that time) and provide habitat condition assessment data.

3 BASELINE

3.1 Designated Sites for Nature Conservation

Statutory Designated Sites

- 3.1.1 No statutory designated sites are located within the Draft Order Limits except for a small 0.53ha of Thorne and Hatfield Moors Special Protection Area (SPA), Thorne Moor Special Area of Conservation (SAC), Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI) and Hatfield Chase Ditches SSSI.
- 3.1.2 A further four international statutory designated sites occur within 10km of the Draft Order Limits boundary and eight national statutory designated sites occur within 5km of the Draft Order Limits, including Local Nature Reserves (LNR) and SSSI's The Humberhead Peatlands National Nature Reserve (NNR) is also located directly adjacent to the Draft Order Limits boundary.
- 3.1.3 The Draft Order Limits also lies within a SSSI Impact Risk Zone (IRZ) whereby the LPA is required to consult with Natural England in regards to potential impact pathways associated with the development.
- 3.1.4 A summary of statutory designated sites for nature conservation respectively located within 10km and 5km of the Draft Order Limits is provided below in **Table 3.1**. The locations of statutory designated sites in relation to the Draft Order Limits are shown in **Figure 2**.

Table 3.1: Statutory Designated Sites.

LNR: Local Nature Reserve; NNR: National Nature Reserve; SSSI: Site of Special Scientific Interest; SAC: Special Areas of Conservation; SPA: Special Protection Areas; Ramsar Site.

Site Name	Approximate Distance/Direction	Description
Hatfield Chase Ditches SSSI	Partially within the south-eastern Draft Order Limits boundary	A large area of former marsh and wetland at the head of the Humber Estuary. The land is now split by a complex network of ditches. These ditches retain elements of the former marshland and now make up the majority of nature conservation interest in an intensively farmed arable landscape and a major element in the Humberhead Levels natural area.. The ditches contain a rich assemblage of aquatic and emergent plants, typical of nutrient rich systems and supports water vole and nationally scarce reed beetles such as <i>Donacia clavipes</i> and <i>D. simplex</i> ³⁰
Thorne, Crowle and Goole Moors SSSI	Partially within the northern Draft Order Limits boundary	A remnant of a once extensive lowland raised bog which once occupied the Humberhead levels. These moors form the largest extent of lowland raised mire in England, even though much modified by peat cutting. The moors are highly regarded for its invertebrate fauna and breeding and wintering bird populations. Breeding species include nightjar, nightingale, woodcock and whinchat. The breeding population of nightjars on the Moors is of national importance as its numbers regularly exceed 1% of the total British breeding population. ³¹

³⁰ Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000213> (accessed 17/07/2023)

³¹ Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001467> (accessed 17/07/2023)

Thorne Moor SAC	Partially within the northern Draft Order Limits boundary	Qualifying Features: H7120. Degraded raised bogs still capable of natural regeneration. ³²
Thorne and Hatfield Moors SPA	Partially within the northern Draft Order Limits boundary and 100m south	Qualifying Features: A224 European nightjar (Breeding). ³³
Humberhead Peatlands NNR	Directly adjacent to the Draft Order Limits northern boundary and 100m south	<p>The Humberhead Peatlands NNR comprises Thorne, Goole, and Crowle Moors, as well as Hatfield Moors and it represents the largest area of raised bog wilderness in lowland Britain at 2,974 hectares in size.</p> <p>A wide range of habitats supports the 5,000 species of plants and animals that have been recorded on the reserve of which more than 4,000 are insects. There are also sizable populations of adder, water vole and red deer on the reserve.</p> <p>More than 200 bird species have been recorded and approximately 75 have bred. Winter visitors include whooper swans, pink-footed geese, hen harrier, and short-eared owls. Other notable species present include woodlark, oystercatcher, lapwing, ringed plover, great crested grebe and marsh harrier.³⁴</p>
Hatfield Moor SAC	100m south	Qualifying Features: H7120. Degraded raised bogs still capable of natural regeneration. ³⁵
Hatfield Moors SSSI	100m south	A remnant of a once extensive lowland raised bog which once occupied the Humberhead levels. Hatfield Moor is the second largest remaining raised bog in lowland England; Thorne, Goole and Crowle Waste being the largest. Rehabilitation of raised bog and heathland habitats is possible following peat winning and therefore the bare peat surfaces are regarded as having considerable potential value for nature conservation. The site has also been notified because of its important breeding bird and insect populations. ³⁶
Crowle Borrow Pits SSSI	1.48km east	Crowle Borrow Pits lie either side of the embankment of a disused railway line and include a variety of habitats including alder carr, scrub, fen and open water in which several locally uncommon plant species occur. ³⁷

³² Available at: <https://publications.naturalengland.org.uk/publication/6566028335120384> (accessed 17/07/2023)

³³ Available at: <https://publications.naturalengland.org.uk/publication/6503407711944704> (accessed 17/07/2023)

³⁴ Available at: <https://www.gov.uk/government/publications/south-yorkshires-national-nature-reserves/south-yorkshires-national-nature-reserves-nnrs#humberhead-peatlands> (accessed 17/07/2023)

³⁵ Available at: <https://publications.naturalengland.org.uk/publication/4872212687355904> (accessed 17/07/2023)

³⁶ Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000536> (accessed 17/07/2023)

³⁷ Available at:

<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1002090&SiteName=crowle%20borrow&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=> (accessed 17/07/2023)

Buntings Wood Thorne LNR	1.75km west	A variety of flora and fauna including a good range of native tree species, water voles, small carnivores, amphibians, deer and a large number of bird species. ³⁸
Eastoft Meadow SSSI	2.71km north-east	Eastoft Meadow is a small herb-rich hay meadow. The site has a diverse range of plant species, including orchids, and is dependent on the maintenance of traditional management by hay cropping without the addition of artificial fertilisers. ³⁹
Belshaw SSSI	2.93km south-east	A short length of land along a disused railway line which is important because it supports a colony of greater yellow-rattle. This nationally rare plant occurs at only six localities in Great Britain. ⁴⁰
Quarry Park LNR	4.60km south-west	A site supporting a variety of habitats such as wildflower meadows, woodlands and way marked routes. ⁴¹
Epworth SSSI	4.69km south-east	An area of relict peat vegetation in the low-lying carr land which is one of only three such areas known to remain in South Humberside. The plant communities represented are birch woodland, heathland and fen. ⁴²
Humber Estuary Ramsar	6.14km east	<p><i>Ramsar criterion 1</i></p> <p>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.</p> <p><i>Ramsar criterion 3</i></p> <ul style="list-style-type: none"> • Grey seal • Natterjack toad <p><i>Ramsar criterion 5</i></p> <p>Non-breeding waterfowl assemblages of international importance.</p> <p><i>Ramsar criterion 6</i></p> <p>Non-breeding species/populations occurring at levels of international importance:</p> <ul style="list-style-type: none"> • Common shelduck (non-breeding) • European golden plover (non-breeding) • Knot (non-breeding) • Dunlin (non-breeding) • Black-tailed godwit (non-breeding) • Bar-tailed godwit (non-breeding) • Common redshank (non-breeding)

³⁸ Available at <https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1481398>: (accessed 17/07/2023)

³⁹ Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1002189&SiteName=eastoft%20meadow&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=> (accessed 17/07/2023)

⁴⁰ Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1001192&SiteName=belshaw&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=> (accessed 17/07/2023)

⁴¹ Available at: <https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1481591> (accessed 17/07/2023)

⁴² Available at: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1002281&SiteName=epworth&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=> (accessed 17/07/2023)

			<p><i>Ramsar criterion 8</i></p> <ul style="list-style-type: none"> • River lamprey • Sea lamprey⁴³
Humber Estuary SAC		6.14km north-east	<p>Qualifying Features:</p> <p>H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks;</p> <p>H1130. Estuaries;</p> <p>H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats;</p> <p>H1150. Coastal lagoons;</p> <p>H1310. <i>Salicornia</i> and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand;</p> <p>H1330. Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>);</p> <p>H2110. Embryonic shifting dunes;</p> <p>H2120. Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes"); Shifting dunes with marram;</p> <p>H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland;</p> <p>H2160. Dunes with <i>Hippophae rhamnoides</i>; Dunes with sea-buckthorn;</p> <p>S1095.Sea lamprey;</p> <p>S1099.River lamprey; and,</p> <p>S1364.Grey seal.⁴⁴</p>
Humber Estuary SPA		6.14km north-east	<p>Qualifying Features:</p> <p>A021 Great bittern (Non-breeding);</p> <p>A021 Great bittern (Breeding);</p> <p>A048 Common shelduck (Non-breeding);</p> <p>A081 Eurasian marsh harrier (Breeding);</p> <p>A082 Hen harrier (Non-breeding);</p> <p>A132 Pied avocet (Non-breeding);</p> <p>A132Pied avocet (Breeding);</p> <p>A140European golden plover (Non-breeding);</p> <p>A143Red knot (Non-breeding);</p> <p>A149Dunlin (Non-breeding);</p> <p>A151Ruff (Non-breeding);</p> <p>A156Black-tailed godwit (Non-breeding);</p> <p>A157Bar-tailed godwit (Non-breeding);</p> <p>A162Common redshank (Non-breeding);</p>

⁴³ Available at: <https://jncc.gov.uk/jncc-assets/RIS/UK11031.pdf> (accessed 16.05.2023)

⁴⁴ Available at: <https://publications.naturalengland.org.uk/publication/5009545743040512> (accessed 17/07/2023)

		A195 Little tern (Breeding); and, Waterbird assemblage. ⁴⁵
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Non-statutory Designated Sites

- 3.1.5 The Draft Order Limits are located within 14 non-statutory designated sites including ten Local Wildlife Sites (LWS) and four candidate LWS (CLWS). Most are related to drains, with one Whittaker's Plantation designated for its woodland habitat.
- 3.1.6 A further two LWS, one CLWS and a Lincolnshire Wildlife Trust Reserve (LWT) are located directly adjacent to the Draft Order Limits boundary, with a further 19 LWS, five CLWS and one Local Geological Site (LGS) situated within 2km.
- 3.1.7 Details of these non-statutory designations, including distances from the Draft Order Limits, are provided in **Annex 2** and locations are shown in **Figure 3**.

3.2 Priority Habitats – Existing Records

- 3.2.1 A review of MAGIC, aerial imagery, GLNP/DoBRC data return and the extended habitat survey identified eleven habitats of Principal Importance (also known as priority habitats) under Section 41 of the NERC Act/UK Biodiversity Action Plan within 2km of the Draft Order Limits. Of these, six were returned from within the Draft Order Limits itself; ponds, hedgerows, deciduous woodland, coastal and floodplain grazing marsh, lowland meadow and lowland raised bog.
- 3.2.2 Lowland raised bog, lowland meadows and coastal and floodplain grazing marsh were found during the desk study, but habitat surveys of the Draft Order Limits confirm that these are no longer present, with arable farmland dominating instead.
- 3.2.3 Fourteen priority habitats under the Lincolnshire Biodiversity Action Plan (LBAP) and 11 priority habitats under the Doncaster Biodiversity Action Plan (DBAP) are present within 2km of the Draft Order Limits. Of these 25 habitats listed on local biodiversity action plans, records of eight were returned as within the Draft Order Limits itself including ponds, hedgerows, deciduous woodland, coastal and floodplain grazing marsh, lowland meadows, lowland raised bog, canal, drains & ditches and wet woodland. Similarly, to habitats of principal importance, coastal and floodplain grazing marsh, lowland meadows and lowland raised bog whilst returned during the desk study were not found to be present within the Draft Order Limits during surveys.
- 3.2.4 Review of the Woodland Trust Ancient Tree Inventory identified no notable trees within the Draft Order Limits. One notable tree was however identified within 500m of the Site, which comprised a notable oak tree located c.40m from the Draft Order Limits at SE73951268. However, upon review of aerial imagery this tree is not identifiable and is likely to no longer be present following the latest tree survey in 2008. During the extended habitat survey a mature ash tree within the Draft Order Limits was considered to be a potential veteran tree (see **TN12** in **Table 3.3**). The tree is located along a field boundary hedgerow at SE 73056 09514.
- 3.2.5 No ancient and semi-natural woodland is present within 2km of the Draft Order Limits.
- 3.2.6 Review of the Natural England Open Data Geoportal identified ancient or irreplaceable peaty soil habitat throughout the Draft Order Limits. This is further examined in Chapter 7 of the Preliminary Environmental Information Report (PEIR) and subsequent ES Chapter.

⁴⁵ Available at: <https://publications.naturalengland.org.uk/publication/5382184353398784> (accessed 17/07/2023)

3.2.7 Information on the fifteen priority habitats identified within 2km of the Site is presented in **Table 3.2** below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, in order to provide context for the Site and surrounding area.

Table 3.2: Priority habitats.

Priority habitat name	Designation	Approximate Distance from Site
Ponds	NERC S.41, UKBAP; LBAP; DBAP	Within the Draft Order Limits
Hedgerows	NERC S.41, UKBAP; LBAP; DBAP	Within the Draft Order Limits
Deciduous woodland	NERC S.41, UKBAP; LBAP; DBAP	Within the Draft Order Limits
Coastal and floodplain grazing marsh	NERC S.41, UKBAP; LBAP; DBAP	Found during desk study but not recorded within the Draft Order Limits, with arable land dominant
Wet woodland	NERC S.41; UKBAP; LBAP	Within the Draft Order Limits (associated with Thorne Moors)
Canal, drains and ditches	LBAP; DBAP	Within the Draft Order Limits
Lowland meadows	NERC S.41, UKBAP; LBAP	Found during desk study but not recorded within the Draft Order Limits, with arable land dominant
Lowland raised bog	NERC S.41, UKBAP; LBAP; DBAP	Found during desk study but not recorded within the Draft Order Limits, with arable land and wet woodland associated with Thorne Moors within the Draft Order Limits. Lowland raised bog present adjacent to the Draft Order Limits
Traditional orchard	NERC S.41, UKBAP; LBAP	Directly adjacent to the Draft Order Limits boundary
Gardens and allotments	LBAP; DBAP	Directly adjacent to the Draft Order Limits boundary
Lowland heathland	NERC S.41, UKBAP; LBAP; DBAP	95m south
Lowland dry acid grassland	NERC S.41; UKBAP; LBAP; DBAP	160m south
Churchyards and cemeteries	LBAP; DBAP	745m west
Lowland fens	NERC S.41, UKBAP; LBAP; DBAP	1.49km east

Key

NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

LBAP: Priority Habitats listed on the Lincolnshire Biodiversity Action Plan

DBAP: Priority Habitats listed on the Doncaster Biodiversity Action Plan

Priority habitat name	Designation	Approximate Distance from Site
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3.3 Extended Habitat Survey

3.3.1 This section should be read in conjunction with the Habitat Plan presented as **Figures 4A-4E**, Pond Plan in **Figure 5**, Target Notes (TNs) presented in **Table 3.3** and photographs presented in **Annex 1**.

3.3.2 Habitats recorded within the Draft Order Limits are considered to be typical of dominant habitats within the wider landscape.

Arable (UKHab code: c1.73, c1c, c1d, c1d.78)

3.3.3 Arable land was the dominant habitat within the Draft Order Limits, comprising c.1293ha. At the time of survey, the majority of fields were dominated by cereal crops (**Photograph 1**) consisting of either barley or wheat. Some fields were used for cultivating a range of non-cereal crops such as beans, potatoes, pea, broccoli and beets, with small areas comprising only of bare ground or abandoned arable sections.

Modified Grassland (UKHab code: g4, g4.10, g4.10.15, g4.11, g4.115, g4.17, g4.56.16, g4.61, g4.64, g4.71)

3.3.4 A small proportion of the Draft Order Limits c.73.4ha comprised of modified grassland, with c.59.7ha attributed to pasture (**Photograph 2**) used for either livestock or silage production at the time of survey. Pasture fields were mostly dominated by perennial rye-grass. The species assemblage of additional grasses and herbs varied between fields, with the following species recorded; Yorkshire fog, false-oat grass, cock's-foot, meadow grass, meadow foxtail, crested dog's-tail, chickweed, white clover, creeping buttercup, nettle, cow parsley, common thistle, docks, dandelion, hogweed, ragwort, hawkweed and knapweed.

3.3.5 One section of modified grassland comprised a depression of land likely to be a historic pond to the south-west of the Draft Order Limits. The wet grassland is comprised of meadow grass, cock's-foot, false-oat grass and sweet vernal, with fleabane, common reed and willow also present.

3.3.6 Agricultural fields frequently included field margins comprising modified grassland that occasionally contained tall herb and rarely scrub or scattered tree species. Field margins vary between 0.5m to 15m wide and were frequently dominated by either perennial rye-grass, cock's-foot, Yorkshire fog or false-oat grass. Field margins also incorporated various assemblages of other flora species including; field speedwell, common bent, yellow oat-grass, dandelion, docks, cow parsley, nettle, cleavers, white-dead nettle, hogweed, meadow grass, common thistle, sow thistle, willowherb, common reed, ribwort plantain, spear thistle, ragwort, knapweed, bramble and willow.

Tall ruderal (UKHab code: g4.16)

3.3.7 Tall ruderal was present throughout the Draft Order Limits, including along field boundaries and were dominated by nettle and common thistle, with occasional false-oat grass, cock's-foot, sorrel, hogweed, mugwort, bramble, sow thistle, spear thistle, burdock purple loosestrife, reed canary grass, redshank and willow. Areas of tall ruderal varied between 5 and 30m wide and examples of the habitat can be seen in **Photographs 3** and **4**.

Scrub (UKHab code: h3h, h3d.16)

- 3.3.8 Mixed scrub containing a varying combination of willow, bramble, blackthorn, hawthorn, ash, birch, elder and dogrose, as well as bramble only scrub with willowherb, mugwort, thistle and nettle, is found in several linear strips throughout the Draft Order Limits.

Hedgerows (UKHab code: h2a, h2a.10.11, h2a.11)

- 3.3.9 Hedgerows are present throughout the Draft Order Limits and vary between being unmanaged or intensively managed, as well as intact and defunct. Hedgerows range between 1.5m to 5m tall and 1.5m to 2.5m wide, with most sections being species-poor and dominated by hawthorn (**Photograph 5**). Other species present consist of a mix of blackthorn, elder, elm, field maple, oak, hazel, ash, apple, willow, holly, goat willow, sycamore, birch, beech, oak, bramble and dog-rose. Hedgerows containing trees are frequent within the Draft Order Limits and include immature, semi-mature and mature trees comprising oak, ash, sycamore, willow, elder, hazel, horse chestnut, birch beech or cypress.
- 3.3.10 Some ornamental hedgerow was also present within the Draft Order Limits along residential garden boundaries, which consist of cypress, and cypress and sycamore standards.

Lines of Trees (UKHab code: w1g6)

- 3.3.11 Tree lines are located throughout the Draft Order Limits and include both mature, semi-mature and immature trees (**Photograph 6**). The species assemblage present included oak, lime, hazel, elder, ash, elm, goat willow, sycamore, willow, hawthorn, alder, horse chestnut, Scot's pine, beech, birch, field maple, black poplar, white poplar, apple, pine, cherry, cypress, white willow, spruce, yew and blackthorn.

Ponds (UKHab code: r1a.19)

- 3.3.12 Review of aerial imagery identified eight potential ponds within the Draft Order Limits prior to the extended habitat survey and GCN eDNA survey (see **Appendix 7.8**), with an additional thirty-six ponds in the 250m buffer area surrounding the Draft Order Limits. During the habitat survey and subsequent GCN eDNA survey six ponds within the Draft Order Limits were identified to contain water (Ponds P4, P5, P6, P29, P35 and P40) (**Photograph 7**). Ponds P17 and P41 are also located within the Draft Order Limits with pond P17 found to be dry and pond P41 inaccessible due to dense vegetation. Although poorly accessible, pond P41 appeared mostly to be a large area of grass, tall ruderal and scattered scrub in the location of an old pond, however, a possible shallow depression appeared to contain standing water and algae. It's expected that Pond P41 seasonally dries, although other areas of standing water are possible in the large inaccessible area.
- 3.3.13 Ponds within the Draft Order Limits vary between being shallow pools and deep waterbodies. Some possess common reed in abundance with mixed willow scrub on the banksides, whereas others have little to no marginal vegetation. Deeper waterbodies supported waterfowl at the time of the eDNA survey and potentially fish.
- 3.3.14 An additional thirty-five possible ponds were located within 250m of the Draft Order Limits. Following the habitat survey and GCN eDNA survey five ponds were confirmed to be no longer present (ponds P7, P8, P13, P36 and P37), whilst four additional waterbodies were identified (ponds P4A, P4B, P36A and P39A).

Ditches (UKHab code: r1.117.191, r1.10.117.191, r1.10.11.117.191, r1a.120.191, r1a.11.120.191)

- 3.3.15 An extensive network of wet and dry ditches and drains (henceforth referred to as ‘watercourses’) are located throughout the Draft Order Limits (**Photograph 8**). They vary between 0.5m to 5m in width, and 0.5m to 4.5m deep. They also have seasonal water level fluctuations, with a range of aquatic and marginal species recorded. However, some ditches are considered likely to be permanently dry.
- 3.3.16 Watercourses were frequently dominated by bramble scrub, with willowherb, nettle, cow parsley, common reed, reed canary grass and false-oat grass also present. Wet watercourses varied in water quality, with some being exposed to high levels of nutrient enrichment from agricultural run-off. Banks slopes ranged between being shallow to vertical, with the tops of many watercourses often incorporating narrow margins of modified grassland.
- 3.3.17 Adjacent to the Draft Order Limits boundary are wider sections of watercourses, such as the River Torne located to the south-east of the Draft Order Limit. The River Torne runs along the south-eastern boundary and is 10m wide with deep, open water considered to be of good water quality. The river has a moderate, southerly flow and is considered suitable for boats. The banksides are dominated by reeds and grasses. This watercourse is a LWS (see **Appendix 2** and **Figure 3**).
- 3.3.18 In addition, the Stainforth and Kneadby Canal runs through the centre of the Draft Order Limits. It is approximately 20m wide with deep water. On each side of the canal is a 1m wide wet ditch with water depths <1m deep. Within Lincolnshire, and adjacent to the Draft Order Limits boundary, the Stainforth and Kneadby Canal Corridor is a LWS (see **Annex 2** and **Figure 3**).
- 3.3.19 The section of Hatfield Chase Ditches SSSI and Hatfield Waste Drain LWS are located within the Draft Order Limits. Watercourses associated with the designated sites were noted as containing deep open water and approximately 10m wide.
- 3.3.20 As detailed in **Annex 2** and **Figure 3**, additional drains/ditches are classed as non-statutory designated sites or candidate non-statutory designated sites which are scattered within and adjacent to the Draft Order Limits.

Woodland (UKHab code: w1d, w1g.36)

- 3.3.21 One woodland copse (Whittaker’s Plantation CLWS) and a small section of wet woodland are present within the Draft Order Limits. (**Photograph 9**). Dominant woodland species recorded include birch, oak, ash and poplar in various combinations. Additional tree species recorded in woodlands include elder, hazel, cherry, willow, blackthorn, hawthorn, field maple, sycamore, holly, alder and Scot’s pine. The ground flora of the woodlands is composed of either bare ground or dominated by bramble and/or bracken.
- 3.3.22 Woodland copses are also present in the wider area. Rhododendron was recorded within one woodland outside the Draft Order Limits in the neighbouring golf course to the south-east of the Draft Order Limits (**TN13**).
- 3.3.23 As detailed in **Annex 2** and **Figure 3**, Whittaker’s Plantation CLWS is located within the Draft Order Limits, and Crowle Moor Local Wildlife Trust Reserve borders the Draft Order Limits to the north-east and this also comprises deciduous woodland.

Table 3.3: Target Notes

Target Note	Description
TN1	Building with bat box and barn owl box. Cracks in the building exterior. Low bat roost potential (Photograph 10).
TN2	Brash pile considered suitable for newt refugia (Photograph 11).
TN3	Peregrine falcon perched. Potentially a nest location in the vicinity.
TN4	Water fern <i>Azolla</i> sp. present in the South Soak Drain. An invasive, non-native plant species (Photograph 12).
TN5	Small mammal burrow. Potentially water vole, but no evidence.
TN6	Small medium sized mammal holes. Potentially water vole, but no evidence.
TN7	Oak tree with medium bat roost potential. A large bird box (barn owl or raptor) is also present within the tree.
TN8	Oak trees with cracks and holes. Low bat roost potential.
TN9	Windmill located within the open arable field.
TN10	Willow tree with cracks. Low bat roost potential.
TN11	Two dead trees with cracks and holes. Moderate bat roost potential (Photograph 13).
TN12	Mature ash tree considered to be a potential veteran tree. Low/moderate bat roost potential (Photograph 14).
TN13	Rhododendron within a neighbouring woodland copse outside the Draft Order Limits in the adjacent golf course that borders the south-eastern Draft Order Limits parcel. Rhododendron is an invasive, non-native plant species

3.4 Protected and Notable Species

Birds

Legislation

- 3.4.1 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Over eighty species or groups of species are listed under Schedule 1 of the Act, which confers special protection with increased penalties for offences committed.
- 3.4.2 Additionally, a further forty-nine bird species are listed under Section 41 of the NERC Act 2006, and are therefore, a material consideration within the planning process.

Desk Study

- 3.4.3 The combined GLNP and DoBRC data search returned numerous records of notable bird species within 2km of the Draft Order Limits, including a variety of priority species commonly associated with the farmland and woodland habitats surrounding the Draft Order Limits.
- 3.4.4 In total data search returned 1,580 records for 127 bird species, including a total of seventy-nine notable bird species within 2km of the Draft Order Limits. This includes twenty-two species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) including whooper swan, garganey, quail, black-necked grebe, little ringed plover, green sandpiper, black tern, bittern, honey-buzzard, marsh harrier, hen harrier, red kite, barn owl, kingfisher, merlin, hobby, peregrine, golden oriole, woodlark, Cetti's warbler, redwing and fieldfare.

- 3.4.5 The data return also included 17 species listed on Annex 1 of the Directive 2009/147/EC (Birds Directive). These species include whooper swan, nightjar, crane, golden plover, black tern, black stork, bittern, great white egret, little egret, honey-buzzard, marsh harrier, hen harrier, red kite, kingfisher, merlin, peregrine and woodlark.
- 3.4.6 Twenty-nine Natural Environment & Rural Communities (NERC) Act Section 41 Species are included in the combined data return. Species include white-fronted goose, grey partridge, nightjar, cuckoo, turtle dove, lapwing, curlew, herring gull, bittern, willow tit, woodlark, skylark, grasshopper warbler, starling, song thrush, ring ouzel, spotted flycatcher, tree sparrow, house sparrow, dunnoek, yellow wagtail, tree pipit, hawfinch, bullfinch, linnet, lesser redpoll, corn bunting, yellowhammer and reed bunting.
- 3.4.7 All nineteen species listed under the Lincolnshire Biodiversity Action Plan were returned in the data search. These include grey partridge, swift, turtle dove, lapwing, curlew, snipe, redshank, barn owl, skylark, starling, song thrush, tree sparrow, house sparrow, yellow wagtail, bullfinch, linnet, corn bunting, yellowhammer and reed bunting.
- 3.4.8 Twenty species were returned in data search that are listed on the Doncaster Local Biodiversity Action Plan. These include grey partridge, nightjar, turtle dove, little ringed plover, curlew, snipe, bittern, barn owl, green woodpecker, willow tit, woodlark, skylark, song thrush, spotted flycatcher, tree sparrow, yellow wagtail, bullfinch, linnet, corn bunting and reed bunting.
- 3.4.9 The data search returned thirty-two species listed as Red Listed BoCC and forty-five species listed as Amber Listed BoCC.
- 3.4.10 A review of MAGIC shows that a small area (c.53ha) of the Draft Order Limits partially lies within the Thorne and Hatfield Moors Important Bird Area (IBA) which is primarily located north the Draft Order Limits.
- 3.4.11 As detailed in in **Table 3.1**, several statutory designated sites in the wider area are notable for supporting birds. These include Buntings Wood Thorne LNR, Hatfield Moors SSSI, Thorne, Crowle and Goole Moors SSSI, Humberhead Peatlands NNR, Thorne and Hatfield Moors SPA, Humber Estuary Ramsar, Humber Estuary SAC/SAC (Marine Components GB) and Humber Estuary SPA/SPA (Marine Components GB).
- 3.4.12 As listed in **Annex 2**, multiple non-statutory designated sites in the wider 2km area are notable for supporting bird populations. None of these sites are within the Draft Order Limits, although the River Torne LWS is located directly adjacent.

Extended Habitat Survey

- 3.4.13 During the extended habitat survey the following species were recorded within the Draft Order Limits: mute swan, whooper swan, mallard, grey partridge, stock dove, moorhen, crane, lapwing, woodcock, snipe, black-headed gull, buzzard, kingfisher, kestrel, peregrine, skylark, song thrush, redwing, fieldfare and wheatear.
- 3.4.14 The survey also recorded two barn owl boxes, with one located on a building (**TN1**) and another on a mature oak (**TN7**). The survey also recorded a perched peregrine that was considered to have a potential nest in the vicinity (**TN3**).

Breeding Bird Survey

- 3.4.15 Full details of the survey are presented in **Appendix 7.3: Breeding Bird Survey Report**.

Wintering Bird Survey

- 3.4.16 Full survey results are included in **Appendix 7.4: Wintering Bird Survey Report**.

Bats

Legislation

- 3.4.17 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The Act and Regulations make it an offence to:
- kill, injure, or take any wild bat;
 - damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; and,
 - intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection.
- 3.4.18 Seven bat species in the UK are also listed as species of Principal Importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006.
- 3.4.19 Whiskered bat, Brandt's bat, Natterer's bat, Daubenton's bat, noctule, Leisler's bat, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, barbastelle and brown long-eared bat are listed under the Lincolnshire Biodiversity Action Plan.
- 3.4.20 Whiskered bat, Brandt's bat, Natterer's bat, Daubenton's bat, noctule, common pipistrelle, soprano pipistrelle and brown long-eared bat are also listed under the Doncaster Biodiversity Action Plan.

Desk Study

- 3.4.21 The combined data received from GLNP and DoBRC returned 58 bat records over the previous 10 years. Bat species returned include brown long-eared (2 records), common pipistrelle (30 records), soprano pipistrelle (5 records), Daubenton's bat (2 records), noctule (3 record), whiskered/Brandt's bat (1 record), an unknown Pipistrelle species (3 records), an unknown Myotis species (2 records) and an unknown bat species (10 records).
- 3.4.22 Four bat records were returned within the Draft Order Limits itself, with several others recorded in close proximity to the Draft Order Limits boundary. Records within the Draft Order Limits were returned in one distinct location located to the south east. Here field sightings of an unknown Myotis species, noctule, common pipistrelle and soprano pipistrelle were identified in 2014 in close proximity to the North Engine Drain.
- 3.4.23 A review of MAGIC identified two Natural England licences granted for bat roosts within 2km of the Draft Order Limits:
- 2015-19090-EPS-MIT; destruction of a common pipistrelle resting place in 2016. Located c. 960m west of the Draft Order Limits; and,
 - EPSM2011-2767; destruction of a common pipistrelle resting place between 2011 and 2012. Located c.1.43km west.

Roosting Bats

- 3.4.24 During the extended habitat survey, bat boxes and trees were recorded which are considered to have potential bat roost features. This included a building with two externally mounted bat boxes (**TN1**) located to the north-west of the Draft Order Limits. The building itself also contained exterior wall cracks and the building was assessed to have low bat roost potential (**TN1**). Moderate bat roost potential trees include a mature oak in the central Draft Order Limits parcel (**TN7**) and two dead trees

with cracks and holes to the south-east of the Draft Order Limits (**TN11**). A low/moderate bat roost potential veteran ash tree is also present in the centre of the Draft Order Limits (**TN12**), as well as three low bat roost potential oak trees (**TN8**). A further low roost potential willow tree is located to the south-east (**TN10**).

Foraging and Commuting Bats

- 3.4.25 The dominant habitats consist of intensively managed agricultural land, the majority of which is used for arable purposes. Open arable farmland offers very little foraging and commuting potential for bats⁴⁶, and bat activity is considered likely to be concentrated along boundary features such as hedgerows and watercourse networks⁴⁷. Current farming practices, particularly the use of herbicides and pesticides, also mean that low flying invertebrate prey species will be absent or rare across much of the Draft Order Limits; this reduces the potential for bat species to forage within this type of habitat and it can therefore be reasonably concluded that the majority of the Draft Order Limits is unimportant for foraging bats due to land management practices.
- 3.4.26 Therefore, the predominantly arable habitats throughout the Draft Order Limits and beyond provide little suitability for bats, however, the network of hedges, ditches, tree lines, watercourses, ponds, and occasional woodlands do provide opportunities for commuting and foraging. Following current guidance⁴⁸, the Draft Order Limits are therefore considered to have moderate overall commuting and foraging value for bat species.

Badger

- 3.4.27 Results of the desk study and badger survey are detailed in **Appendix 7.6: Confidential Badger Survey Report**.

Otter and Water Vole

- 3.4.28 Results of the desk study and otter/water vole survey are detailed in **Appendix 7.7: Confidential Otter and Water Vole Survey Report**.

Amphibians

- 3.4.29 Results of the desk study and great crested newt survey are detailed in **Appendix 7.8: Amphibian Baseline Report**.

Reptiles

Legislation

- 3.4.30 Under section 9 (5) of the Wildlife and Countryside Act 1981 (as amended), the more widespread reptile species; slow worm, grass snake, common lizard and adder are protected against sale, barter, exchange, transporting for sale and advertising to sell or buy.
- 3.4.31 Common lizard, grass snake, adder and slow worm are also listed as priority species in England under Section 41 of the NERC Act 2006, with common lizard, grass snake and adder further listed under the Doncaster LBAP. Such species are therefore a material consideration within the planning process.

Desk Study

- 3.4.32 The combined data returned sixty-one reptile records within 2km of the Draft Order Limits during the previous ten years. Records include grass snake (9), adder (31) and common lizard (21) in the wider environment. Twenty-one records comprise the same tetrad location accurate to 2km². These records partially overlap with areas to the south-west of the Draft Order Limits and include adder (12), grass snake (3) and common lizard (6) records. Such species may therefore be returned within the Draft Order Limits itself. The majority of reptile records were returned in Crowle Moors north-east of the Draft Order Limits, although records were returned throughout the search area.
- 3.4.33 As detailed in **Annex 2**, multiple non-statutory designated sites situated within 2km of the Draft Order Limits are notable for supporting reptiles populations including Jone's Cable LWS and River Thorne LWS which are located directly adjacent to the Draft Order Limits boundary.. Reptiles identified in such designated sites comprise grass snake, adder and common lizard. Of these

Habitat Suitability

- 3.4.34 The arable fields are considered to be of negligible value to reptiles. However, the boundary hedgerows, tall ruderal, scrub, tree lines, watercourses, field margins, ponds and woodlands are considered to offer more suitable habitat for reptiles if present, providing foraging, refuge and commuting opportunities.
- 3.4.35 The Draft Order Limits has habitat connectivity to similar extensive farmland habitats as well as moorland and heath habitats in the wider landscape. Direct habitat connectivity to woodland/wetland habitats which may support wider populations of reptile species. It is therefore considered that the limited suitable habitats within the Draft Order Limits may potentially support low numbers of reptile species.

White-clawed Crayfish

Legislation

- 3.4.36 The white-clawed crayfish is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Sections 9 (1 & 5) which makes it an offence to intentionally take or sell white-clawed crayfish. White-clawed crayfish is also listed as priority species in England under Section 41 of the NERC Act 2006 and listed within the Lincolnshire and Doncaster LBAPs; the species is therefore a material consideration within the planning process.

Desk Study

- 3.4.37 The combined data returned one record of white-clawed crayfish in the North Soak Drain during 2021. The record is located approximately 830m north-east of the Draft Order Limits boundary at its closest point, although the watercourse itself runs north-west and within the Draft Order Limits boundary c.6km along its length.

Habitat Suitability

- 3.4.38 Some drains and ditches forming part of the network of watercourses located within and adjacent to the Draft Order Limits are considered potentially suitable to support this species. However, the majority of ditches contain poor water quality from suspected chemical and nutrient pollution, which in addition to watercourse beds lacking cobbles or stones that are required for refuge, habitat is assessed as being of low value to the species.

Other Notable Species

Flora

- 3.4.39 The combined data returned 1576 plants within 2km of the Draft Order Limits boundary during the last ten years. The most notable species returned include annual knawel, chamomile, Baltic bog-moss and bluebell.
- 3.4.40 Annual knawel, chamomile and Baltic bog are all listed in England under Section 41 of the NERC Act 2006. Baltic bog-moss and bluebell are listed under Schedule 8 of The Wildlife & Countryside Act 1981 (as amended). Sixteen species returned are further LBAP listed species. No notable species records were returned from within the Draft Order Limits itself, with notable records predominately located north in the Thorne Moors.

Fish

- 3.4.41 European eel was returned in 2013 in Folly Drain approximately 1.80km east of the south-eastern Draft Order Limits parcel. Watercourses situated throughout the Draft Order Limits and surrounding area are considered suitable for European eel.
- 3.4.42 No records of river lamprey or sea lamprey were returned in the data search. Both species are listed as qualifying features of the Humber Estuary SAC/SAC (Marine Components GB).
- 3.4.43 European eel is listed in England under Section 41 of the NERC Act 2006, as well as the Salmon and Freshwater Fisheries Act 1975.

Mammals

- 3.4.44 Brown hare was observed within arable fields of the Draft Order Limits during the extended habitat survey.
- 3.4.45 The combined data returned 58 records of mammals including brown hare (40), hedgehog (14), harvest mouse (1) and roe deer (3) within 2km of the Draft Order Limits during the last ten years. No records were returned from within the Draft Order Limits itself.
- 3.4.46 The habitats within the Draft Order Limits, most notably the hedgerows, pasture fields, tree-lines, field margins, scrub, watercourses and woodland provide opportunities for brown hare, hedgehog, harvest mouse and roe deer. It is considered that the intensively managed agricultural fields that dominate habitats within the Draft Order Limits are of poorer habitat quality for mammal species.
- 3.4.47 Brown hare and hedgehog are listed in England under Section 41 of the NERC Act 2006. Roe deer, brown hare and harvest mouse are further listed under the Doncaster LBAP. None of these species are listed under the Lincolnshire LBAP.

Invertebrates

- 3.4.48 Three records of mud pond snail were returned on during the last ten years. All records were returned north-west of the Draft Order Limits, with the closest being c.1.65km from the Draft Order Limits boundary. Mud pond snail is listed in England under Section 41 of the NERC Act 2006 and is also an LBAP species.
- 3.4.49 The combined data search returned multiple notable species of invertebrate including species of true fly, butterfly, moth and beetle. Notable species returned that are listed in England under Section 41 of the NERC Act 2006 include large heath (139), small heath (6), wall (11), cinnabar (3), buff ermine (3), crescent (1), latticed heath (2), Haworth's minor (4), knot grass (3), hairy canary (1), dingy skipper (1), thorne pin-palp (8), mire pill beetle (5), beaded chestnut (1), blood-vein (2), broom moth (2), dark

spinach (1), dark-barred twin-spot carpet (2), ear moth (1), forester (1), garden tiger (2), ghost moth (1), moss carder bee (2), mouse moth (1), rustic (1), sallow (2), shaded broad-bar (1) and shoulder-striped wainscot (1). Mire pill beetle and large heath are further listed under Schedule 5 of the Wildlife and Countryside Act (amended).

- 3.4.50 Returned notable invertebrate species were all located outside the Draft Order Limits boundary, with most congregated at Thorne Moors and Crowle Common. The arable fields subject to regular agricultural management within the Draft Order Limits are considered unlikely to support a notable invertebrate assemblage, while boundary hedgerows, ditches, ponds, field margins and trees are considered more likely to support a more diverse range of species.
- 3.4.51 As detailed in **Table 3.1** and **Annex 2**, multiple designated sites in the data search are notable for supporting invertebrate species including Hatfield Chase Ditches SSSI, Humberhead Peatlands NNR, Boating Dyke Drain LWS, Hatfield Waste Drain LWS, Jone's Cable LWS, Stainforth and Keadby Canal Corridor LWS and River Torne LWS which are all situated within or adjacent to the Draft Order Limits.

3.5 Invasive Non-native Species

Legislation

- 3.5.1 These species are listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended), it is an offence to plant or otherwise cause them to grow in the wild. This includes allowing the species to grow/spread, spreading the species or transferring polluted ground material from one area to another.
- 3.5.2 Any Schedule 9 species or soil/waste containing this species is classed as controlled waste under the Environmental Protection Act (Duty of Care) Regulations 1991, which requires a permit issued by the Environment Agency to transfer polluted material off-site to a registered waste facility. If waste soils containing invasive species are to be transferred from the Draft Order Limits it is likely that the disposal of these soils will need to be permitted by the Environment Agency, in order to achieve legislative compliance.
- 3.5.3 Section 14(4A) of the Wildlife and Countryside Act (1981), as inserted by section 23 of the Infrastructure Act 2015, enables species control agreements and orders to be made by environmental authorities to ensure that landowners take action on Schedule 9 invasive non-native species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread. The Species Control Provisions: Code of Practice for England sets out how the provisions should be applied by environmental authorities in England.
- 3.5.4 Species such as American mink, muntjac deer and grey squirrel are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) Section 14(1) of the WCA makes it illegal to release or allow to escape into the wild any animal listed in Schedule 9 of the Act.

Desk Study

- 3.5.5 The combined data search returned several plant species listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) within the search area. This included Nuttall's waterweed (7), curly waterweed (7), water fern (2), giant hogweed (1) and Japanese knotweed (4). Nuttall's waterweed was identified directly adjacent to the Draft Order Limits along the Stainforth and Keadby Canal/South Soak Drain.
- 3.5.6 Nuttall's waterweed was recorded as a tetrad with 2km² accuracy. This area partially overlaps within the south-west of the Draft Order Limits and therefore the species has potential to be present within the Draft Order Limits. Curly's waterweed was also recorded in the same tetrad, as well as along the Stainforth and Keadby Canal which intersects the Draft Order Limits. Water fern was recorded in a neighbouring golf course 500m east of the Draft Order Limits, whilst giant hogweed was identified

755m south. Japanese knotweed was identified west of the Draft Order Limits with the closest record located 1km from the Draft Order Limits.

- 3.5.7 Records of invasive mammals listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) received during the last ten years include American mink (2), muntjac deer (2) and grey squirrel (11). Historical records of all three species were also returned throughout the survey area, including within the Draft Order Limits.
- 3.5.8 As detailed in **Annex 2**, multiple designated sites and candidate sites identified in the data search detail presence of invasive species including Askern's Drain LWS, Boating Dyke Drain LWS, Clay Bank Drain (9.28a) CLWS, Clay Bank Drain (9.28b) CLWS and Stainforth and Keadby Canal Corridor LWS, which are all present within or adjacent to the Draft Order Limits. Invasive species identified in the forementioned sites include Canadian waterweed, Nuttall's waterweed and/or New Zealand pygmyweed.

Survey Results

- 3.5.9 During the extended habitat survey water fern was identified in the South Soak Drain which is located at the Draft Order Limits boundary to (**TN4** and **Photograph 12**). The location of this observation corresponds to a record returned in the data search.
- 3.5.10 Rhododendron was identified within a neighbouring woodland copse outside the Draft Order Limits in the adjacent golf course that borders the south-eastern Draft Order Limits parcel (**TN13**).
- 3.5.11 Rhododendron and water fern are listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

FIGURES

Figure 1:	Site Location Plan
Figure 2:	Statutory Designated Sites Plan
Figure 3:	Non-statutory Designated Sites Plan
Figure 4A:	Habitat Plan (Overview)
Figure 4B:	Habitat Plan (Map 1)
Figure 4C:	Habitat Plan (Map 2)
Figure 4D:	Habitat Plan (Map 3)
Figure 4E:	Habitat Plan (Map 4)
Figure 5:	Pond Location Plan

FIGURE 1: SITE LOCATION PLAN

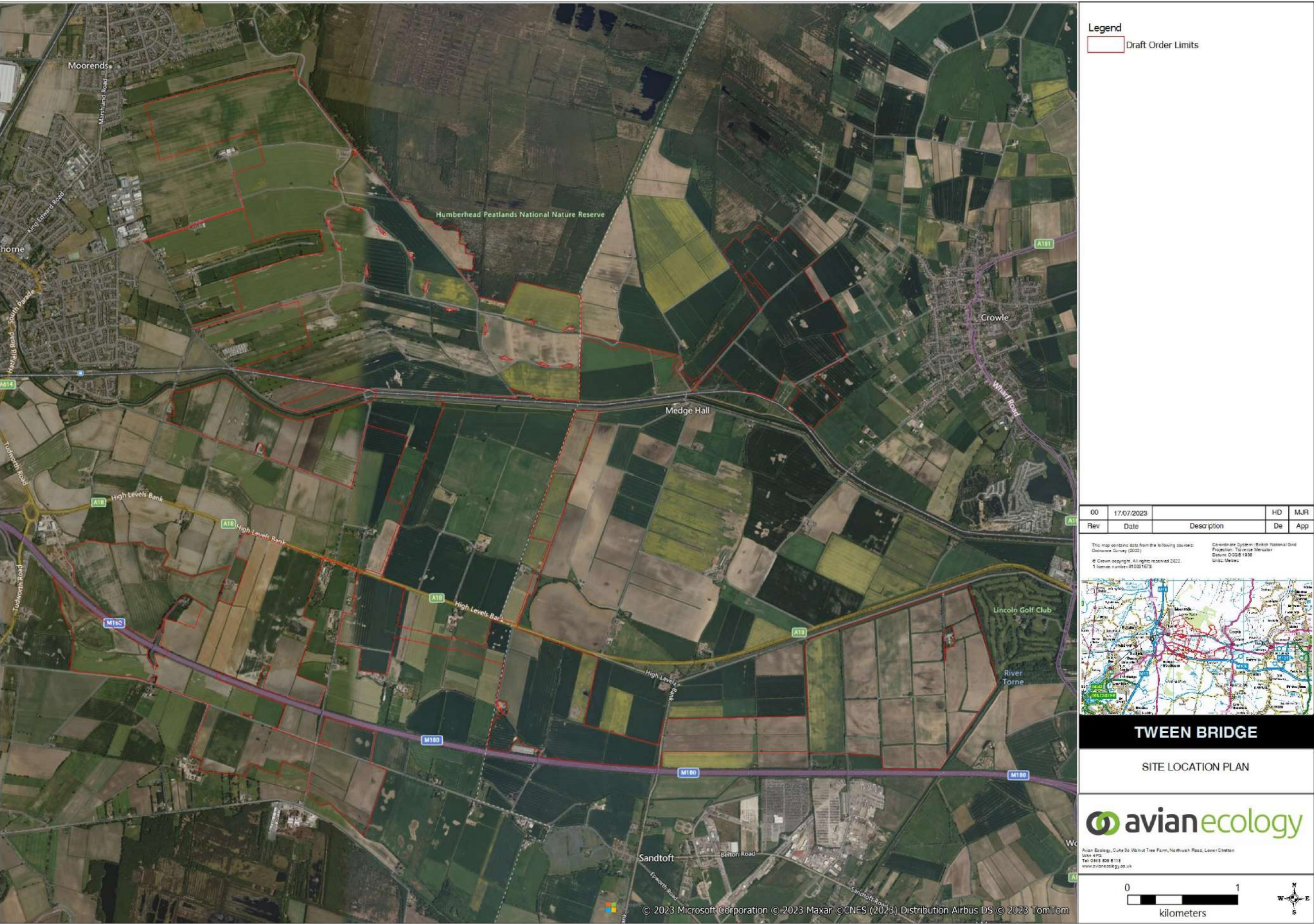


FIGURE 2: STATUTORY DESIGNATED SITES PLAN

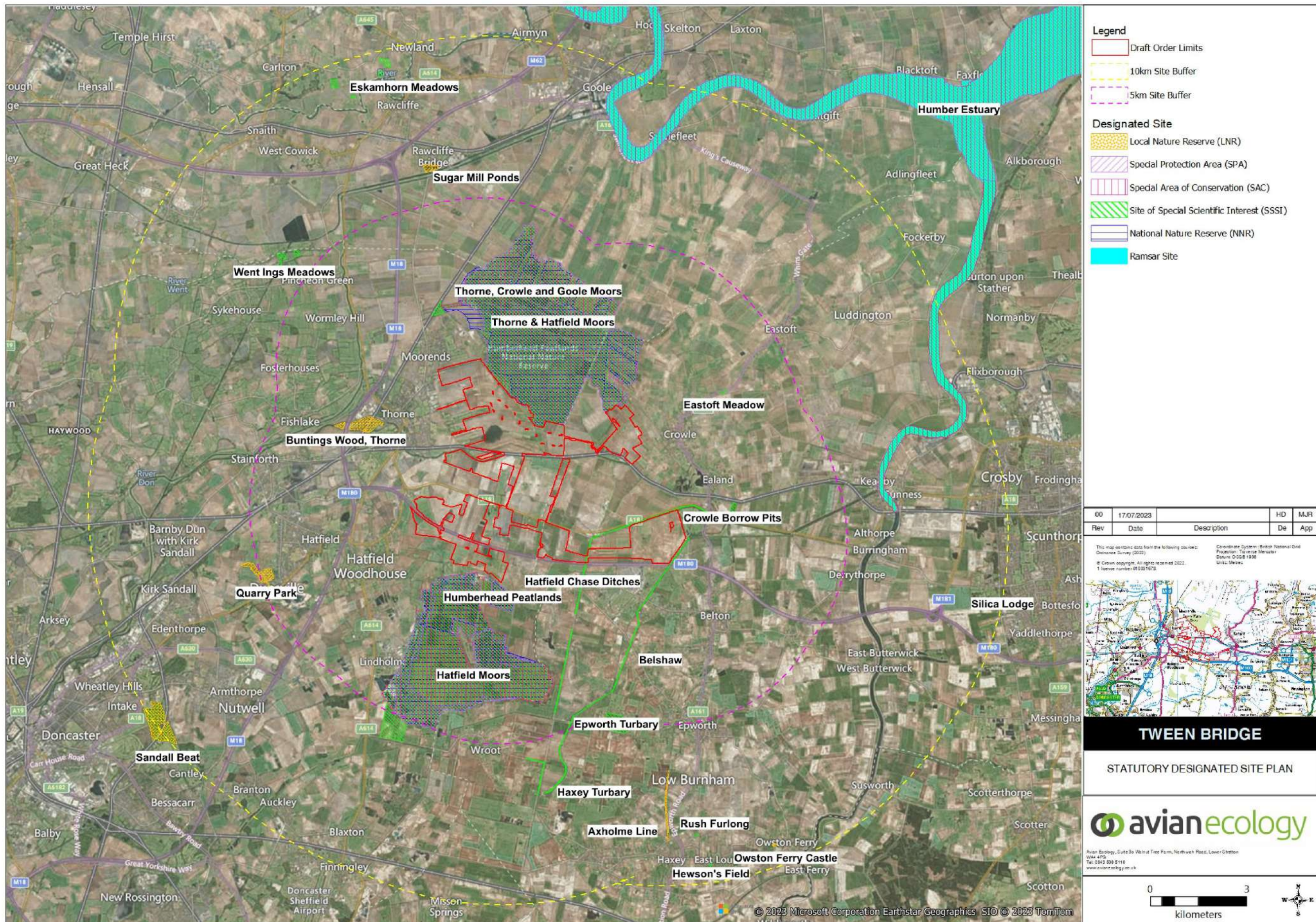


FIGURE 3: NON-STATUTORY DESIGNATED SITES PLAN

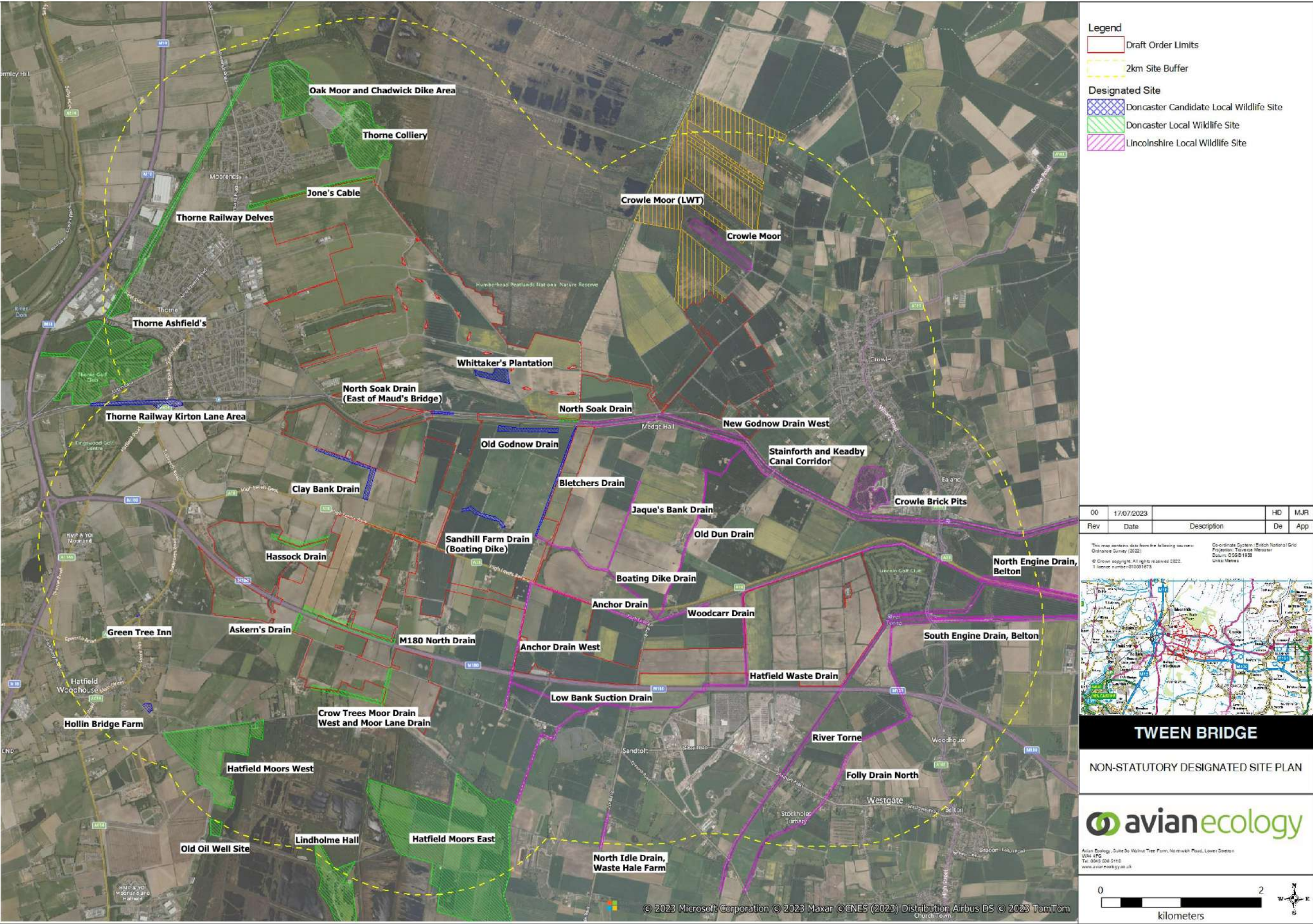


FIGURE 4A: HABITAT PLAN (OVERVIEW)

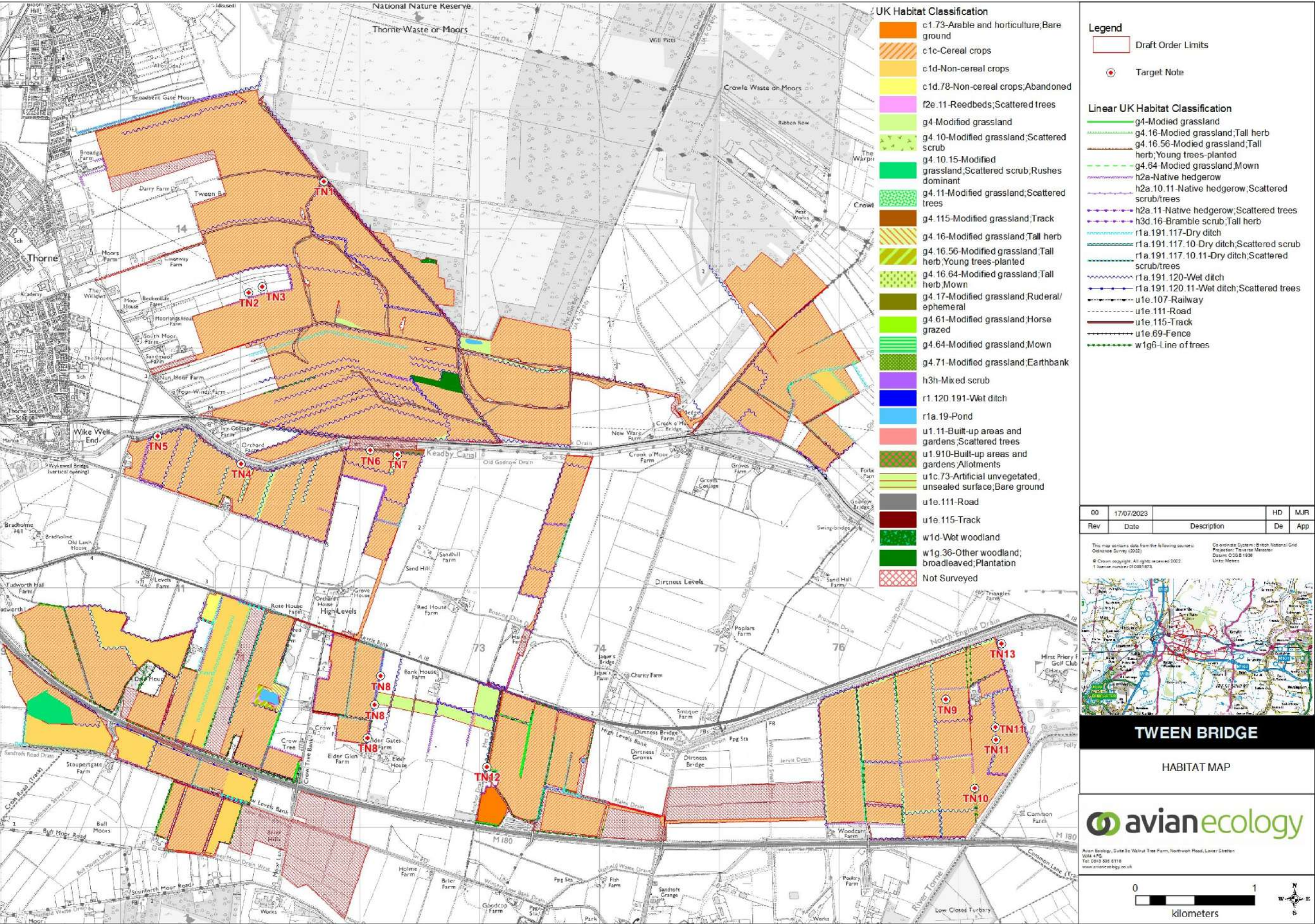


FIGURE 4B: HABITAT PLAN (MAP 1)

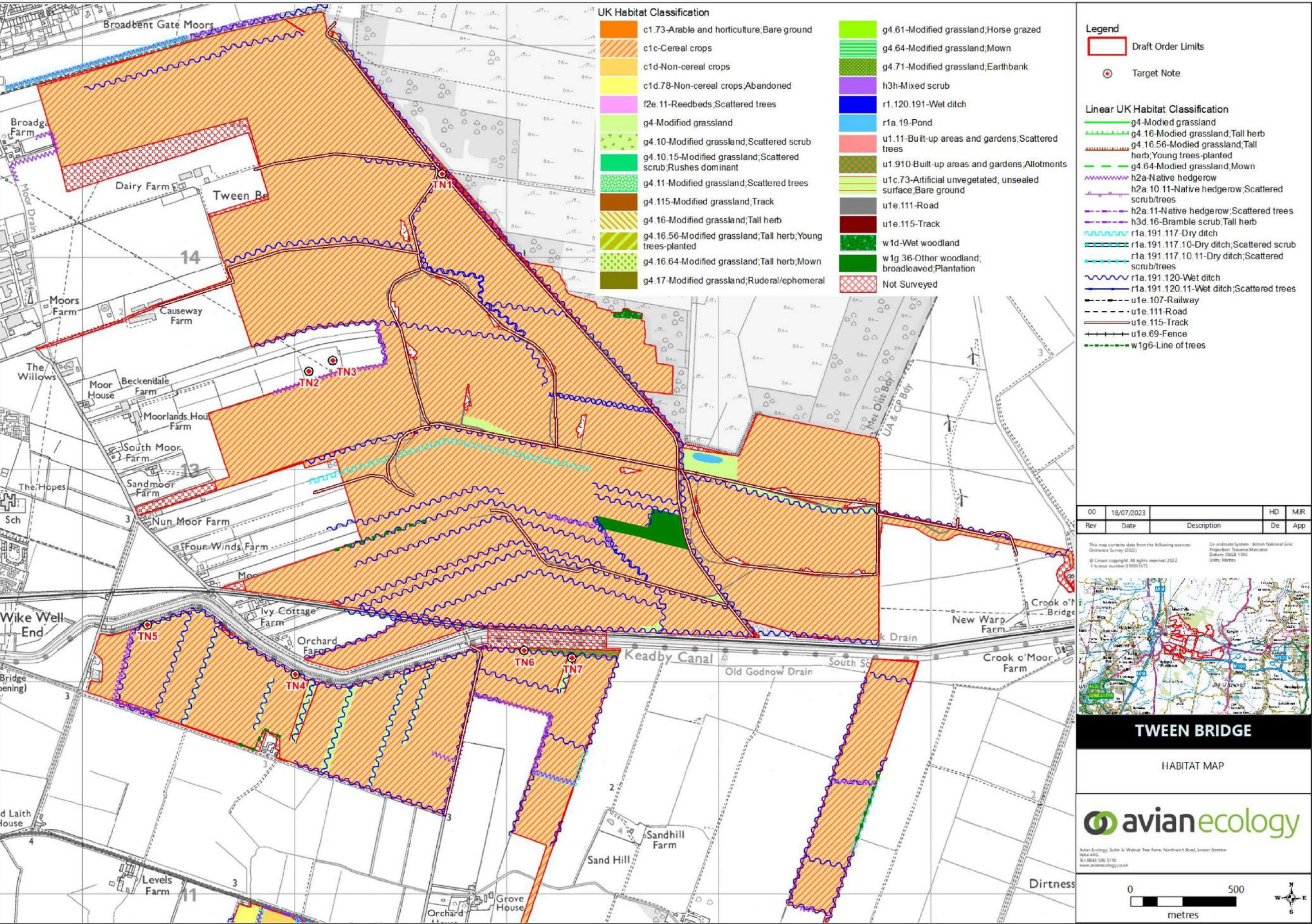


FIGURE 4C: HABITAT PLAN (MAP 2)

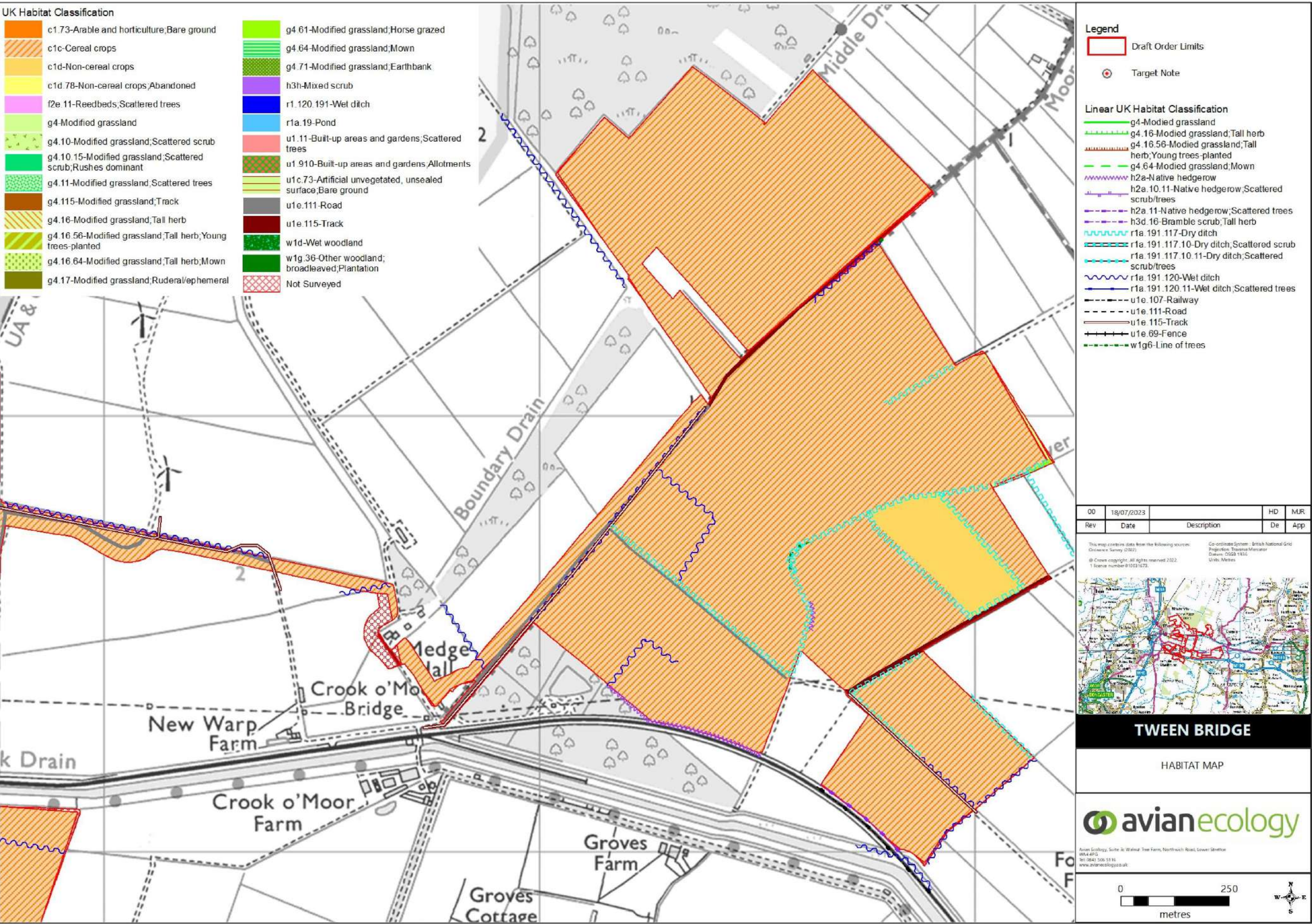


FIGURE 4D: HABITAT PLAN (MAP 3)

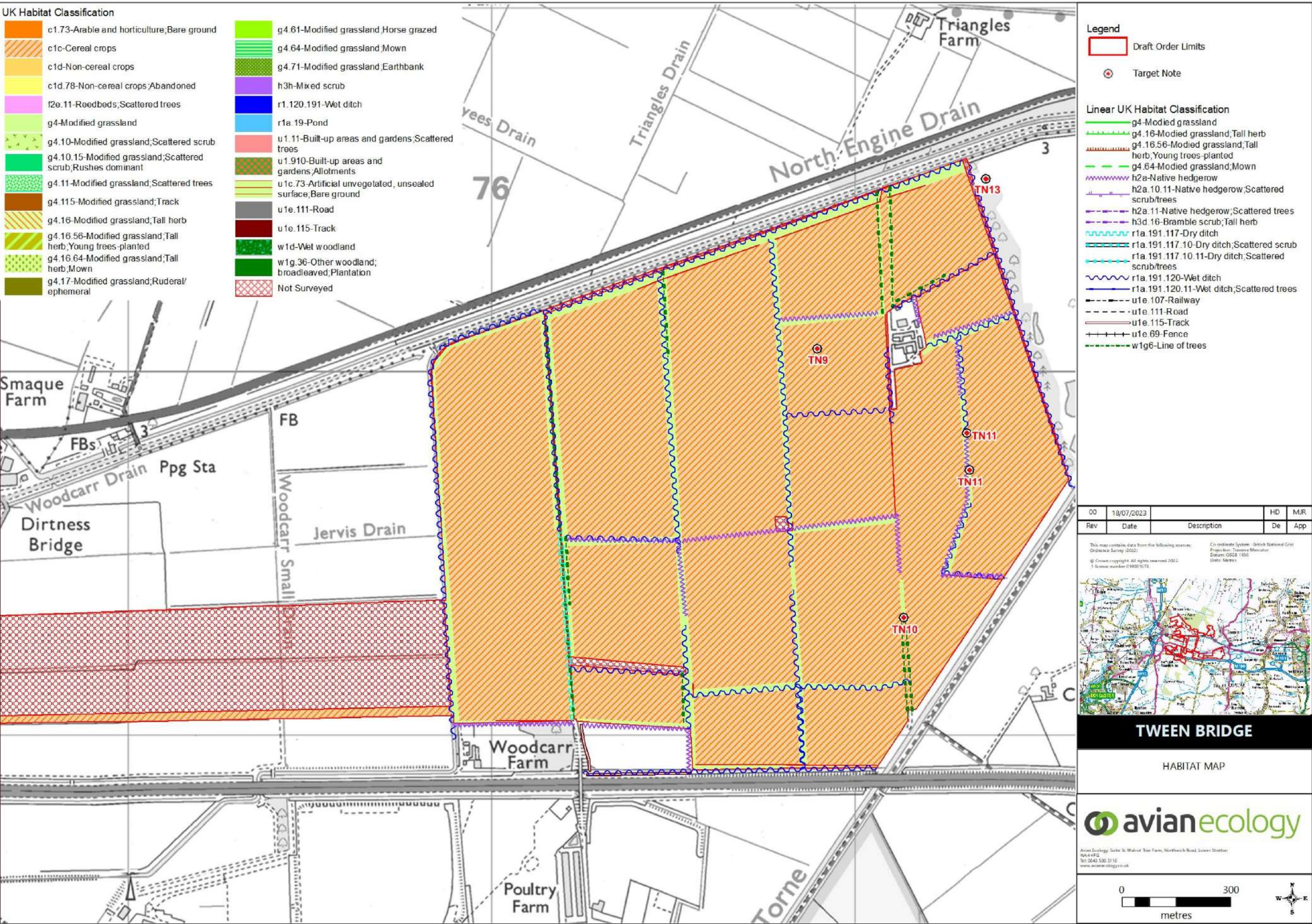
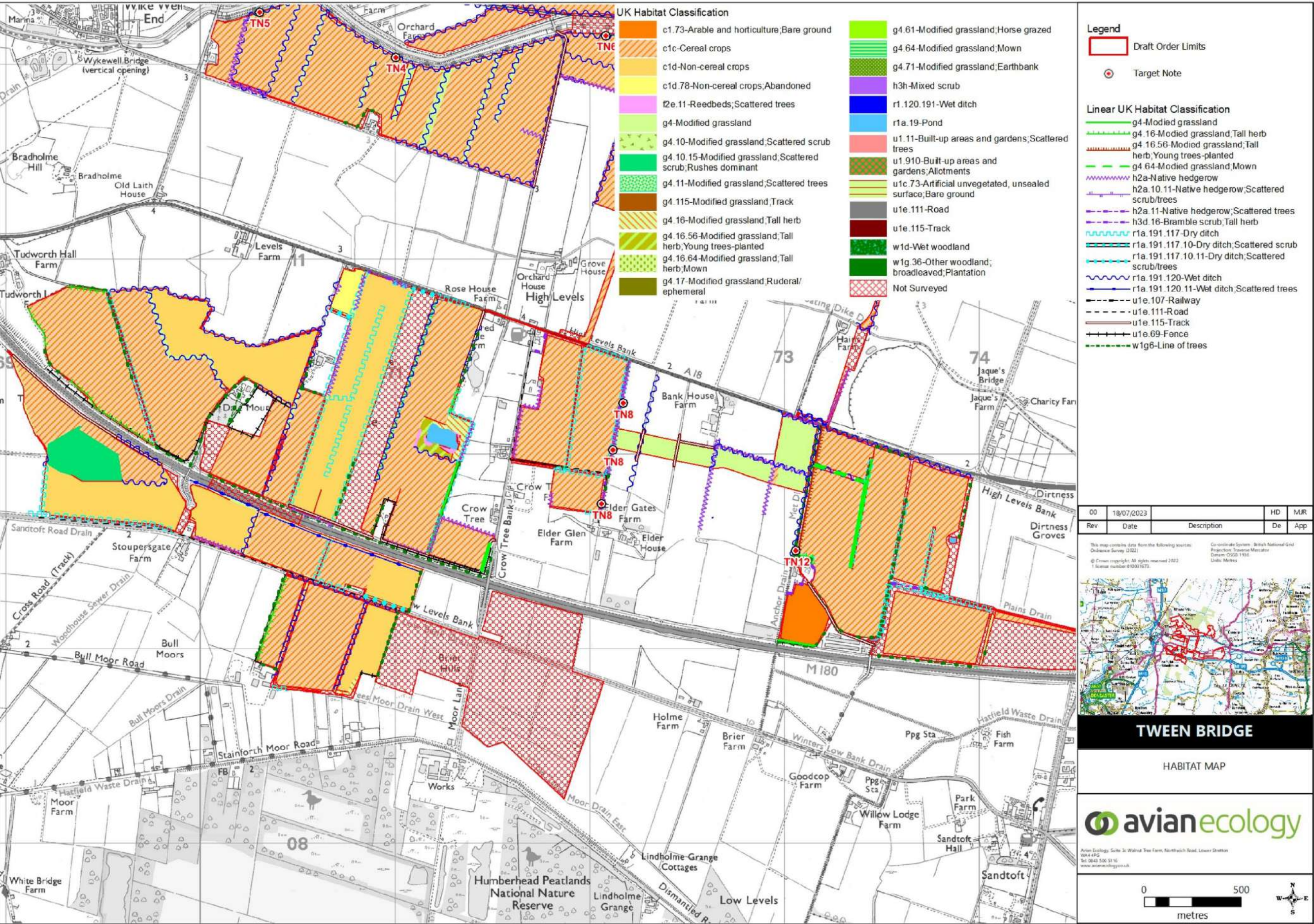
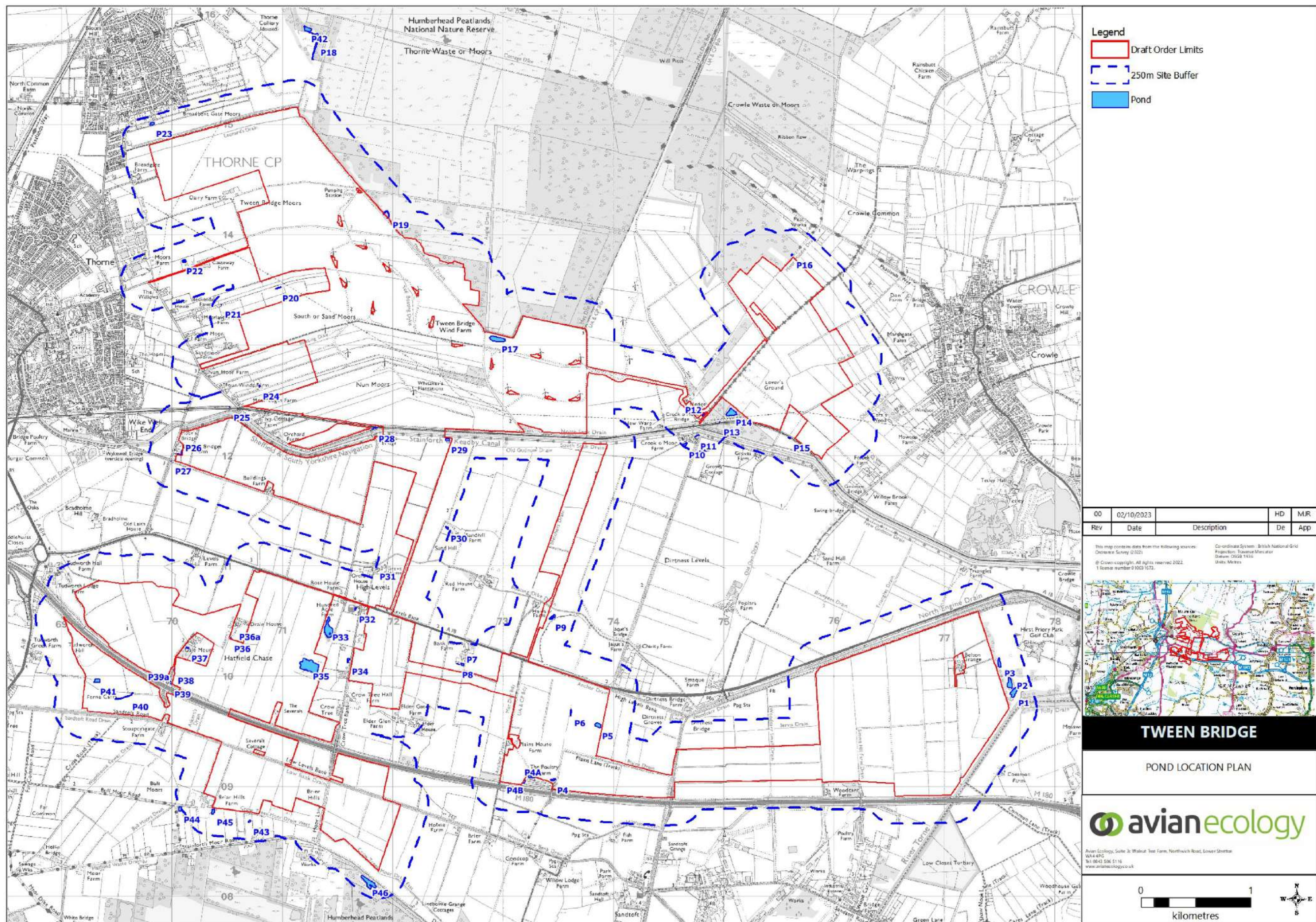


FIGURE 4E: HABITAT PLAN (MAP 4)





ANNEX 1: PHOTOGRAPHS



Photograph 1: An example of an arable field with cereal crop within the Draft Order Limits.



Photograph 2: Modified grassland field pasture within the Draft Order Limits.



Photograph 3: Tall ruderal linear strip located along a field boundary.



Photograph 4: Expansive area of tall ruderal within the Draft Order Limits.



Photograph 5: An example of species-poor hedgerow within the Draft Order Limits.



Photograph 6: A typical tree line within the Draft Order Limits.



Photograph 7: Pond P4 located at the Draft Order Limits boundary.



Photograph 8: An example of a wet ditch within the Draft Order Limits.



Photograph 9: An example of a woodland copse within the Draft Order Limits.



Photograph 10: TN1 Building with bat box and cracks in the building exterior. Cracks in the building have low bat roost potential.



Photograph 11: TN2 Brash pile considered suitable for newt refugia.



Photograph 12: TN4 Water fern present in large area of ditch. An invasive, non-native plant species.



Photograph 13: TN11 Two dead trees with cracks and holes. Moderate bat roost potential.



Photograph 14: TN12 Mature ash tree considered to be a potential veteran tree. Low to moderate bat roost potential.

ANNEX 2: NON-STATUTORY DESIGNATED SITES

Non-statutory Designated Sites.

LWS: Local Wildlife Site; CLWS: Candidate Local Wildlife Site; LGS: Local Geological Site; LWT: Lincolnshire Wildlife Trust Reserve

Site Name	Approximate Distance and Direction from the Draft Order Limits	Description
Whittaker's Plantation CLWS	Within the Draft Order Limits	A small deciduous woodland is located 0.5 km north of the Stainforth & Keadby Canal on the eastern edge of Nun Moors south of Thorne Moors SSSI. Notable species present include water vole.
North Soak Drain (East of Maud's Bridge) CLWS	Within the Draft Order Limits	The site is a drainage ditch with scattered trees and marginal vegetation. Notable species present include water vole.
M180 North Drain LWS	Within the Draft Order Limits	This stretch of drain adjoins the M180 on the south side and has associated tall ruderal neutral grassland banks.
Askern's Drain LWS	Within the Draft Order Limits	Askern's Drain is very species poor. The banksides have the usual dominant assemblage of tall grasses and herbs. Canadian waterweed is present.
Anchor Drain West LWS	Within the Draft Order Limits	Located within a mainly arable landscape, this 3-6m wide watercourse and its banks extend westwards along the southern side of the A18 for 470m, and then head south for 1.6km. A good range of aquatic plants occur in the drain, as well as signs of water vole.
Anchor Drain LWS	Within the Draft Order Limits	The eastern end of this straight and 4m wide watercourse is connected to North Idle Drain watercourse, which is within the Hatfield Chase Ditches SSSI. From that point, the site extends west-north-westwards for 1km, alongside first High Levels Bank Road and then the A18. A rich drain flora is present, although this is much more pronounced near the SSSI.
Boating Dyke Drain LWS	Within the Draft Order Limits	This 5-9m wide drain flows south-eastwards for nearly 2km from the border with Metropolitan Borough of Doncaster near Hains Farm, to the junction with Old Dun Drain. At that point, the two watercourses become North Engine Drain, in Hatfield Chase Ditches SSSI. The site supports a rich aquatic, emergent and marginal flora. Nuttall's waterweed and New Zealand pygmyweed are present. A variety of invertebrate species are present including emerald damselfly, southern and brown hawkers, emperor, ruddy darter and azure damselfly.
Crow Trees Moor Drain West and Moor Lane Drain LWS	Within the Draft Order Limits	No site description provided in the data search.
Hatfield Waste Drain LWS	Within the Draft Order Limits	This is 10km of botanically-rich canalised drain and its banks, parts of which are very close to, or adjacent to, Hatfield Chase Ditches SSSI. The drain crosses a mainly arable landscape from the Doncaster Metropolitan Borough boundary to the Three Rivers complex. The overall orientation is towards the east-north-east. The channel is around 7m wide for most of its course, but increases to 15m at the downstream end. There is generally little woody vegetation. The site supports a very rich aquatic, emergent and marginal flora. Much of the bank vegetation receives little

Site Name	Approximate Distance and Direction from the Draft Order Limits	Description
		management and is therefore dominated by coarse grassland. A wide range of fauna are present, including many butterflies, damselflies and dragonflies.
Jone's Cable LWS	Within the Draft Order Limits	This is a long narrow site which runs between two arable fields east of Moorends. It has the appearance of a disused railway line and is a public footpath. The site is bounded by hedges which are mainly intact. The main part of the site is dominated by areas of unimproved neutral grassland and tall ruderal vegetation typical of a disused railway line. Notable species present include green-veined white, water vole, common lizard, grass snake and adder.
Clay Bank Drain (9.28a) CLWS	Within the Draft Order Limits	Clay Bank Drain has steep banksides carrying the similar tall ruderal/neutral grassland type vegetation seen alongside other drains in the Hatfield Chase area. Canadian and Nuttall's waterweed present.
Clay Bank Drain (9.28b) CLWS	Within the Draft Order Limits	This site is another section of field drain of which the adjacent banks comprise tall ruderal vegetation. Canadian and Nuttall's waterweed present.
Hassock Drain LWS	Within the Draft Order Limits	This dog-leg drain section is very choked with overhanging bankside vegetation of tall ruderal species and coarse grasses and herbs. Notable species present include water vole.
North Soak Drain LWS	Within the Draft Order Limits	A 200m section of drain that only has very small amounts of emergent species, comprising occasional reed sweet grass, yellow flag and soft rush.
Bletchers Drain CLWS	Directly adjacent to the Draft Order Limits	No site description provided in the data search.
Stainforth and Keadby Canal Corridor LWS	Directly adjacent to the Draft Order Limits boundary	This is a 10km long strip of land extending eastwards from the Metropolitan Borough of Doncaster boundary to the Humber Estuary SSSI on the western bank of the River Trent. Stainforth and Keadby Canal is the major feature of the site, but other important elements are South Soak Drain, part of North Soak Drain, and all connecting banks. Whilst there is wildlife interest in each of these elements, their combined value is even greater. The canal supports a rich aquatic flora that throughout its length. The variety of dry, damp and wet habitats in this large site has encouraged development of a diverse fauna, including dragonflies, damselflies, butterflies and birds. Nuttall's waterweed is also present.
River Torne LWS	Directly adjacent to the Draft Order Limits boundary	This is over 15km of botanically-rich canalised watercourse and its banks, crossing from the Doncaster Metropolitan Borough boundary to the Three Rivers complex. A substantial length is adjacent to Hatfield Chase Ditches SSSI, although most neighbouring land is arable or agriculturally improved grassland. The site comprises many stretches of straight river channel with an overall orientation towards the north-east. The channel is around 8m wide at the upstream end and 16m wide at the downstream end. The river and other water features support a rich aquatic, emergent and marginal flora. Much of the bank vegetation receives little management and is therefore dominated by coarse grassland. A variety of fauna species are also present including grass snake, butterflies, damselflies, dragonflies and birds.

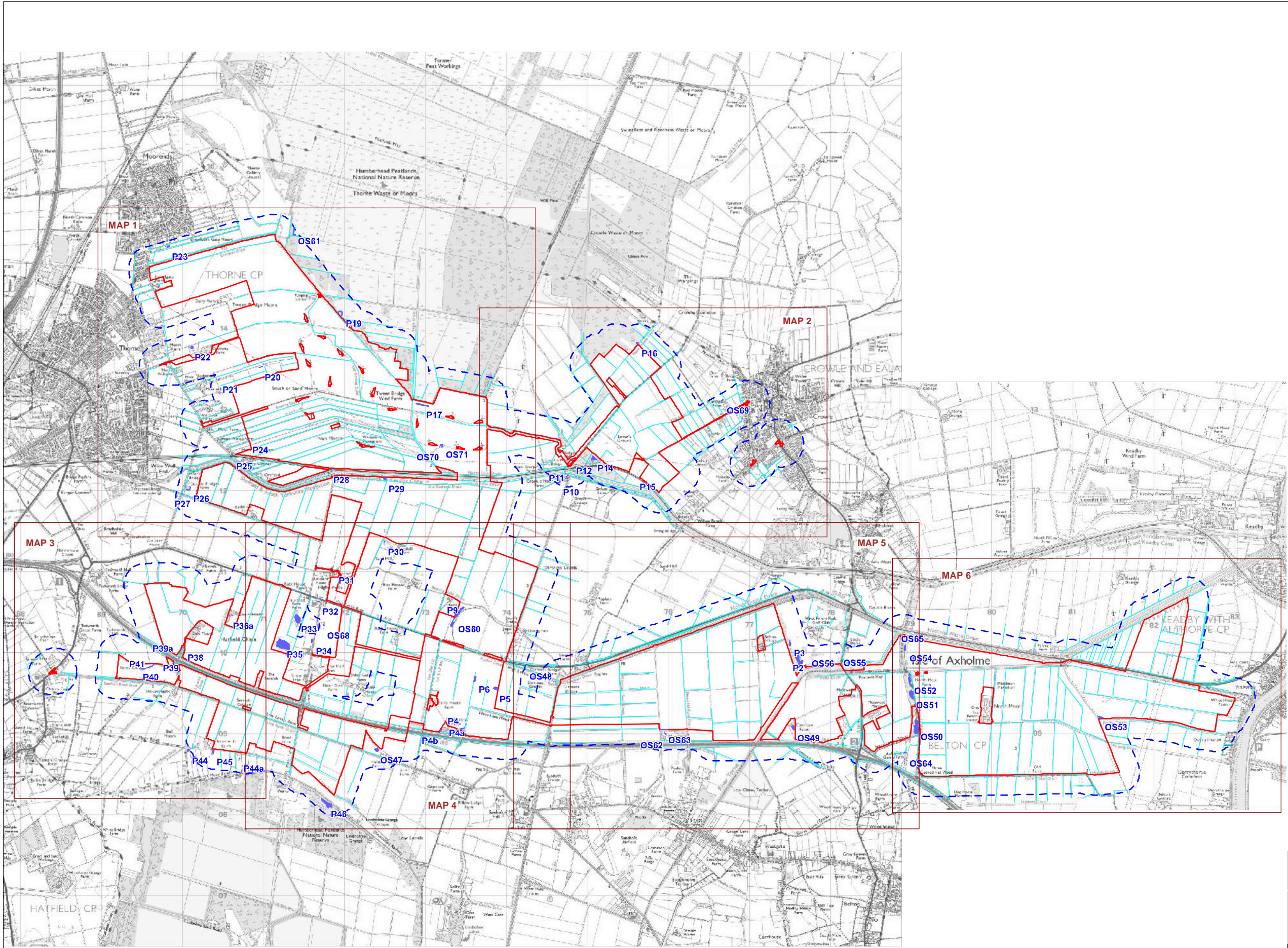
Site Name	Approximate Distance and Direction from the Draft Order Limits	Description
Crowle Moor LWT	Directly adjacent to the Site boundary	No site description provided in the data search.
South Engine Drain, Belton LWS	70m east	This is a botanically-rich canalised watercourse and its banks, extending eastwards for more than 3km, from the point where South Engine Drain ceases to be part of Hatfield Chase Ditches SSSI, to the Three Rivers complex. The channel is mostly around 8m wide, ranging from 6m at the SSSI boundary, to more than 10m in a few places. Folly Drain is adjacent to the south. The site supports a rich aquatic, emergent and marginal flora. Much of the bank vegetation receives little management and is therefore characterised by coarse vegetation.
Folly Drain North LWS	100m east	This is a major part of a long drain, extending 9.5km upstream in a south-south-westerly direction from Pilfrey Bridge. The channel varies in width from 8m wide near Pilfrey Bridge to around 3m wide at the opposite end of the site. Much adjoining land is of value for its drain flora and fauna, including part of Hatfield Chase Ditches SSSI. Both the channel and the drain sides appear to receive minimal management, and hence there is much coarse bank vegetation and luxuriant growth of water plants. Nuttall's waterweed is present.
New Godnow Drain West LWS	110m south	This is a 1-3m wide drain extending north-westwards for almost 1km from near Godnow Bridge. It is adjacent to a minor road throughout. Common reed is abundant, forming dense beds in many places. However, the more open patches between the reeds support a diverse flora. Nuttall's waterweed is present.
Thorne Colliery LWS	130m north-west	This site follows the boundaries of the former Thorne Colliery east of Moorends and lying adjacent to Thorne Moors SSSI. The site contains a variety of habitats and has a generally heterogeneous vegetation composition. The one feature of striking interest throughout many areas is that much of the site has a still developing and seral vegetational structure. The second most noticeable feature in the eastern general area is the discrete areas of swamp vegetation. Notable species present include green-veined white, water vole, common lizard, grass snake and adder.
Old Dun Drain LWS	130m south	The northern section is a 2.5 to 4m wide drain extending 1.3km south-south-westwards from New Godnow Drain into the arable area known as Dirtiness Levels. The southern section is 3-4m wide that extends 1.4km north from the junction with Boating Dike Drain and Hatfield Chase Ditches SSSI (South Engine Drain). A good range of aquatic plants are present.
Sandhill Farm Drain (Boating Dike) CLWS	140m west	No site description provided in the data search.
Low Bank Suction Drain LWS	140m south	This is a 1km long canalised watercourse linking Hatfield Waste Drain to the east with Anchor Drain to the west, within a low-lying arable landscape. A diverse flora characterises both the 6-10m wide channel and the steep banks. Botanically-rich acidic grassland is a feature of south-facing slopes in the western half of the site.
Old Godnow Drain CLWS	210m west	No site description provided in the data search. Notable species present include water vole.

Site Name	Approximate Distance and Direction from the Draft Order Limits	Description
Crowle Moor LWS	340m north	This site consists of two fields surrounded on three sides by SSSI acid peatland habitat.
Woodcarr Drain LWS	350m east	This is a 620m stretch of 5m wide canalised drain on the south side of a minor road. The drain supports a rich aquatic, emergent and marginal flora.
Jaque's Bank Drain LWS	480m north	This is more than 1km of straight, 1-3m wide drain beside the western verge of Jaque's Bank minor road, aligned south-south-west to north-north-east. The site supports a rich aquatic, emergent and marginal flora, most notably an abundance of the locally scarce floating club-rush. New Zealand pygmyweed is present, as well as brown and southern hawker, emerald damselfly and gatekeeper.
Crowle Brick Pits LWS	500m north	This site consists of lakes and woodland, with a small meadow area in the north. It is directly adjacent to a large caravan park. The Stainforth and Keadby Canal Corridor runs near to the southern boundary of the site. There are six lakes within the site. They have good marginal and aquatic vegetation, including the nationally scarce fen pondweed, a variety of dragonflies and damselflies, and water birds. There is a small open meadow to the north-west of the north-eastern lake, surrounded by scrub and trees. It has an open short to long sward supporting a range of neutral and calcareous grassland species, including bee orchid.
Hatfield Moors East LWS	640m south-east	No site description provided in the data search.
Hatfield Moors West LWS	650m south-west	An area of arable farmland dissected with drainage ditches. To the south-east is a former sand extraction area which is now a water body (Ten Acre Lake) and managed by Natural England. Notable species present include merlin, water vole and adder. The invasive alien New Zealand pygmyweed is also present.
Oak Moor and Chadwick Dike Area LWS	840m north-west	The site is based around the now defunct Thorne Colliery. The area is generally flat with some earth banks, unimproved neutral grassland, tall ruderal, a drain, scattered scrub and broad-leaved woodland. Notable species present include cuckoo, turtle dove, grass snake and adder.
Green Tree Inn CLWS	890m south-west	This site is a roadside hedgerow with only five woody species present. The hedgerow is three metres high and two metres wide. The roadside verge is regularly mown and contains a typical range of common species.
Thorne Railway Delves LWS	970m west	This linear site comprises the route of an active railway line and its curtilage, running north-eastwards for 3km from the western edge of Thorne to the entrance track to Thorne Colliery, north of the village of Moorends. Notable species present include great crested newt, cuckoo, turtle dove, white letter hairstreak, common lizard and grass snake.
Thorne Railway Kirton Lane Area CLWS	1.27km west	The site comprises secondary age broad-leaved woodland complete with a small ditch, located on either side of the railway line which cuts through the site.
North Engine Drain, Belton LWS	1.32km east	This is a 5-10m wide and 2km long stretch of canalised watercourse, plus bank habitat, between Hatfield Waste Drain and the A18 to the north, and the River Torne to the south. Upstream to the west is part of Hatfield Chase Ditches SSSI, while downstream is a junction with Hatfield Waste Drain, River Torne, South Engine Drain and Folly Drain, leading into the Three

Site Name	Approximate Distance and Direction from the Draft Order Limits	Description
		Rivers complex. The site supports a very rich aquatic, emergent and marginal flora, as well as interesting grassland and scrub on both banks.
Hollin Bridge Farm CLWS	1.35km south	Hollin Bridge Farm is 500m south east of Hatfield Woodhouse. The adjacent land use is horse grazed pasture and arable land. The site comprises a hay meadow, horse pasture and copse. Notable species present include merlin.
Thorne Ashfields LWS	1.37km west	Thorne Ashfields is a large and complex site consisting of the line of an old flood bank, borrow pits and flashes beside the Stainforth and Keadby Canal, and the Hatfield - Thorne railway, new woodlands and fields of 'set-aside', pasture, ditches and hedgerows and a golf course created in the early 1990s. notable species present include white letter hairstreak and water vole.
North Idle Drain, West Hale Farm LWS	1.60km south	This is a straight, canalised, 470m length of an approximately 3m wide drain. It follows a course just east of due-north on the western side of a minor road, between two stretches of Hatfield Chase Ditches SSSI. The only botanically-rich part of the site is the extreme southern end, where there is little shade and plentiful water.
Lindholme Hall LWS & LGS	1.80km south	A large area of part managed grassland with bordering bracken and silver birch woodland surrounded by recent peat extraction. The ground supports many species of invertebrate including spiders, grasshoppers and dragonflies. Notable species include common hawkmer, migrant hawkmer, brown hawkmer, black darter, nightjar, woodlark, grass snake and adder.
Old Oil Well Site LWS	1.97km south-west	The site comprises of a small area of broad-leaved woodland separated from other woodland on two sides only by a shallow ditch. The site contains abundant downy birch and some pedunculate oak and silver birch. Notable species include adder.

Appendix 2: Pond Location Plan





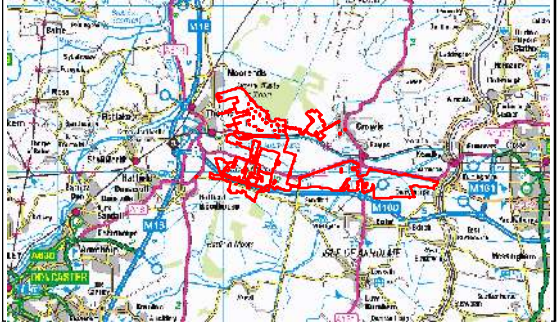
Legend

- Draft Order Limits
- 250m Buffer
- Ditch
- Pond

00	21/05/2025		HD	MJR
Rev	Date	Description	De	App

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Ordnance Survey (2022)
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Co-ordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGE

POND LOCATION PLAN - OVERVIEW

avianecology

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