

One Earth Solar Farm

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Appendix 6.2: Ecology Desk Study

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A.6 Appendix 6-2: Desk Study

A.6.1. Introduction

Background

A.6.1.1. This appendix should be read in conjunction with Chapter 6 of the Environmental Statement (ES) which is provided in support of the delivery of an Environmental Impact Assessment (EIA) associated with the One Earth Solar Farm, hereafter referred to as the 'Proposed Development'.

Purpose of the Appendix

A.6.1.2. This Appendix outlines the methodologies used and summarises the results of the desk study conducted between 2023 and 2025.

A.6.1.3. This report does not include any recommendations for mitigation or compensation measures, nor does it assess the potential impacts of the proposed development on biodiversity or other ecological receptors. These considerations are addressed in Chapter 6 of the ES.

A.6.1.3-A.6.1.4. The document references have not been updated from the original submission. Please refer to the Guide to the Application [EN010159/APP/1.3.2] for the list of current versions of documents

Structure of the Appendix

A.6.1.4-A.6.1.5. This Appendix is structured as follows:

- > **Section 2: Methods**
- > **Section 3: Results**
- > **Annex 1: Figures**

A.6.2. Methods

- A.6.2.1. A desk study was undertaken in September 2023 and January 2025 to gather existing information on statutory and non-statutory sites (known as Local Wildlife Sites (LWS) in Greater Lincolnshire and Nottinghamshire) designated for nature conservation, Habitats and Species of Principal Importance and legally protected, controlled or otherwise notable species within the Site or in the area over which effects on ecological features of development could be realised (referred to as the Zone of Influence¹ or Zol). **Table 2-1** describes the ecological features for which data was collected, the relevant Zol for each ecological feature and the sources of the information.
- A.6.2.2. The desk study was throughout the period between 2023 and 2025 to account for changes in the Site boundary, ensuring the data and assessments reflected the revised Zols accurately.

Table 2-1: Summary of search distances and sources used to inform the desk study

Ecological Feature	Search Distance (KM)	Information Source
Statutory designated sites of international importance ²	10	Magic.gov.uk ³ Natural England's designated sites website ⁴
Statutory designated sites of national importance ⁵	2	Magic.gov.uk Natural England's designated sites website
Statutory designated sites of local importance ⁶	2	Magic.gov.uk Natural England's designated sites website

¹ The Zols used within the desk study are set on a precautionary basis to ensure that all potential constraints are identified.

² Following UK Government advice this includes Special Areas of Conservation (SAC), Special Protection Areas (SPA), proposed SAC, potential SPA, Ramsar sites and proposed Ramsar sites. SAC and SPA are protected via legislation, whilst the other sites are treated comparatively through policy. See <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site#European-sites>

³ Multi-Agency Geographic Information for the Countryside (MAGIC). Available at: www.magic.gov.uk

⁴ Available at <https://designatedsites.naturalengland.org.uk/>

⁵ Includes Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)

⁶ Includes Local Nature Reserves (LNR)

Ecological Feature	Search Distance (KM)	Information Source
Non-statutory designated sites including Local Wildlife Sites (LWS)	2	Nottinghamshire Biological and Geological Records Centre (NBGR) ⁷ Greater Lincolnshire Environmental Records Centre (GLNP) ⁸
Habitats of Principal Importance / Ancient Woodland	1	Priority Habitat Inventory and Ancient Woodland Inventory - provided on Magic.gov.uk and Forestry Commission Map Browser
Legally protected and notable flora and fauna	2	NBGR GLNP EA Ecology and Fish Data Explorer
Legally controlled invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)	2	NBGR GLNP
Waterbodies (ponds, wet ditches, lakes) inside or within 500m of the Site	0.5	Satellite imagery and Ordnance Survey mapping ⁹
Veteran trees	0.5	Ancient Tree Inventory ¹⁰

A.6.2.3. In addition, the SSSI Impact Risk Assessment Zones provided by Natural England on Magic.gov.uk have been reviewed and accounted for in the desk study results.

⁷ Available at [Nature and Wildlife - Nottingham City Council](#)

⁸ Available at [Greater Lincolnshire Nature Partnership - Greater Lincolnshire Nature Partnership](#)

⁹ Available at [Detailed maps & routes to explore across the UK | OS Maps](#)

¹⁰ Available at <https://ati.woodlandtrust.org.uk/tree-search/>

A.6.3. Results

Designated Sites

- A.6.3.1. There are no statutory designated sites of international importance within 10km of the Site.
- A.6.3.2. There are no statutory designated sites of national or local importance within 2km of the Site. However, Spalford Warren SSSI lies approximately 2.1km south of the Order Limits. This SSSI is cited for its sandy grass heaths.
- A.6.3.3. The data search returned 34 LWS within 2km of the Site boundary, with one of these falling within the Site. All of the identified LWS are within Nottinghamshire. **Table 3-1** provides a summary of these LWS within 2km of the Site. Their locations are shown in **Annex A, Figure A-1**.

Table 3-1: Local Wildlife Sites (LWS) within 2km of the Site

Site Name/Designation	Distance and Direction from Proposed Development	Description and Designated Features
Dunham Dubs	Adjacent to the Site boundary	A notable association of open water and grassland along the River Trent
Dunham Oxbow	Adjacent to the Site boundary	A valuable aquatic community developed on an abandoned channel of the River Trent - of botanical and vertebrate zoological interest
Marnham Railway Yard	<u>Within the Site boundary</u> Adjacent to the Site boundary	Dry grassland with notable species
Road Wood	Adjacent to the Site boundary	A locally characteristic acidic woodland site of botanical and zoological value
West Wood	Adjacent to the Site boundary	A remnant of locally characteristic acid woodland

Site Name/Designation	Distance and Direction from Proposed Development	Description and Designated Features
Darnsyke Marsh	Adjacent to the Site boundary	An excellent community of tall marshy grassland and aquatic and emergent plant species
Fledborough to Harby Dismantled Railway	Within the Site boundary	A long length of dismantled railway line with a rich diversity of characteristic and notable herbs
Skegby Road Triangle	Adjacent to the Site boundary	A species-rich roadside verge
Fledborough Holme	Adjacent to the Site boundary	Lightly grazed common land, a small oxbow and a length of the River Trent, each with its characteristic flora
Lodge Farm Grassland, Thorney	0.05km east	A mosaic of damp neutral to acidic grassland with seasonally wet hollows with species-rich marsh vegetation and a pond with notable plant community
Old Trent, Marnham	0.07km southeast	A range of wetland habitats along the old course of the River Trent
Wigsley Park Wood	0.28km southeast	A typical open woodland of light freely-draining soils
North Clifton Church	0.28km southwest	A notable blown-sand grassland in a churchyard
Wigsley Wood	0.44km southeast	A historical wood that retains both faunal and floral interest
A1133 Verge, Spalford	0.52km south	A diverse grassland community on a broad roadside verge

Site Name/Designation	Distance and Direction from Proposed Development	Description and Designated Features
Spring Wood, Thorney	0.59km east	A partly wet acidic woodland with characteristic species
South Clifton Grassland	0.66km southeast	A neutral Trentside pasture
Old Trent Oxbow, Spalford	0.87km southwest	An excellent aquatic and bankside flora developed along an abandoned river channel
Gainsborough Road Verges, Spalford	1.26km south	Dry sandy roadside verges with a plant community of very restricted distribution in the county
Sand Lane, Spalford	1.27km south	An unusual association of botanical interest on a roadside verge
Weston Road Verge	1.41km southwest	Species-rich roadside verges in a predominately arable area
Spalford (drain, SW of)	1.45km south	A drain of interest for water beetles
Kingshaugh Farm Earthwork	1.51km west	Noteworthy grassland on an ancient site
Plot Wood	1.53km east	A characteristic sand-land woodland
Meadow Lane Grasslands, Normanton on Trent	1.55km south	A collection of species-rich grasslands
Grassthorne Corner	1.56km south	A Disturbed but species-rich pocket of grassland

Site Name/Designation	Distance and Direction from Proposed Development	Description and Designated Features
The Ring, Thorney	1.58km east	A narrow strip of ancient deciduous woodland on sandy soil, bordered by a species-rich drain.
Drinsey Nook Lane Drain, Thorney	1.61km east	A shallow, slow flowing drain with a notable aquatic flora
Crow Wood Drain	1.64km east	A shallow drain with a notable aquatic flora bordering an open acidic woodland
Wigsley Airfield Pool	1.81km southeast	A notable aquatic community in and around a pond of recent origin
Thorney Drain	1.92km east	A shallow field drain in an arable area with notable emergent vegetation and bank-side grassland
Ox Pasture Drain	1.93km east	A broad drainage channel with an outstanding array of aquatic species
Gibbet Wood, Thorney	1.98km east	A partly cleared, sand-land deciduous woodland with a noteworthy flora
Spalford Warren	1.98km south	An important grass-heath habitat of a type of very restricted inland occurrence - although largely planted with conifers, substantial areas of sandland plant communities survive

A.6.3.4. SSSI Impact Risk Zones (IRZ) extend across the Site. These relate to specific developments likely to impact SSSIs and require consultation with Natural England. The types of developments described do not include solar farms.

Habitats

- A.6.3.5. The desk study identified six priority and/or notable habitats within 1km of the Site, including three habitat types present on-Site. Where multiple records were identified, only the closest record to the Site has been included.
- A.6.3.6. In addition, ancient semi-natural and ancient replanted woodlands listed on the Ancient Woodland Inventory were identified; however, none of these occur within the Site. A detailed breakdown and extent of the identified habitat types are provided in **Table 3-2**, with their locations shown in **Annex A, Figure A-2**.

Table 3-2: Summary of Priority Habitat and Ancient Woodland Inventory listings within 1km of the Site

Habitat type	On Site (Y/N)	Area (ha) within Site	Distance to nearest record
Coastal and Floodplain Grazing Marsh	Y	3.0 ha	On-Site (North Clifton)
Deciduous woodland	Y	3.61 ha	On-Site (Marnham and Thorney)
Open mosaic habitat	Y	22.13 ha	On-Site (Fledborough)
Lowland fens	N	Off-Site	Adjacent north of Site boundary (Old Trent- west of river Trent)
Traditional orchards	N	Off-Site	Adjacent north of Site boundary (Ragnall- south of A57)
Wood pasture and parkland	N	Off-Site	Adjacent to Site boundary (North Clifton- east of A1133)
Ancient and semi-natural woodland	N	Off-Site	0.59km north
Ancient replanted woodland	N	Off-Site	0.59km north

- A.6.3.7. There are 29 ponds within 500m of the Site. The locations of these are shown on Annex A, Figure A-3.

- A.6.3.8. There were no trees assigned veteran status within the Site. However, two veteran crack willow lie adjacent to the Site in North Clifton.

Protected and Notable Species

Amphibians

- A.6.3.9. The data search returned six records of great crested newt, the only amphibian species recorded within 2km of the Site in the past 10 years. The closest GCN record was located on Site in Marnham, west of River Trent, with the most recent record being in 2019. These are shown on Annex A, Figure A-3.

Bats

- A.6.3.10. The data search returned 522 records of at least eight bat species, within 2km of the Site in the past 10 years. A summary of the data is provided in **Table 3-3**.

Table 3-3: Bat species

Species	No. of Records	Nearest Distance from Site	Most Recent Record
Common pipistrelle <i>Pipistrellus pipistrellus</i>	328	On-Site	2022
Leisler's <i>Nyctalus leisleri</i>	2	On-Site	2018
Myotis sp.	44	On-Site	3033
Noctule <i>Nyctalus noctula</i>	96	On-Site	2019
Nyctalus sp.	8	On-Site	18
Bat sp.	2	0.09km north	2019
Brown long-eared bat <i>Plecotus auritus</i>	25	0.13km south	2022
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	14	0.81km south	2022

Pipistrellus sp.	2	1.30km south	2016
Barbastelle <i>Barbastella barbastellus</i>	1	1.72km south	2016

A.6.3.11. Three European Protected Species Licences (EPSL) have been granted for a location 0.40km south of the Site boundary, east of the river Trent in North Clifton. All three licenses relate to the soprano pipistrelle *Pipistrellus pygmaeus*. The first license (Case Reference: 2018-34000-EPS-BDX) permits the damage and destruction of both breeding and resting places over a one-month period in April 2018. The second license (Case Reference: 2018-36081-EPS-BDX), valid for October 2018, allows no impact on breeding or resting sites. However, the third license (Case Reference: 2018-36081-EPS-BDX-1), an amendment of the second, permits the destruction of a breeding site during the same period, while prohibiting any damage or destruction of resting places.

Badger

A.6.3.12. The data search returned 146 records of badger, within 2km of the Site in the past 10 years, the nearest being on-Site. The most recent record was from 2022. The majority of these were located within the fields to the east of the village of Ragnall and fields to the north of North Clifton.

Birds

A.6.3.13. The desk study returned 284 records of 38 species of notable and protected bird species, within 2km of the Site in the past 10 years. A summary of the data is provided in **Table 3-4**. This includes:

- > Species listed as Schedule 1 on the WCA¹¹.
- > Species listed on Section 41 NERC list of SPI¹².
- > Species listed as red species on the Birds of Conservation Concern¹³.

¹¹ Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>

¹² Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) lists Species of Principal Importance for the conservation of biodiversity in England. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>

¹³ Birds of Conservation Concern 5. Available at: [bocc-5-a5-4pp-single-pages.pdf](https://www.birdsconservationconcern.org.uk/bcc5-a5-4pp-single-pages.pdf)

Table 3-4: Bird species

Species	No of Records	Nearest Distance from Site	Most Recent Record
Bullfinch <i>Pyrrhula pyrrhula</i>	11	On-Site	2018
Fieldfare <i>Turdus pilaris</i>	16	On-Site	2017
Greenfinch <i>Chloris chloris</i>	5	On-Site	2017
Redwing <i>Turdus iliacus</i>	9	On-Site	2017
Reed bunting <i>Emberiza schoeniclus</i>	9	On-Site	2019
Yellow wagtail <i>Motacilla flava</i>	7	On-Site	2019
Hobby <i>Falco subbuteo</i>	3	0.28km south	2017
Grey partridge <i>Perdix perdix</i>	4	0.28km south	2018
Skylark <i>Alauda arvensis</i>	4	0.28km south	2015
Spotted flycatcher <i>Muscicapa striata</i>	2	0.28km south	2017
Cetti's warbler <i>Cettia cetti</i>	9	0.41km north	2019
Dark-bellied brent goose <i>Branta bernicla bernicla</i>	3	0.41km north	2019

Species	No of Records	Nearest Distance from Site	Most Recent Record
Dunnock <i>Prunella modularis</i>	11	0.41km north	2016
House sparrow <i>Passer domesticus</i>	7	0.41km north	2016
Song thrush <i>Turdus philomelos</i>	10	0.41km north	2018
Yellowhammer <i>Emberiza citrinella</i>	7	0.41km north	2016
Lesser redpoll <i>Acanthis cabaret</i>	13	0.89km east	2017
Red kite <i>Milvus milvus</i>	1	0.89km east	2016
Common swift <i>Apus apus</i>	9	0.91km east	2018
Barn owl <i>Tyto alba</i>	10	0.92km east	2019
Common cuckoo <i>Cuculus canorus</i>	9	0.92km east	2019
House martin <i>Delichon urbicum</i>	11	0.94km east	2018
Common pochard <i>Aythya ferina</i>	22	1.29km north	2019
Green sandpiper <i>Tringa ochropus</i>	11	1.29km north	2018
Linnet	1	1.29km north	2018

Species	No of Records	Nearest Distance from Site	Most Recent Record
<i>Linaria cannabina</i>			
Tree sparrow <i>Passer montanus</i>	1	1.29km north	2016
Brambling <i>Fringilla montifringilla</i>	3	1.31km north	2018
Common scoter <i>Melanitta nigra</i>	10	1.36km south	2019
Goldeneye <i>Bucephala clangula</i>	39	1.36km south	2019
Greater scaup <i>Aythya marila</i>	6	1.36km south	2017
Herring gull <i>Larus argentatus</i>	3	1.36km south	2017
Kittiwake <i>Rissa tridactyla</i>	2	1.36km south	2015
Lapwing <i>Vanellus vanellus</i>	5	1.36km south	2019
Little ringed plover <i>Charadrius dubius</i>	1	1.36km south	2016
Marsh harrier <i>Circus aeruginosus</i>	4	1.36km south	2019
Merlin <i>Falco columbarius</i>	1	1.36km south	2016
Mediterranean gull	2	1.46km south	2019

Species	No of Records	Nearest Distance from Site	Most Recent Record
<i>Ichthyaetus melanocephalus</i>			
Mistle thrush <i>Turdus viscivorus</i>	3	1.46km south	2018

Invertebrates

- A.6.3.14. The desk study returned six records of the wall butterfly *Lasiommata megera*, a notable invertebrate species, within 2km of the Site in the past 10 years. The nearest record was located 0.89km north of the Site boundary, with the most recent record being in 2020.

Otter and Water vole

- A.6.3.15. The data search returned three records of otter and 20 records of water vole within 2km of the Site in the past 10 years. The nearest records were 1.52km east of the Site for otter and on-Site for water vole. Most of the on-Site water vole records lie west of river Trent.

Reptiles

- A.6.3.16. There are two records of grass snake within 2km of the Site in the past 10 years. The closest grass snake record lies at 0.95km northeast from the Site boundary with the most recent record being in 2022.

Fish

- A.6.3.17. There are two recording locations within or close to the Site, these being Dunham Bridge (National grid reference: SK 81829 74344) and North Clifton Nets (National grid reference: SK81678 72697). Between 2010 and 2025 Dunham Bridge was sampled in 2018 using electrofishing techniques and returned a total of seven European eel and three spined loach records. North Clifton Nets was sampled in 2010, 2012 and 2023 using seine nets and captured bullhead in both 2010 and 2012 (highest count of three) and European eel and spined loach in 2023 (one and two individuals respectively).

Other notable species

- ~~A.6.3.16.~~ A.6.3.18. The data search returned 26 records of hedgehog, within 2km of the Site in the past 10 years. The nearest record is located 0.16km north of the Site boundary, with the most recent record from 2022.
- ~~A.6.3.17.~~ A.6.3.19. There are four records of brown hare within 2km of the Site in the past 10 years. The nearest record is located 0.02km south of the Site boundary, with the most recent record being in 2019.

Plants

~~A.6.3.18~~-A.6.3.20. The desk study returned a single record of a protected plant species, pennyroyal *Mentha pulegium*, within 2km of the Site in the past 10 years. The species was recorded on-Site in Fledborough in 2019.

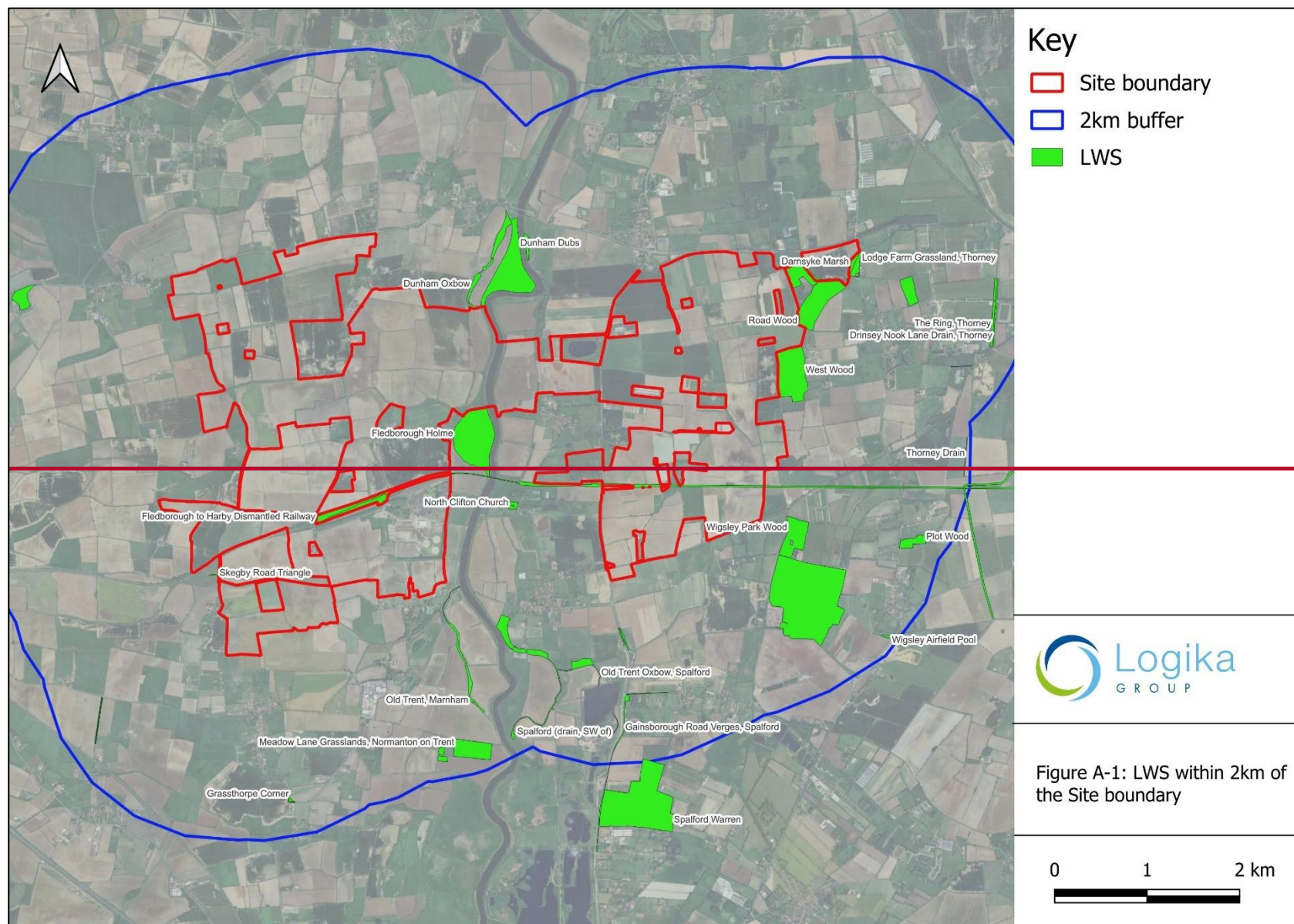
Legally Controlled Species

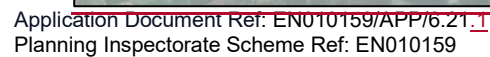
~~A.6.3.19~~-A.6.3.21. The desk study returned 59 records of six species of Invasive and non-native species (INNS), within 2km of the Site in the past 10 years. A summary of the data is provided in **Table 3-5**.

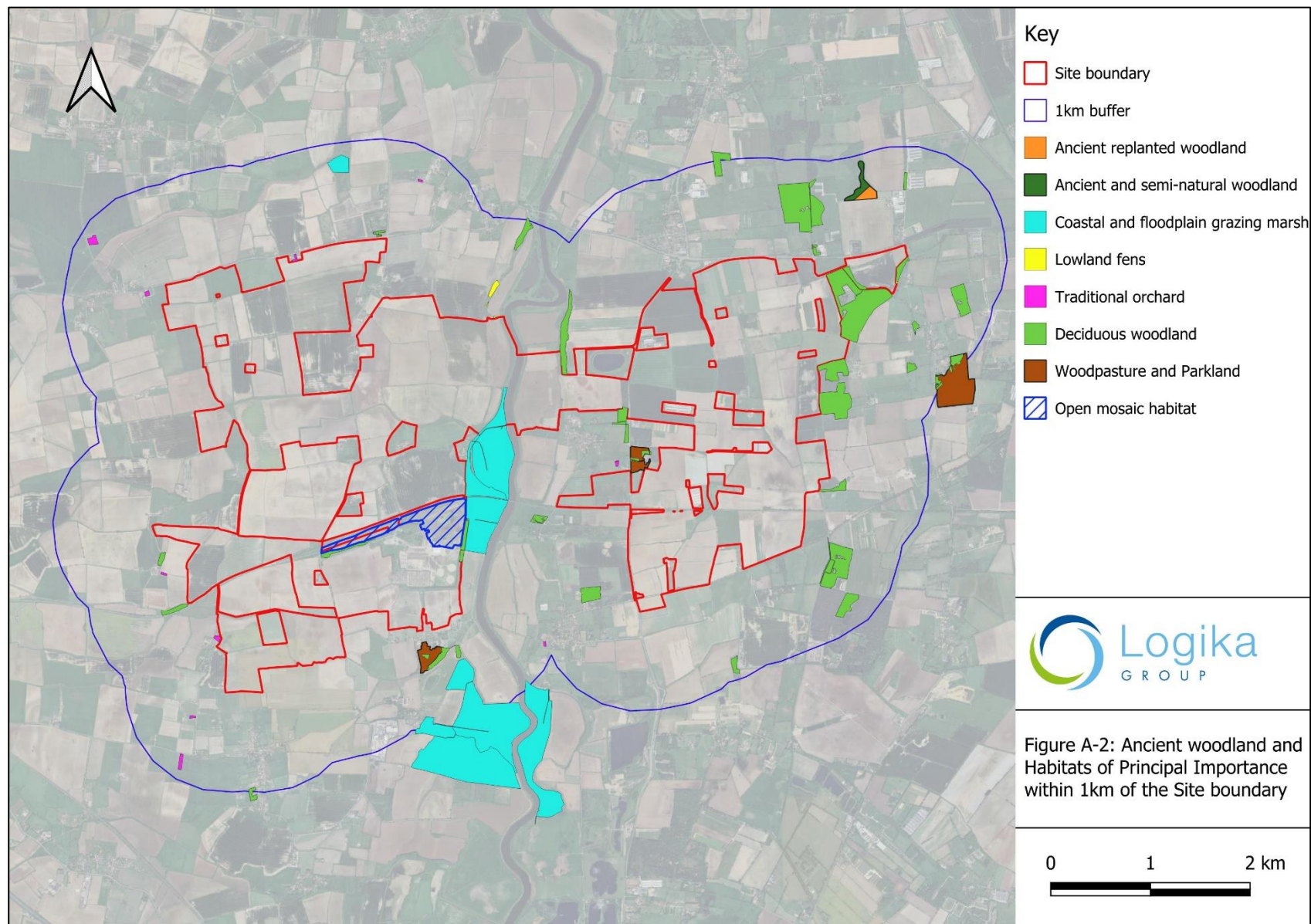
Table 3-5: Legally controlled species

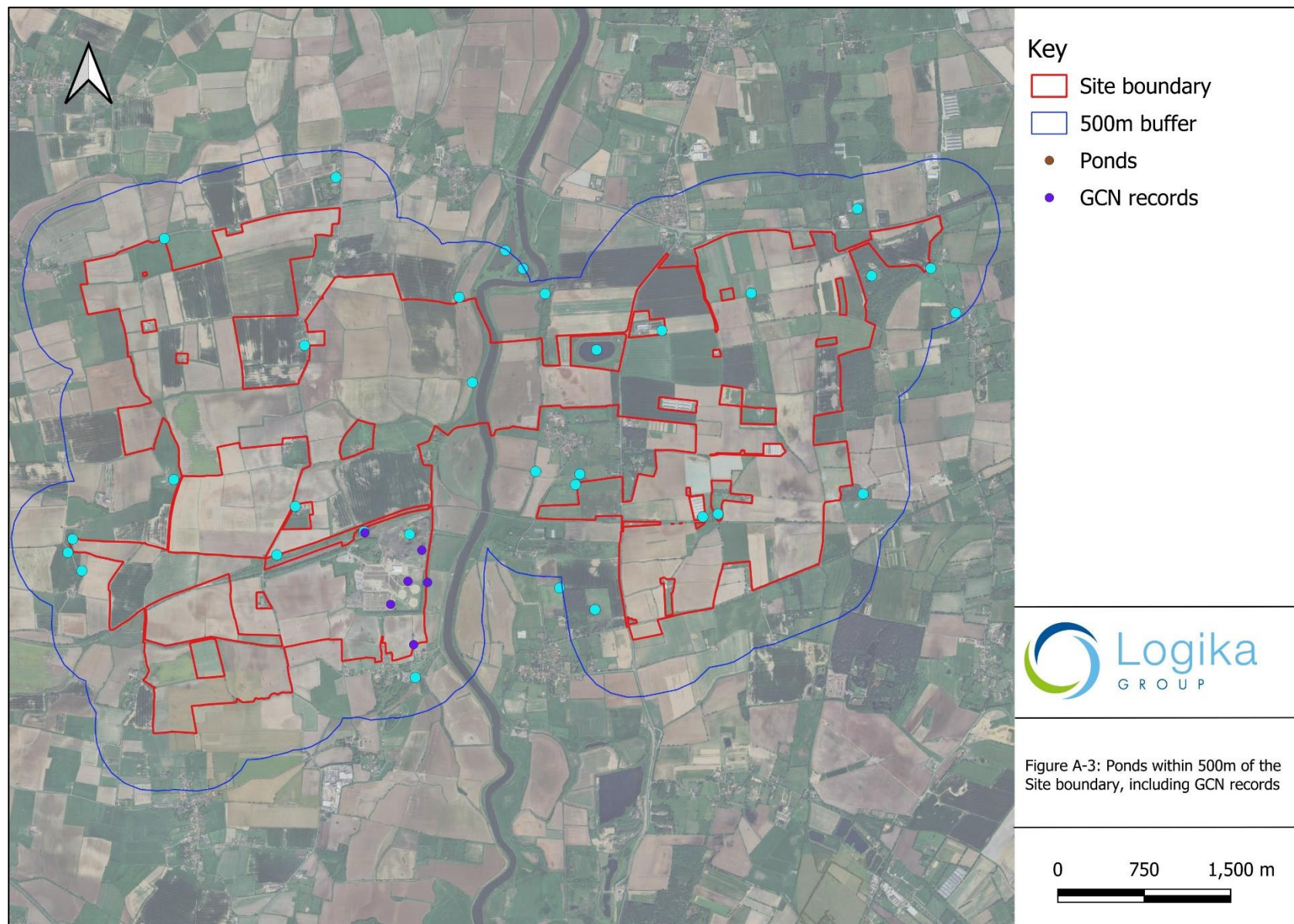
Species	No. of Records	Nearest Distance from Site	Most Recent Record
Floating pennywort <i>Hydrocotyle ranunculoides</i>	41	On-Site (Fledborough)	2018
water fern <i>Azolla filiculoides</i>	12	On-Site (North Clifton)	2016
Parrot's-feather <i>Myriophyllum aquaticum</i>	1	0.03km south	2016
Stonecrop <i>Crassula helmsii</i>	3	0.03km south	2019
Himalayan balsam <i>Impatiens glandulifera</i>	1	0.06km south	2017
Giant hogweed <i>Heracleum mantegazzianum</i>	1	1.75km southeast	2016

A1 Annex 1 – Figures











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