

**Tillbridge Solar Project
EN010142**

**Volume 6
Environmental Statement**
Appendix 9-10: Baseline Report for Riparian mammals
Document Reference: EN010142/APP/6.2

**Regulation 5(2)(a)
Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009**

**April 2024
Revision Number: 00**

Table of Contents

Executive Summary	1
1. Introduction	3
1.1 Background.....	3
1.2 Site Description.....	3
1.3 Aims and Objectives	3
2. Relevant Legislation, Policy and Guidance.....	5
2.1 Legislation.....	5
2.2 Protected Species Licencing.....	5
Water Vole	5
Otter.....	6
2.1 Priority Species.....	6
2.2 Local Biodiversity Action Plan	7
3. Methods	9
3.1 Characterising the baseline	9
3.2 Desk Study	9
3.3 Collaborative Dataset.....	10
3.4 Field Survey.....	10
Habitat Suitability Assessment.....	10
Water Vole Survey	14
Otter Survey.....	15
3.5 Biodiversity Importance.....	16
3.6 Assumptions and Limitations	16
4. Results.....	18
4.1 Desk Study	18
4.2 Collaborative Dataset.....	18
4.3 Field Survey.....	18
Habitat Suitability Assessment.....	18
Riparian Mammal Survey.....	19
5. Evaluation	20
Water Vole	20
Otter.....	20
6. Conclusions	21
7. References	22
Appendix A: Figures	24
Appendix B: Water Vole Habitat Suitability Assessment Data	27

Tables

Table 1. Summary of riparian mammal habitat suitability assessment criteria.....	10
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Table 2. Habitat Suitability for Water Vole..... 12
Table 3. Survey dates for riparian mammals 19

Executive Summary

- ES-1. In July 2022, AECOM (on behalf of Tillbridge Solar Limited) undertook a Preliminary Ecological Appraisal (PEA) for the proposed Tillbridge Solar Project (hereafter referred to as the Scheme). This PEA identified watercourses and water bodies within and around the Order limits and surveys were therefore undertaken to determine the presence or absence of riparian mammals.
- ES-2. Otter and Water Vole are both fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Otter is also classified under the Habitats Directive (92/43/EEC) as a species requiring strict protection in Europe. A licence is required from Natural England to intentionally damage or destroy burrows or displace Water Voles from their burrows for lawful development. Any operations that may impact upon Otters or their places of rest or shelter will require a Natural England European Protected Species (EPS) licence.
- ES-3. Field surveys were supported by a desk study of existing records for the Order limits and surrounding area. Furthermore, as set out in **Chapter 3: Scheme Description** of the ES [EN010142/APP/6.1], the Scheme has worked collaboratively with Gate Burton Energy Park, Cottam Solar Project and West Burton Solar Project to minimise environmental impacts along the Cable Route Corridor by using a shared route, where practicable. Therefore, wider ecological survey data for these schemes was reviewed as part of the desk study and informed the assessment of riparian mammal presence in the wider landscape.
- ES-4. The area within Order limits was assessed to determine which watercourses or water bodies were suitable for riparian mammals based on direct experience of the habitats in the area and the use of a Habitat Suitability Assessment.
- ES-5. In total, there were 82 watercourses within the Survey Area that were subject to field surveys for Otter and, or, Water Vole presence.
- ES-6. The desk study returned no records of any riparian mammals from the Order limits, but the collaborative datasets identified the presence of Otter within the River Trent (Cable Route Corridor). The data search and collaborative datasets identified Otter and Water Vole from outside of the Order limits, but within 2km (the Study Area). Field surveys, undertaken in November 2022, June 2023 and August 2023, did not detect the presence of any riparian mammals.
- ES-7. Water Vole is present in ditches to the east of Willingham by Stow (within the Cable Route Corridor) and in locations away from known populations of Mink. Whilst Water Vole is restricted in its distribution across the Order limits, in consideration of this species' declining status in a national and county context, the population of Water Vole is potentially of District importance. Whilst Otter was identified using the River Trent, no holts, couches or resting sites were recorded. Therefore, in consideration of the limited number of records of Otter (restricted to the River Trent) and the absence of holts, the

Order limits is of limited value to a population of Otter at a Local level (within approximately 2km of the Order limits)

1. Introduction

1.1 Background

1.1.1 This report forms a technical appendix to the Environmental Statement (ES) [EN010142/APP/6.1], specifically to accompany **Chapter 9: Ecology and Nature Conservation** of the ES [EN010142/APP/6.1]. The report provides information on the presence and distribution of riparian mammals (Water Vole *Arvicola amphibius* and Otter *Lutra lutra*), relevant to the Tillbridge Solar project, hereafter referred to as the Scheme, including the results of surveys undertaken within the Order limits.

1.2 Site Description

1.2.1 The Scheme is located approximately 5 kilometres (km) to the east of Gainsborough and approximately 13km to the north of Lincoln. The Scheme comprises two distinct parcels, which are:

- a. 'the Principal Site', which is the location where ground mounted solar PV panels, electrical sub-stations, and Battery Energy Storage System (BESS) will be installed; and
- b. 'the Cable Route Corridor', which will comprise the underground electrical infrastructure required to connect the Principal Site to National Grid Cottam Substation.

1.2.2 The Principal Site is located within the administrative district of West Lindsey. The Cable Route Corridor tracks south of the Principal Site, to the east of Willingham by Stow, before tracking west towards the River Trent and to the south of Gate Burton. The Cable Route Corridor crosses into Nottinghamshire (within the administrative district of Bassetlaw) before connecting to Cottam Power Station.

1.2.3 This report is based on the administrative county of Lincolnshire whilst recognising that key aspects of biodiversity are coordinated and managed within the geography of Greater Lincolnshire, for example the Nature Strategy for the Greater Lincolnshire Nature Partnership.

1.2.4 The Order limits covers an area of approximately 1,670 hectares (ha) and is dominated by arable fields (minimum 80% of the Order limits). There are numerous mature trees and hedges within the Order limits, with woodlands and small wooded copses. It is surrounded by mainly arable and improved grassland livestock fields.

1.2.5 The location of the Scheme is presented in **Figure 9-10-1**, included in **Appendix A** of this survey report.

1.3 Aims and Objectives

1.3.1 The aim of this report is to determine the presence and distribution of Water Vole and Otter within the Survey Area (see **Section 3.1**).

1.3.2 The objectives, therefore, are to:

- a. review existing ecological data to identify any records of riparian mammals occurring within the Study Area (see **Section 3.1**);
- b. identify and assess watercourses present within the Order limits and any areas immediately outside of the Order limits where there may be potential for direct or indirect effects (the “Zone of Influence” (Zol)), for their potential to support Water Vole and Otter;
- c. undertake surveys to determine the status of Water Vole and Otter within the Zol; and
- d. ascertain the status of American Mink *Neovison vison* within Zol (because this can affect the likelihood of Water Vole being present as it is a significant predator of the species).

1.3.3 Combined, this is being used to:

- a. determine the nature conservation value of the Order limits for riparian mammals; and
- b. the potential impacts of the Scheme on riparian mammals and any required mitigation.

2. Relevant Legislation, Policy and Guidance

2.1 Legislation

- 2.1.1 Water Vole and Otter are both fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) (WCA 981) (Ref 1). They are afforded protection under Section 9 parts 9 (1), (2), (4) and (5) of the Act, making it an offence to:
- intentionally kill, injure or take these species;
 - possess or control live or dead individuals of these species or their derivatives;
 - intentionally or recklessly damage, destroy or obstruct access to any structure or place used for their shelter or protection;
 - intentionally or recklessly disturb these species whilst occupying a structure or place of shelter used for that purpose;
 - sell these species or offer or expose for sale or transport for sale; and
 - publish or cause to be published any advertisement which conveys the buying or selling of these species.
- 2.1.2 Otter is also classified under the Habitats Directive (92/43/EEC) (Ref 2) as a species requiring strict protection in Europe. In the UK this is enabled by The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations) (Ref 3). Otter is also included in the following international legislation / conventions:
- Appendix II and IV of the Habitats Directive, Appendix II of the Bern Convention (Ref 4) and Appendix I of CITES (Ref 5); and
 - globally threatened on the IUCN/WCMC Red Data List (Ref 6).
- 2.1.3 American Mink is listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 1) making it an offence to:
- release or allow the escape of this species into the wild.
- 2.1.4 Compliance with the above legislation may require the attainment of relevant protected species licences prior to the implementation of the Scheme.

2.2 Protected Species Licencing

Water Vole

- 2.2.1 For Water Vole, a licence is required from Natural England where development works have the potential to disturb, damage or destroy their places of shelter (burrows); stop Water Voles from accessing places they use for shelter or protection; kill or injure them; or to take, move, possess or control them.
- 2.2.2 Development and other construction activities may be licensed by Natural England under “*reasons of overriding public interest*”. Such works should be carried out under a Mitigation Licence, issued by Natural England. This licence requires demonstration of a conservation benefit for Water Vole and this benefit can be achieved by delivering a net gain in the amount of habitat

available to the Water Vole population. This is typically achieved through habitat creation, improving existing habitat and significantly improving linkages between Water Vole colonies.

- 2.2.3 Minor works may also be undertaken under the supervision of an ecologist registered to use a Natural England Water Vole Class Licence. This approach does not require a specific development licence for Water Vole and would permit the displacement of Water Vole through vegetation removal from areas of bankside habitat not exceeding 50 metres (m). There are seasonal constraints applied to the displacement works, with initial vegetation removal (and thus displacement of Water Vole) only permitted during the period 15 February to 15 April and 15 September to 31 October inclusive.

Otter

- 2.2.4 Any operations that may impact upon Otters or their places of rest or shelter may require a Natural England European Protected Species (EPS) Mitigation Licence.
- 2.2.5 An EPS Mitigation Licence is required where development/ and or construction activity will impact Otter through:
- a. capturing, killing, disturbing or injury;
 - b. damaging or destroying their breeding/ resting place; or
 - c. obstructing access to their resting/ sheltering place.
- 2.2.6 In the first instance impacts to Otter should be avoided through considerate construction practices (e.g., minimising work to daylight hours) and through the implementation of “buffer zones” from known places of shelter. Where breeding holts are affected, the buffer zone would need to be 200m, but for other shelters this can be reduced to 30m (Ref 7).
- 2.2.7 Where such buffer zones cannot be implemented it is likely that the works will require a licence from Natural England.
- 2.2.8 The licence will stipulate how Otter will benefit from mitigation measures, habitat creation, habitat management and habitat maintenance.

2.1 Priority Species

- 2.1.1 The Natural Environment and Rural Communities (NERC) list of Species of Principal Importance (Ref 8) is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (in this context, the Secretary of State). Under Section 40 every public authority (e.g., a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity, including restoring or enhancing a population or a habitat
- 2.1.2 The UK Biodiversity Action Plan (UKBAP) (Ref 9) was launched in 1994 and established a framework and criteria for identifying species (and habitat

types) of conservation concern. From this list, action plans for Priority Species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 10) which is relevant in the context of Section 40 of the NERC Act. These species are identified as those of conservation concern, due to their rarity or a declining population trend.

- 2.1.3 Water Vole and Otter are listed as a Species of Principal Importance in England under Section 41 of the NERC Act (2006) (Ref 8) meaning that they are of material consideration in planning.

2.2 Local Biodiversity Action Plan

- 2.2.1 The Scheme is located within the counties of Lincolnshire and Nottinghamshire. Formerly, the Lincolnshire Biodiversity Action Plan (3rd edition) (Lincolnshire BAP) (Ref 11) provided context to inform identification of threatened or uncommon species of local relevance, alongside priorities for conservation and enhancement targeted at a local level in Lincolnshire. However, under the Environment Act 2021 (Ref 12), these are being replaced by Local Nature Recovery Strategies (LNRSs), which are a system of spatial strategies for nature which will support delivery of biodiversity net gain (BNG) and provide more focussed action for nature recovery. Whilst this is still being developed for Lincolnshire and with no specific habitat or species plans currently in place, this report references the Lincolnshire BAP, on which Water Vole is listed as a priority species.
- 2.2.2 The Nottinghamshire Biodiversity Action Plan (Nottinghamshire BAP) (Ref 13) continues to provide context to inform identification of threatened or uncommon species of local relevance and identifies priorities for conservation and enhancement. It is a mechanism for enabling national targets at a local level, however it confers no particular legislative or policy protection to the species identified, although in some cases this is provided through related legislation and local planning policy.
- 2.2.3 Water Vole and Otter are both included as a local priority species on the Nottinghamshire BAP (Ref 13).
- 2.2.4 The following threats to Water Vole populations in Lincolnshire have been identified by the Lincolnshire BAP:
- a. damage to (and loss of) habitat due to insensitive routine maintenance of channel and bankside vegetation and the engineering of watercourses;
 - b. developments within the floodplain can result in the direct loss of water vole habitat;
 - c. fluctuations in water level due to land drainage, flood control, irrigation schemes and drought. When water levels are lowered in the winter, burrow entrances can be left exposed and vulnerable to predation;

- d. population fragmentation leaves colonies remote from their neighbours. Colonies isolated by lack of continuity of habitat are more at risk of local extinctions with no chance of repopulation;
- e. predation, particularly by American Mink;
- f. pollution of the aquatic environment by contaminants discharged from industry, agriculture and urban waste treatment; and
- g. persecution through the improper use of rodenticides.

2.2.5 The following threats to Water Vole and Otter habitats in Nottinghamshire have been identified by the Nottinghamshire BAP:

- a. loss of and damage to wetland habitat and species diversity due to over abstraction of water, especially during prolonged periods of low rainfall;
- b. loss of species diversity due to pollution arising from sources such as sewage works, run-off of agricultural chemicals, or industrial processes (although water quality in Nottinghamshire's watercourses is generally improving); and
- c. the loss of wetland habitats through drainage and flood alleviation schemes and the straightening and canalisation of watercourses.

3. Methods

3.1 Characterising the baseline

3.1.1 Within this report, the following terminology is used when referring to the geographic areas within which assessments were made:

- a. Study Area – the area within the Order limits and a 2km radius which was subject to collection of background information (this comprises the Order limits plus a 2km radius) e.g., desk study records for Water Vole and Otter to supplement the findings of the survey work;
- b. Zone of Influence (Zol) – the area over which riparian mammals may be affected by the Scheme which, using the criteria below and proportionate to the Scheme’s impacts, this is likely to be up to 200m around the Order limits (including upstream and downstream effects). Through review of likely impacts of the Scheme and results of the desk study, the scope of field surveys was then defined; and
- c. Survey Area – this is the area within which riparian mammal survey work was undertaken (the Order limits plus a radius of up to 10m).

3.1.2 The Zol is based on:

- a. the nature of the project (a solar farm scheme), project activities and the potential for effects at all development stages (construction, operation and decommissioning);
- b. the nature of the land use (minimum 80% arable) and habitats in the vicinity (majority being arable), the number of water courses and water bodies, their connectivity within and outside of the Order limits and how they may be used by riparian mammals;
- c. the presence of riparian mammals in the wider area, based on the location of the Order limits and desk study data; and
- d. the habits, behaviours and preferences of riparian mammals and whether these could be affected both spatially and temporally.

3.2 Desk Study

3.2.1 A desk study was undertaken as part of the Preliminary Ecological Appraisal in July 2022 (Ref 14). Records of Water Vole and Otter within a 2km radius of the Order limits were obtained through Greater Lincolnshire Nature Partnership (GLNP) and Nottinghamshire Biological and Geological Records Centre (NBGRC). Furthermore, a review was undertaken of publicly available information on planning portals, including documents for neighbouring DCO Schemes (Gate Burton Energy Park (Ref 14), Cottam Solar Project (Ref 15) and West Burton Solar Project (Ref 16)), for information related to the presence (or otherwise) of riparian mammals.

- 3.2.2 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of Water Vole and Otter populations in the local area.
- 3.2.3 Aerial imagery and information gathered during the PEA (Ref 14) was used to identify riparian and wetland habitats within an appropriate buffer (up to 10m either side of the Order limits) and this information was used to refine the Survey Area for riparian mammals. Therefore, the Survey Area included any water bodies within the Order limits and any watercourses within and/or connected to the Order limits (up to 10m). The Survey Area also included terrestrial habitats (such as woodland) where Otter holts and resting places may be present near to watercourses.

3.3 Collaborative Dataset

- 3.3.1 As set out in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1], the Scheme has worked collaboratively with Gate Burton Energy Park, Cottam Solar Project and West Burton Solar Project to minimise environmental impacts along the Cable Route Corridor by using a shared route, where practicable. As a result, a wealth of ecological information has been collected along this corridor. To minimise disturbance to wildlife and landowners, through repeated access by multiple schemes, where relevant, the Applicant has collaborated with the other proposed developments to ‘share’ data. Where this has been the case, it is clearly described in this report. In addition, the Applicant has undertaken surveys to ground truth these data, where relevant.
- 3.3.2 Wider ecological survey data for these schemes was reviewed as part of the desk study and informed the assessment of Water Vole and Otter presence in the wider landscape (Gate Burton Energy Park (Ref 15), Cottam Solar Project (Ref 16) and West Burton Solar Project (Ref 17)).

3.4 Field Survey

Habitat Suitability Assessment

- 3.4.1 A walkover of the Survey Area was undertaken by experienced surveyors to undertake a habitat suitability assessment for Water Vole based on “*A Method for Assessing Water Vole Habitat Suitability*” (Ref 18) and with reference to the indices presented in **Table 1**. For Otter, the indices presented in **Table 1** were assessed, based on criteria presented in ‘*Monitoring the Otter*’ (Ref 19).

Table 1. Summary of riparian mammal habitat suitability assessment criteria

Otter	Water Vole
<ul style="list-style-type: none"> • proximity to the Order limits; • presence of barriers to dispersal and movement through the territory; 	<ul style="list-style-type: none"> • connectivity to other watercourses • extent of suitable emergent and bankside herbaceous vegetation

Otter

- habitats present and suitability for use by Otter (including terrestrial habitats);
- availability of food sources (such as fish);
- adjoining land use and level of disturbance;
- features of watercourse or water body (estimated depth, level of flow, width of channel);
- connectivity with other areas of suitable or sub-optimal habitat; and
- pollution.

Water Vole

- for shelter, food and nesting material;
- year-round availability of food sources;
- rate of water flow;
- bank profile;
- degree of shading from overhanging trees or scrub;
- levels of site disturbance (e.g. proximity to public rights of way, farm vehicle access tracks or road traffic);
- potential for the water body or watercourse to dry out;
- suitability of bank substrates for burrowing; and
- pollution and water quality.

3.4.2 This habitat suitability assessment was undertaken in November 2022 and between June and August 2023 by suitably experienced ecologists.

3.4.3 With reference to **Table 1**, the suitability of each watercourse and water body to support Water Vole was defined using the assessment criteria presented in **Table 2**.

Table 2. Habitat Suitability for Water Vole

Habitat category	Dry areas for burrows			Herbaceous vegetation	Water
	Bank profile	Bank substrate	Variation in water level		
Optimal (all criteria need to be met)	Steep (approaching 1:1) on at least one side. Steep or shallow banks on static waterbodies or fen-type habitat, where levels do not fluctuate significantly.	Earth or peat	No noticeable variation during the summer months; banks are not overtopped regularly.	Continuous swathe of tall and luxurious riparian vegetation providing 90-100% cover (tall tussocky grassland) and marginal and in-channel vegetation is present.	Permanent water
Good (all criteria need to be met)	Steep (approaching 1:1) on at least one side. Steep or shallow banks on static waterbodies or fen-type habitat, where levels do not fluctuate significantly.	Earth or peat banks, or stony/ reinforced bank with gaps allowing access to earth behind.	No noticeable variation during the summer months; banks are not overtopped regularly.	Continuous swathe of bankside or in-channel vegetation providing at least 60% cover. May be dominated by grasses and weeds. The vegetation should generally be tall, except in urban or suburban areas, where shorter bankside vegetation may also qualify.	Permanent water. Or routinely wet for at least 2-3 months during the summer, and where other 'good' habitat is present in immediately adjacent areas with permanent water.
Suitable but poor	Any habitat that falls short of the criteria to qualify as 'good' but does not meet the criteria of 'unsuitable' could reasonably be considered to be 'suitable but poor'.				

Habitat category	Dry areas for burrows			Herbaceous vegetation	Water
	Bank profile	Bank substrate	Variation in water level		
Unsuitable – will generally need to meet the criteria for herbaceous vegetation and at least one other	Shallow bank profile	Rocky or gravel unsuitable for burrowing	Considerable variation in water level – the bank toe can move by more than 1m horizontally over the breeding season.	No or limited bankside and marginal vegetation (due to shading or other ‘permanent’ factors - note that management is often a temporary factor).	No water
	Vertical bank face with no burrowing opportunities behind it.	Reinforced banks with no gaps	N/A		

- 3.4.4 For Otter, whilst the criteria presented in **Table 1** was referenced to determine each watercourse and waterbodies suitability to support this species, it should be noted that Otter are a mobile species of riparian mammal and have large home ranges (males can travel up to 35km (Ref 20)). Therefore, any watercourse may potentially be used by this species for commuting.
- 3.4.5 The habitat suitability assessment for riparian mammals was undertaken on 82 watercourses within the Survey Area. In most cases, this survey information was used to determine whether further survey for riparian mammals was required (and the likelihood of future occupation by riparian mammals), however where safe to do so, the margins of all watercourses and water bodies within the survey were subject to further inspection for riparian mammals, as follows:
- Optimal or Good habitat – full survey (see below) along all margins of watercourses or water body;
 - Suitable, but poor habitat - spot checks of margins of watercourse or water body, approximately every 50m; or
 - Unsuitable – no formal survey undertaken although casual checks of margins made.

Water Vole Survey

- 3.4.6 The Water Vole survey involved identification of evidence of Water Vole activity up to 5m from the bank of the surveyed watercourses and waterbody. Field surveys were based on the standard methodologies as described by Strachan *et al.* (2011) (Ref 21) and Dean *et al.* (2016) (Ref 22). Field signs searched for included:
- latrine sites – distinct piles of Water Vole droppings found near burrows, at the ranges of territorial boundaries and where the animals enter and leave the water;
 - feeding stations – areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;
 - burrows – burrow entrances are typically wider than high with a diameter between 4 and 8cm. Burrow entrances are generally located at the water's edge;
 - lawns – short grazed areas at the entrances to burrows;
 - prints – identifiable prints in soft margins of the watercourse; and
 - runways – low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations.
- 3.4.7 In accordance with the guidance set out in the Water Vole Mitigation Handbook (Ref 22), all watercourses or water bodies with potential to support Water Vole (Optimal, Good or Suitable but poor, see **Table 2**) are surveyed once in the second half of the breeding season (July to September) and once in the first half of the breeding season (April to June).

- 3.4.8 Any information gathered during the survey on Water Vole signs were used to calculate and estimate Water Vole population and, or activity within those specific waterbodies or watercourses. The presence or absence of American Mink and Brown Rat *Rattus norvegicus* was also recorded if the species or signs of their presence were noted.
- 3.4.9 It is not possible to make robust estimates of the number of Water Voles from latrine counts, but latrines do provide an indication of activity suitable for assessment of impacts and designing mitigation (Ref 22).

Otter Survey

- 3.4.10 The aim of the survey was to determine the presence or absence of Otter on waterbodies and watercourses deemed suitable for Otter (following the habitat suitability assessment) and to check habitats in the vicinity of these riparian habitats that may be used as Otter holts. The methodology used was in accordance with guidance in the New Rivers and Wildlife Handbook (Ref 23); the Environment Agency's Fifth Otter Survey of England 2009-2010 (Ref 24) and '*Monitoring the Otter*' (Ref 19).
- 3.4.11 Otter surveys can be carried out at any time of year, though the period May to September is optimal when water levels are less variable. Surveys were not undertaken following periods of heavy rain and/or, high-water levels as it can obscure or remove signs of Otter and result in false negative survey results. Ideally, there should be a period of at least five days without rain before surveying. Therefore, surveys were undertaken during appropriate weather conditions for survey.
- 3.4.12 Due to the low likelihood of making an actual observation of Otter, the survey concentrated on locating field signs indicating Otter presence or use within the Survey Area. Such field signs include:
- a. spraints (droppings) – characteristic sweet-smelling, black tar-like (where fresh/relatively recent i.e., within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
 - b. footprints – in good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of Otter footprints. Additional signs of Otter presence may occur, although without additional evidence is not usually conclusive proof of current Otter presence;
 - c. feeding remains – feeding remains may include partially eaten fish, frogs, piles of mussel shells or crayfish remains;
 - d. slides/ haul-outs – routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally used otter paths/routes;
 - e. couches/ hovers – above ground resting places. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen

trees. Many couches are rarely used whilst others more so. Difficult to prove use without radio tracking; and

- f. holts – below ground resting site, usually associated with sprinting. Sometimes used with greater frequency than couches and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio tracking.

3.5 Biodiversity Importance

- 3.5.1 An essential prerequisite step to allow ecological impact assessment of the Scheme was an evaluation of the relative biodiversity importance of the Survey Area for riparian mammals. This is necessary to set the terms of reference for the subsequent ecological impact assessment.
- 3.5.2 The method of evaluation that was utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (Ref 25). This gives guidance on scoping and carrying out environmental assessments and places appraisal in the context of relevant policies and at a geographical scale at which feature matters (i.e. international, national, regional, county, district, local or site). Data received through desk study and field-based surveys were used to identify the importance of the species addressed in this report. Professional judgement was also applied, where necessary. Relevant published national and local guidance and criteria can be used, where available, to inform the assessment of biodiversity importance and to assist consistency in evaluation. Current population and conservation status for Water Vole and Otter has been taken from 'A Review of the Population and Conservation Status of British Mammals' (Ref 26) and with reference, in Lincolnshire, to the 'Atlas of the terrestrial and semi-aquatic mammals of Lincolnshire' (Ref 27).

3.6 Assumptions and Limitations

- 3.6.1 Photographs of watercourses 3, 4, 5, 7, 8 and 9 were not taken as they were considered to be almost identical to watercourse 2 and therefore, the photographs from watercourse 2 accurately represent watercourses 2, 3, 4, 5, 7, 8 and 9. Photographs for watercourses 6a, 56 and 57 were either inadvertently lost during transcription or were not taken due to human error during the surveys.
- 3.6.2 Due to the time of year these surveys were completed, many of the ditches were choked with thick vegetation. This meant that for three of the ditches (52, 68 and 73) it was not possible to assess the water depth and quality and therefore, a full assessment of their suitability for riparian mammals could not be completed. However, given the overgrowth of vegetation and lack of recorded signs of riparian mammals elsewhere, it is reasonable to assume that riparian mammals are not present within these watercourses.
- 3.6.3 Seven watercourses were surveyed in November 2022 and then again only once in the breeding season (April to September) for Water Vole evidence. Whilst surveying outside of the optimal period is a slight limitation, as there

was a lack of Water Vole evidence across the Order limits and the subsequent surveys (during the optimal survey period) did not record the presence of Water Vole, it is reasonable to assume that this species is not present within these watercourses and therefore the deviation does not present a significant limitation on the efficacy of the dataset collected.

- 3.6.4 These limitations are not considered a constraint on the efficacy of the surveys.

4. Results

4.1 Desk Study

- 4.1.1 A single record of Otter was received through the data search, approximately 900m east of the Cable Route Corridor and associated with the River Trent (see **Figure 9-10-2, Appendix A**). The data search returned records of Water Vole within 2km of the Order limits and from the preceding ten years, including a record from within the Cable Route Corridor, just west of Cottam (see **Figure 9-10-3, Appendix A**).
- 4.1.2 Records of American Mink were received, all associated with the River Trent corridor.
- 4.1.3 A review of the PINS website for the Cottam Solar Project (Ref 16), identified that Otter and Water Vole are both present in watercourses within the Cable Route Corridor, where these Scheme's overlap and in a watercourse (watercourse 62) connected to the Principal Site (see **Figures 9-10-2 and 9-10-3**).
- 4.1.4 From the desk study, using maps and aerial photography, 82 watercourses were identified within the Survey Area (as presented in **Figure 9-10-1, Appendix A**).

4.2 Collaborative Dataset

- 4.2.1 Datasets received from Gate Burton Energy Park identified that the River Trent supports Otter (see **Figure 9-10-2, Appendix A**) and, although no evidence of Water Vole was recorded within the Cable Route Corridor, there are records of Water Vole occurring within the River Trent corridor (see also **Section 4.1.1**). However, the presence of Mink within this area is a likely factor in there being no recorded evidence of this species during field surveys undertaken for that project.

4.3 Field Survey

Habitat Suitability Assessment

- 4.3.1 The habitat suitability assessment was undertaken on 82 watercourses. This survey was used to further refine the scope of surveys and determine whether they were suitable (i.e., scoped in for further survey) or unsuitable (i.e., scoped out of further survey) for riparian mammals.
- 4.3.2 Of the 82 watercourses surveyed for their suitability to support riparian mammals (and with reference to **Table 2**):
 - a. none were 'optimal' for riparian mammals;
 - b. none were 'good' for riparian mammals;
 - c. 14 were 'suitable, but poor' for riparian mammals; and

d. 68 were 'unsuitable' (or scoped out as not a watercourse) for riparian mammals.

4.3.3 A summary of the 82 watercourses surveyed during the habitat suitability assessment and whether these were scoped in (and recommended for detailed survey) or scoped out, is presented in **Appendix B**. The locations of all watercourses surveyed are presented in **Figure 9-10-1, Appendix A**.

Riparian Mammal Survey

4.3.4 Fourteen watercourses were scoped in for further survey during the habitat suitability assessment survey (assessed as 'suitable but poor') to determine presence or absence of Water Vole. These watercourses were surveyed for evidence of riparian mammals, as presented in **Table 3**.

Table 3. Survey dates for riparian mammals

Watercourse reference (see Figure 9-10-1)	Survey Date	Survey Date
1	November 2022	June 2023
15	June 2023	August 2023
18	November 2022	June 2023
26	June 2023	August 2023
32	June 2023	August 2023
52	June 2023	August 2023
54	June 2023	August 2023
55	June 2023	August 2023
56	November 2022	June 2023
57	November 2022	June 2023
61	November 2022	June 2023
62	November 2022	June 2023
64	November 2022	June 2023
68	June 2023	August 2023

4.3.5 No evidence of Otter (including holts) or Water Vole was found anywhere within the Order limits during surveys for riparian mammals, including within watercourses where there were desk study records of Otter or Water Vole presence (such as watercourse 62).

4.3.6 No evidence of American Mink was recorded anywhere within the Order limits during surveys for riparian mammals.

5. Evaluation

Water Vole

- 5.1.1 Surveys of watercourses and water bodies within the Principal Site did not identify the presence of Water Vole. The desk study returned records of Water Vole from within the Cable Route Corridor, including from the River Trent corridor and to the east of Willingham by Stow. Collaborative datasets, however, did not identify the presence of Water Vole in watercourses around the River Trent corridor, although presence was assumed due to historical desk study records and the suitability of those watercourses. The presence of Mink, however, is likely a factor in there being no recorded Water Vole during surveys and will be a key factor in inhibiting future colonisation of this species.
- 5.1.2 Water Vole is present in ditches to the east of Willingham by Stow (within the Cable Route Corridor), recorded during field surveys undertaken in 2022 for the Cottam Solar Project (Ref 16) and in locations away from known populations of Mink.
- 5.1.3 Whilst Water Vole is restricted in its distribution across the Order limits, in consideration of this species' declining status in a national and county context, the population of Water Vole is potentially of District importance.

Otter

- 5.1.4 Surveys of watercourses and water bodies within the Principal Site did not identify the presence of Otter. Furthermore, no areas deemed suitable for Otter holts (large cavities, or Badger *Meles meles* setts), recorded any evidence of Otter (such as footprints or spraints) during surveys of terrestrial areas. The data search returned records (from within the last ten years) of Otter along the River Trent corridor and the collaborative datasets did identify the presence of this species there during field surveys.
- 5.1.5 Whilst Otter was recorded using the River Trent, no holts, couches or resting sites were recorded. Otter has an estimated British population of 11,000 (Ref 20), with an increasing population size and range and are of IUCN Least Concern Status in England. Therefore, in consideration of the limited number of records of Otter (restricted to the River Trent) and the absence of holts, the Order limits is of limited value to a population of Otter at a Local level (within approximately 2km of the Order limits).

6. Conclusions

- 6.1.1 The riparian mammal surveys, undertaken between June and August 2023, found no evidence of Water Vole and Otter within the Principal Site. However, both species are present within the Cable Route Corridor and mitigation will be implemented, formalised through a Construction and Environment Management Plan (CEMP), to:
- a. ensure compliance with relevant legislation; and
 - b. avoid impacts that would give rise to a potential “significant effect”, therefore contrary to planning policy and biodiversity obligations of the NERC Act (Ref 8).
- 6.1.2 A significant negative effect is one which undermines nature conservation objectives or changes the conservation status of a species population.
- 6.1.3 The primary purpose of this report is to provide an assessment of the presence or absence of riparian mammals and their biodiversity importance within the Scheme to inform **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6.1]. An assessment of potential impacts (considering embedded mitigation), any additional mitigation and residual effects has been undertaken and included within **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6.1].
- 6.1.4 In summary, the Scheme will embed sufficient mitigation measures (formalised through a CEMP) to ensure that riparian mammals occurring within the Order limits are not impacted upon, in line with legislation, policy and guidance as described in **Section 2** of this report.

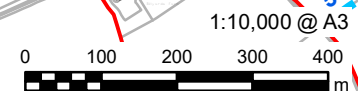
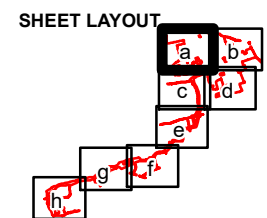
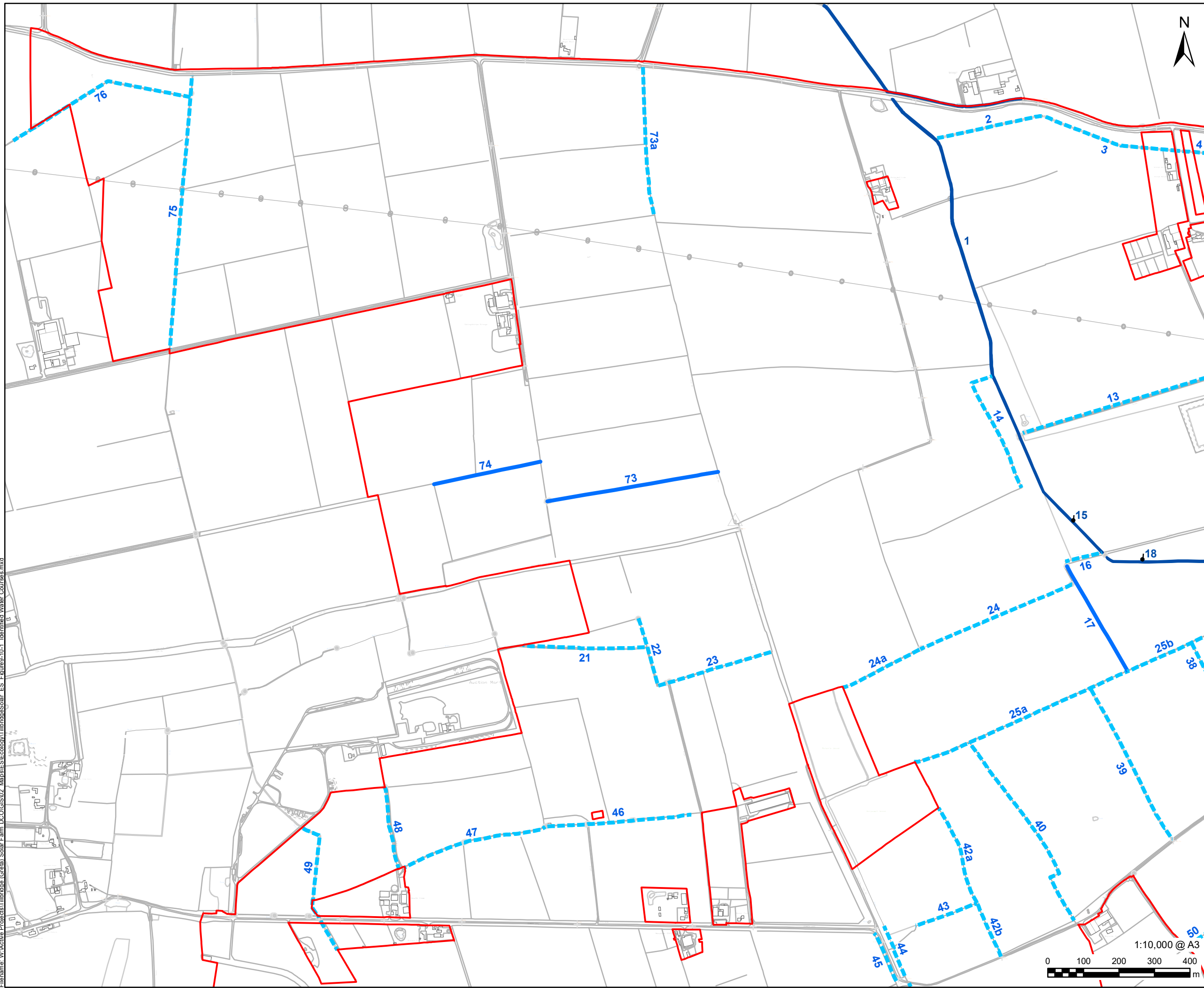
7. References

- Ref 1 His Majesty's Stationery Office (HMSO) (1981). Wildlife & Countryside Act 1981 (as amended). HMSO, London. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>.
- Ref 2 European Council (EC) (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels. Available at: [REDACTED].
- Ref 3 HMSO (2017). The Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>.
- Ref 4 Anon (2001). Appendices of the Convention and Amendments to the Appendices. Bern Convention. Council of Europe.
- Ref 5 Anon (2020). Appendices I, II and III. CITES.
- Ref 6 International Union for the Conservation of Nature (IUCN) (2020). The IUCN Red List of Threatened Species.
- Ref 7 Standing advice for planning consultations: Otter. Nature Scot. Available at: [REDACTED].
- Ref 8 HMSO (2006). Natural Environment and Rural Communities Act 2006. HMSO, London. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>.
- Ref 9 HMSO (1994). Biodiversity The UK Action Plan. HMSO, London. Available at: <https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf>.
- Ref 10 Joint Nature Conservation Committee (JNCC) and Department for Environment, Food and Rural Affairs (DEFRA) (2012). UK Post-2010 Biodiversity Framework. Available at: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf.
- Ref 11 Lincolnshire Biodiversity Partnership (2011). Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition).
- Ref 12 HMSO (2021). The Environment Act 2021. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>
- Ref 13 Nottinghamshire Biodiversity Action Group (2008). Local Biodiversity Action Plan. Available at: <https://nottsbag.org.uk/lbap/lbap-introduction-and-sections-1-to-6/>.
- Ref 14 AECOM (2022). Tillbridge Solar Farm Preliminary Ecological Appraisal.
- Ref 15 PINS website: Gate Burton Energy Park <https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/gate-burton-energy-park/>
- Ref 16 PINS website: Cottam Solar Project <https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/cottam-solar-project/>
- Ref 17 PINS website: West Burton Solar Project <https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/west-burton-solar-project/>
- Ref 18 Harris, J., Markwell, H. and Raybould, B. (2009). In Practice Issue 65: Training and Education. Chartered Institute of Ecology and Environmental Management (CIEEM), Hampshire.

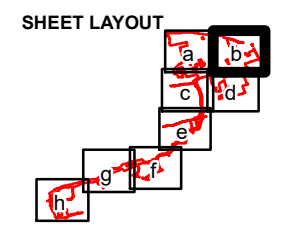
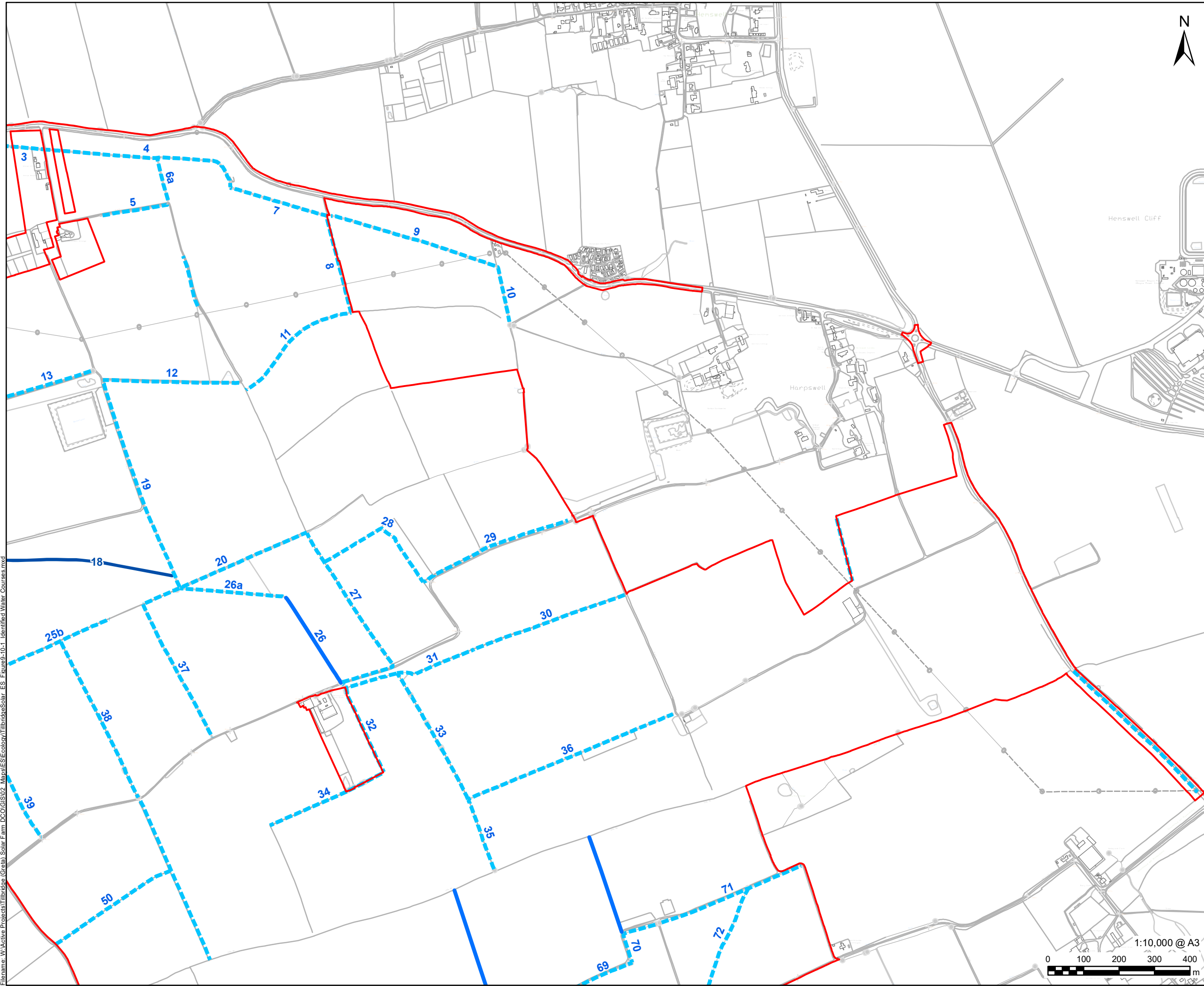
- Ref 19 Chanin, P. (2003a). Monitoring the Otter: Conserving Natura 2000 Rivers Ecology Series No.10. Peterborough, English Nature.
- Ref 20 GOV.UK (2022). Otters: advice for making planning decisions. Available at: <https://www.gov.uk/guidance/otters-advice-for-making-planning-decisions>.
- Ref 21 Strachan, R., Moorhouse, Y. and Gelling, M. (2011). The Water Vole Conservation Handbook. 3rd edition. WildCRU, University of Oxford.
- Ref 22 Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Editors Fiona Mathews and Paul Chanin. The Mammal Society, London.
- Ref 23 Holmes, N., Ward, D. and Jose, P. (2001). The New Rivers and Wildlife Handbook. Royal Society for the Protection of Birds.
- Ref 24 Crawford, A. (2011). Fifth otter survey of England 2009 – 2010: Technical Report. Environment Agency.
- Ref 25 Chartered Institute of Ecology and Environmental Management (CIEEM). (2018). Guidelines for Ecological Impact assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf>.
- Ref 26 Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C.A., McDonald, R.A. and Shore, R.F. (2018) A Review of the Population and Conservation Status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough.
- Ref 27 Manning, C.J. (2016). Atlas of the terrestrial and semi-aquatic mammals of Lincolnshire. Greater Lincolnshire Nature Partnership

Appendix A: Figures

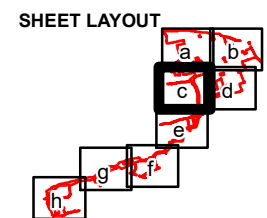
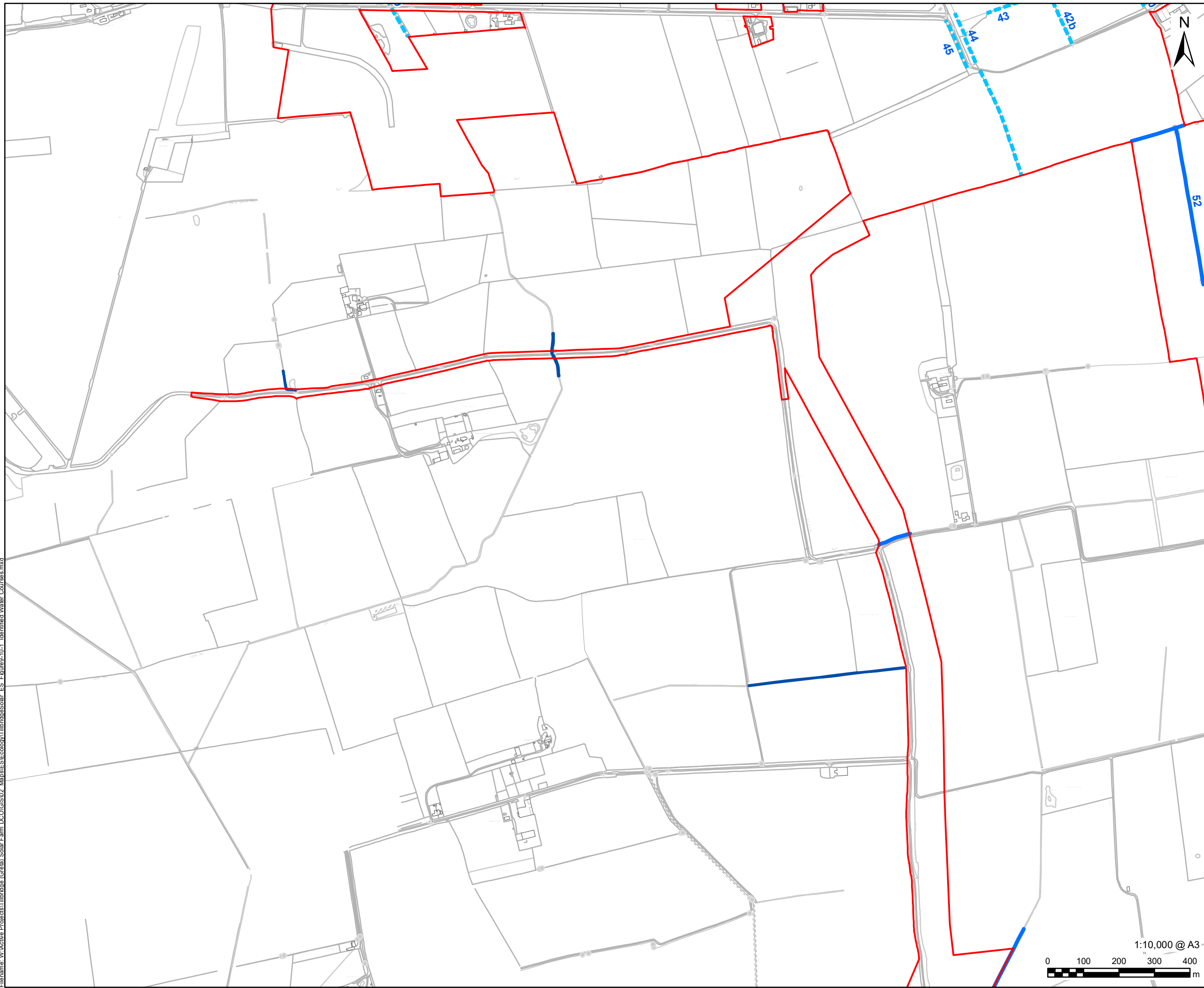
Figure 9-10-1 Watercourses identified for a Habitat Suitability Assessment for riparian mammals



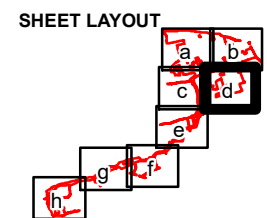
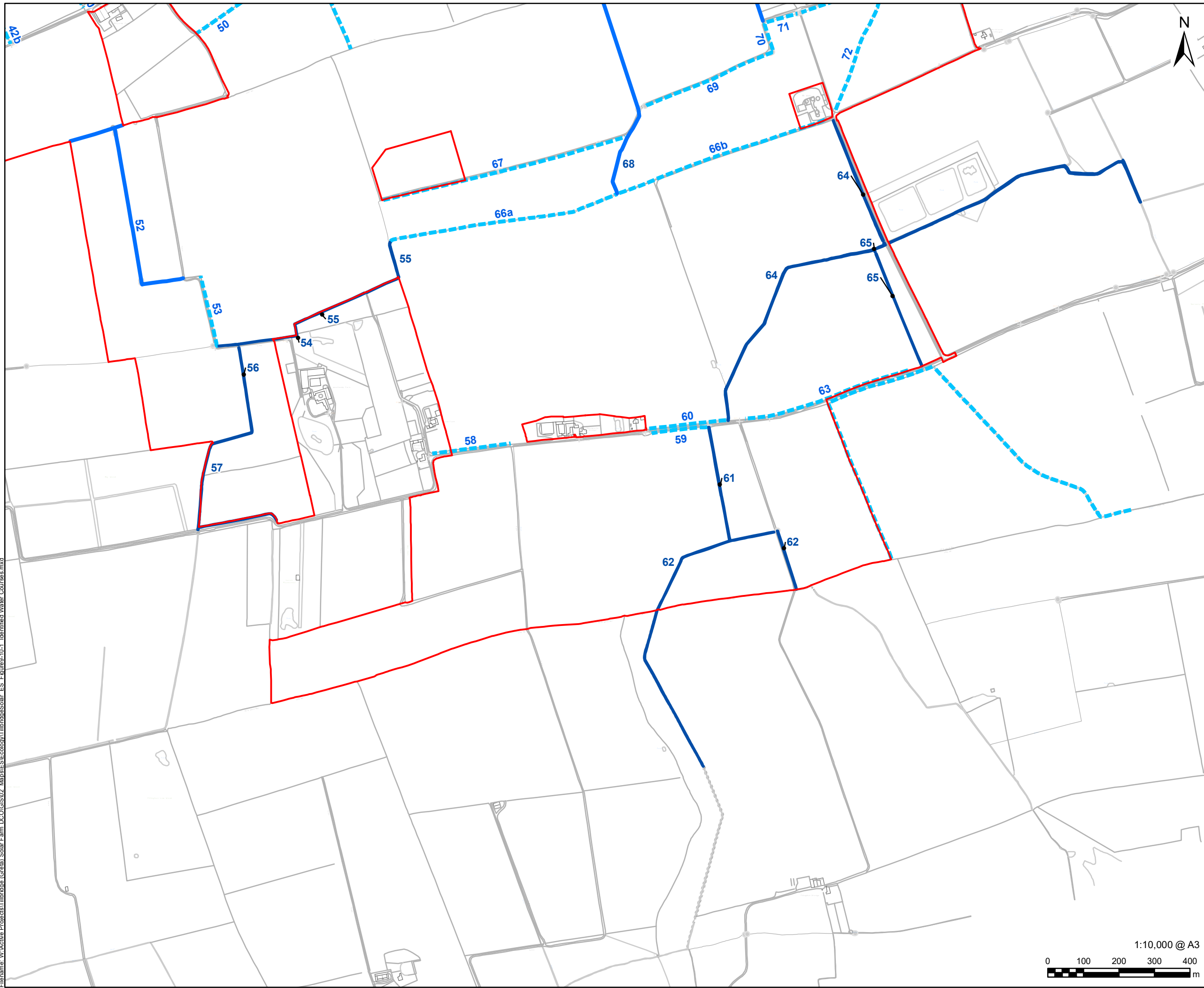
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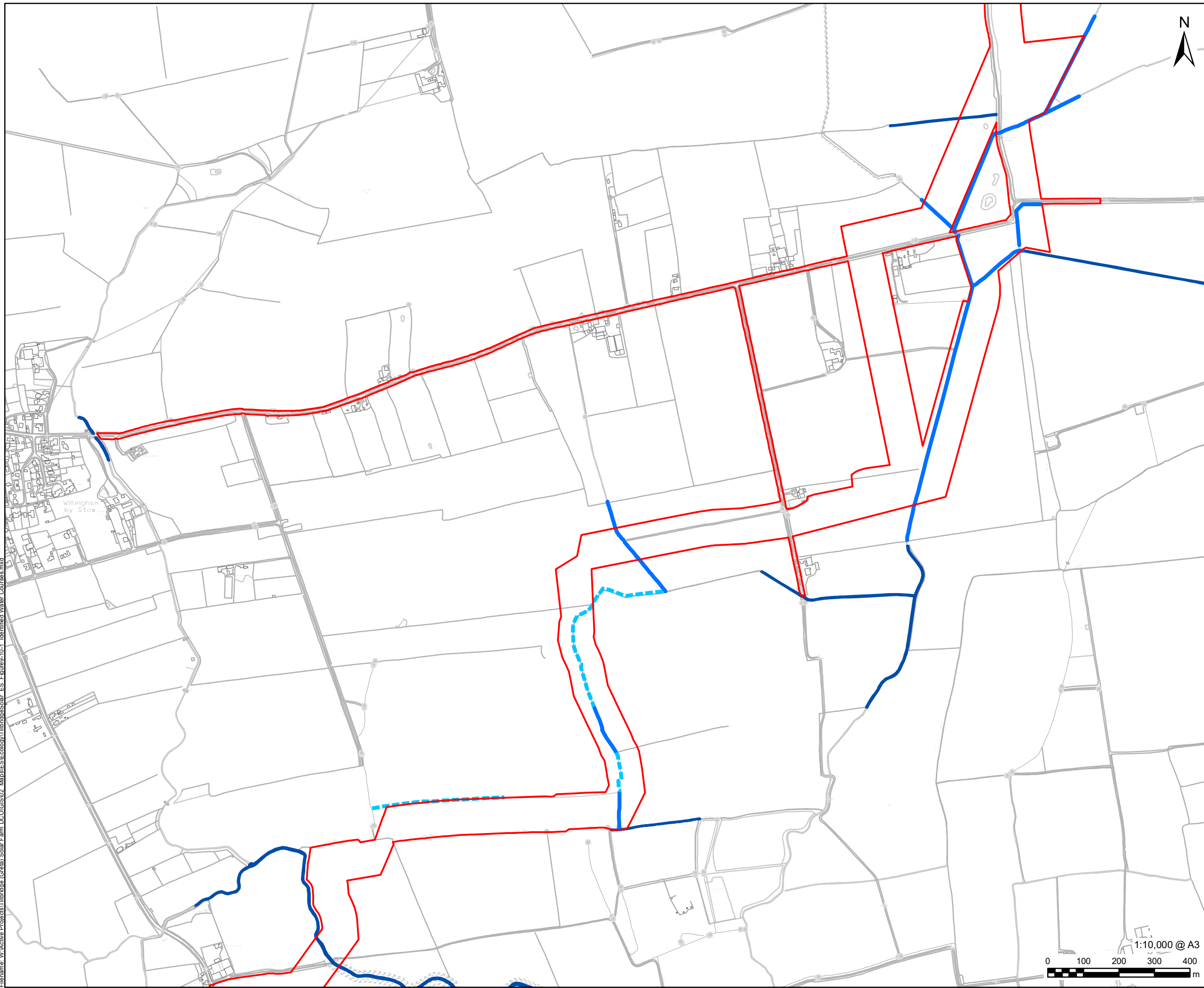
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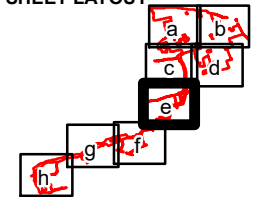
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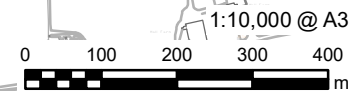
60677969

FIGURE TITLE

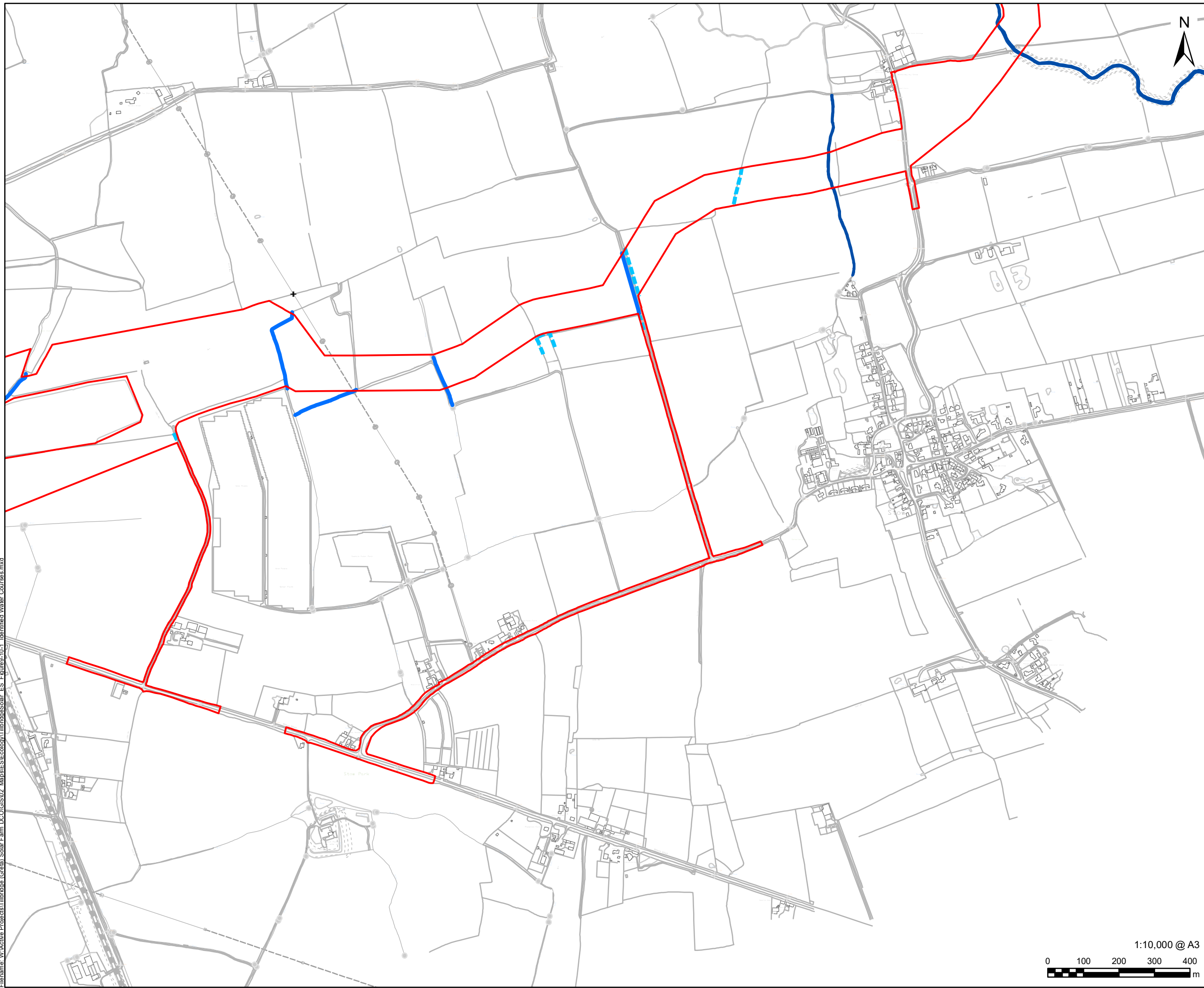
Water Courses Identified for a Habitat Suitability Assessment for Riparian Mammals

FIGURE NUMBER

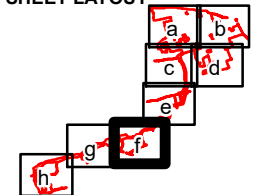
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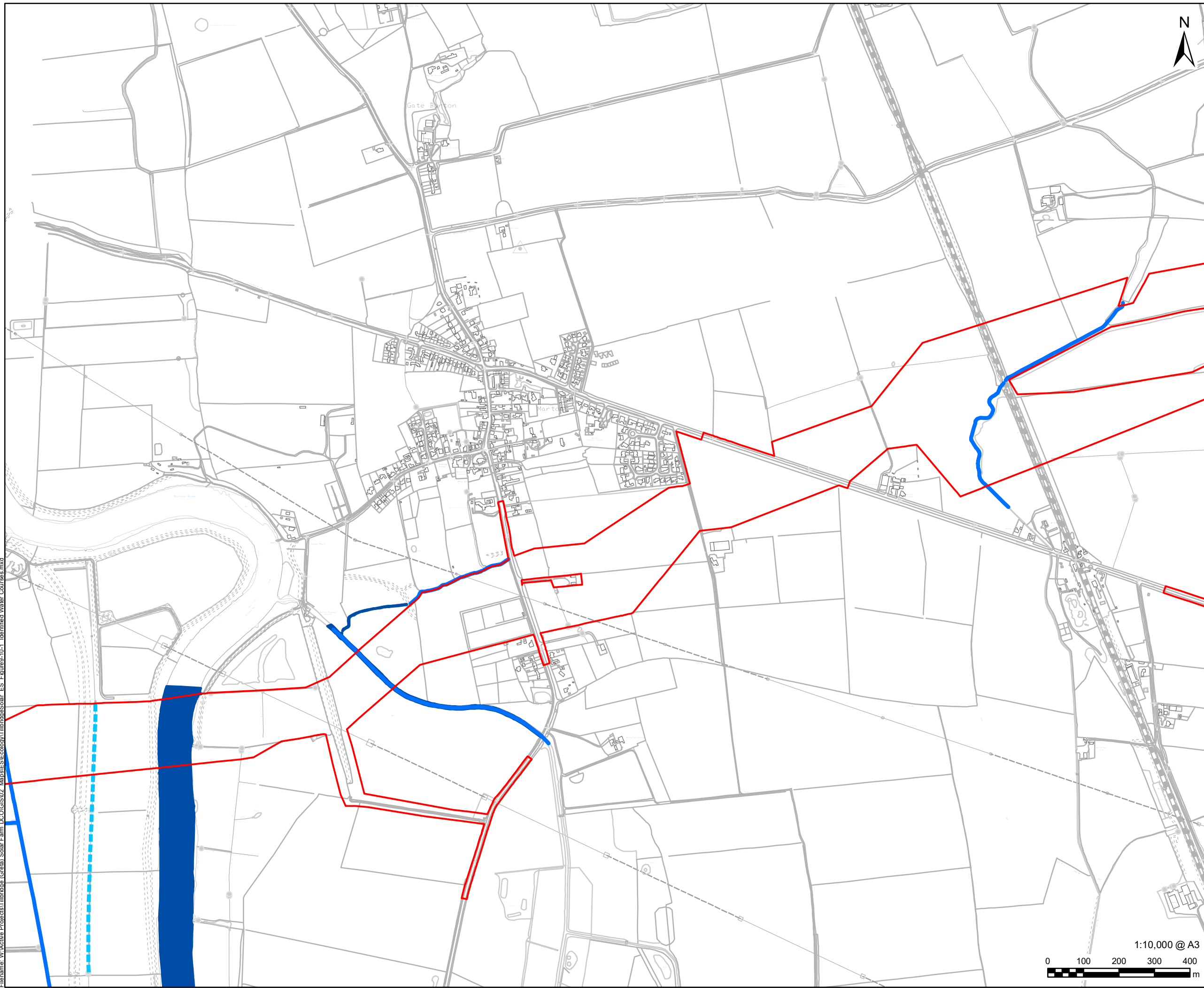
Water Courses Identified for a Habitat
Suitability Assessment for Riparian
Mammals

FIGURE NUMBER

Figure 9-10-1f



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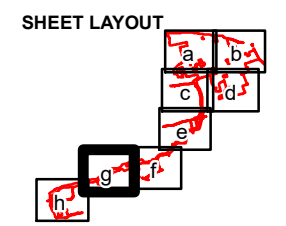
PROJECT
Tillbridge Solar Project

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LEGEND

- Order Limits
- Running Water (Wide)
- Running Water
- Dry Ditch



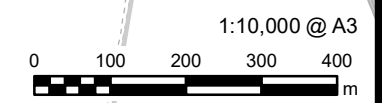
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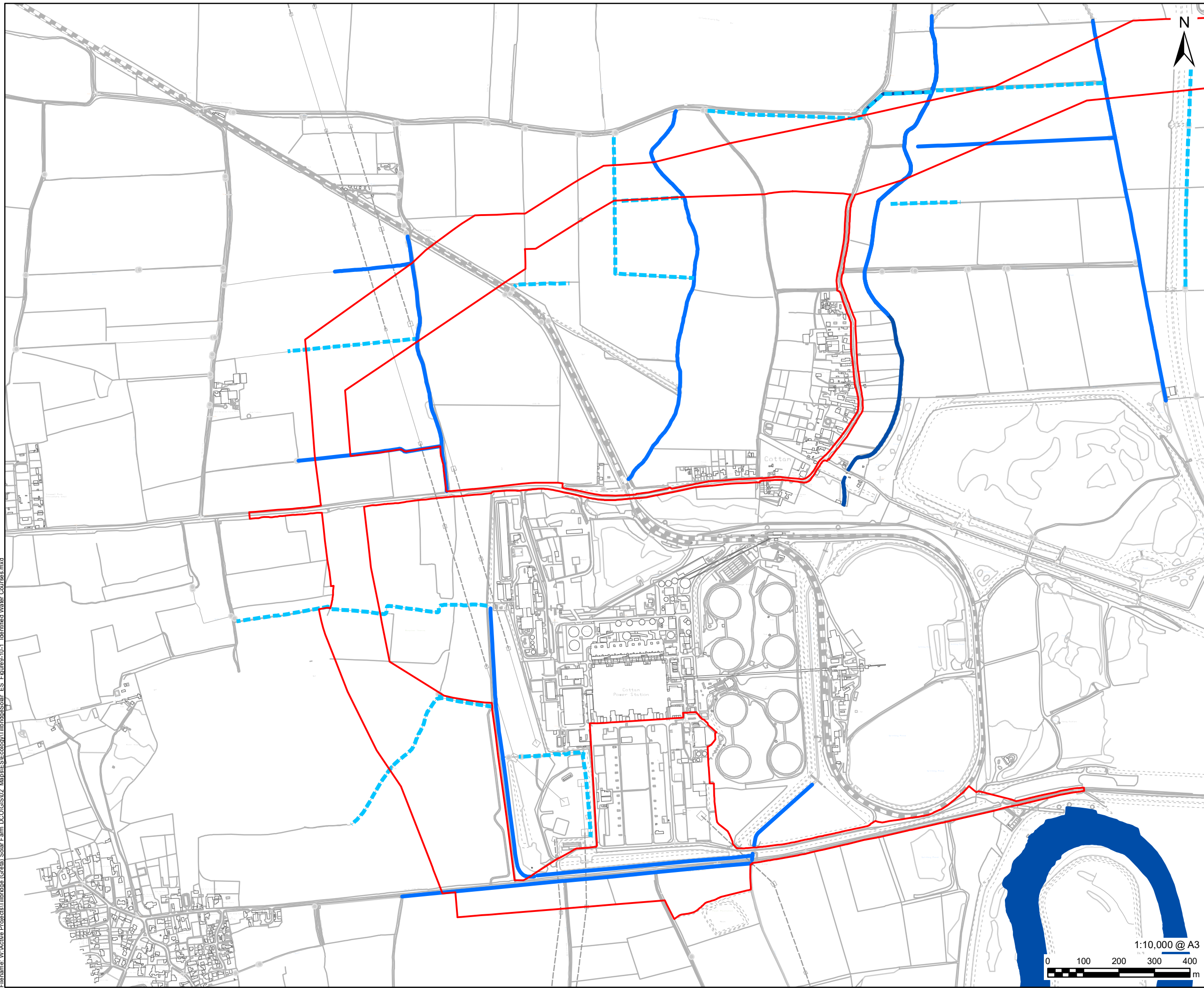
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60677969

FIGURE TITLE
Water Courses Identified for a Habitat
Suitability Assessment for Riparian
Mammals

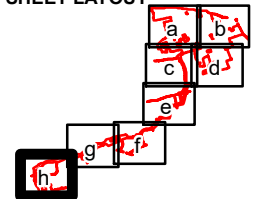
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FIGURE TITLE

Water Courses Identified for a Habitat Suitability Assessment for Riparian Mammals

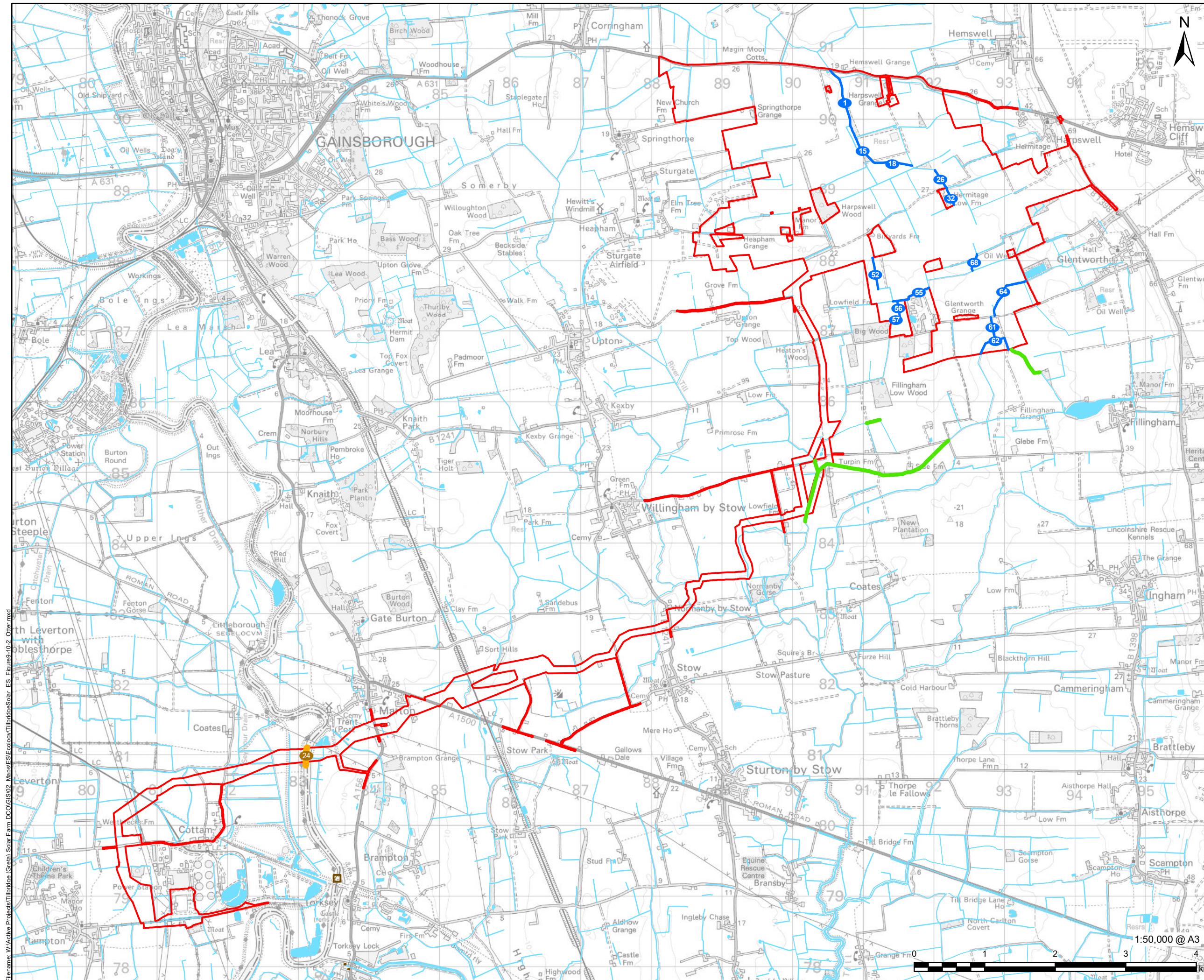
FIGURE NUMBER

Figure 9-10-1h



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Figure 9-10-2 Location of records of Otter from desk study data and field survey



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- LEGEND**
- Order Limits
 - Water Courses Surveyed for Riparian Mammals
 - No Evidence for the Presence of Riparian Mammals
 - Gate Burton Riparian Mammal Survey
 - Otter Presence from Field Surveys
 - Desk Study Records
 - Otter Presence from Desk Study Records (source: Clarkson Wood)
 - GCN presence from Biological Record Centre
 - Otter
 - Water Course
 - Water Body

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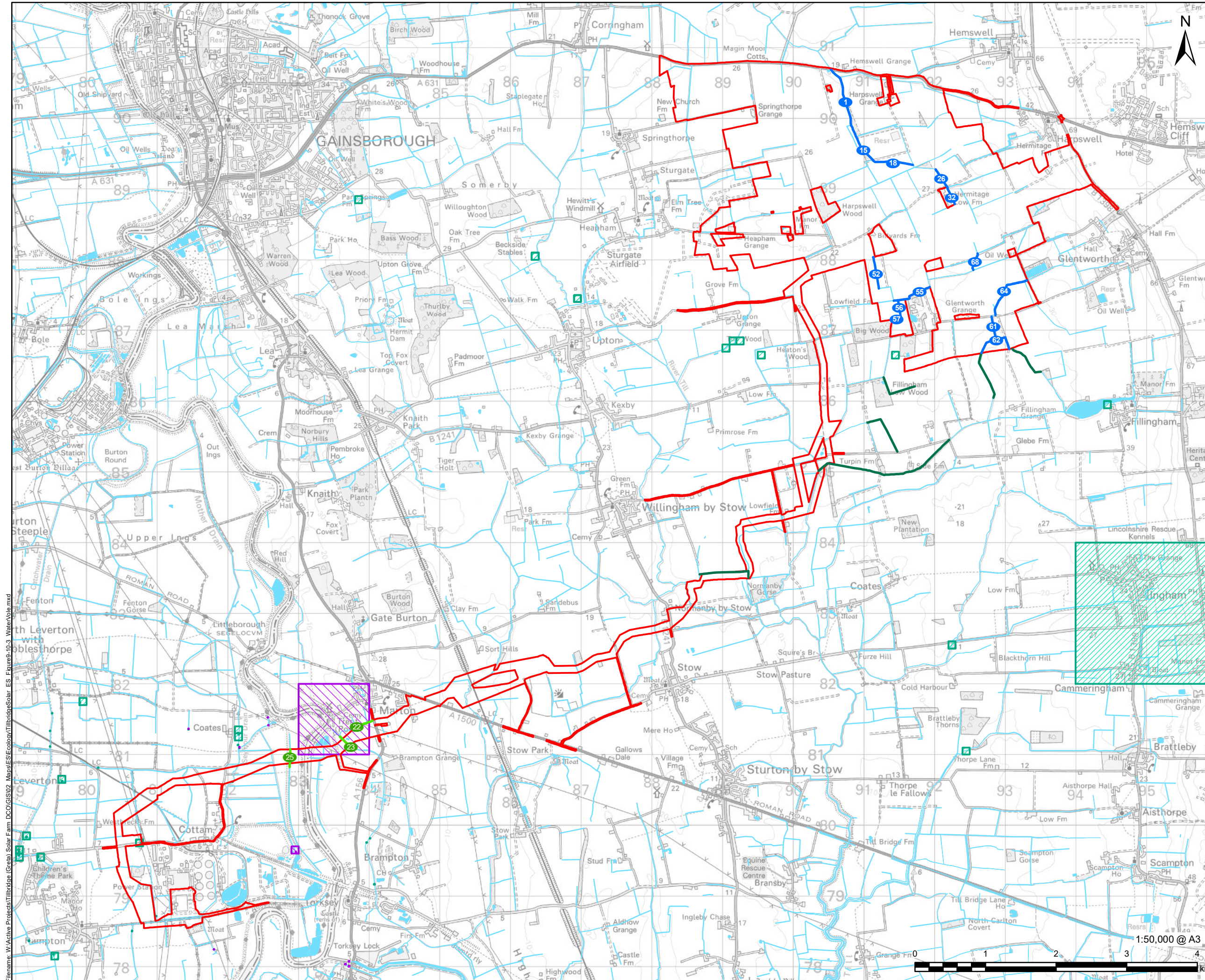
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FIGURE TITLE
Location of Records of Otter from Desk Study and Field Survey

FIGURE NUMBER
Figure 9-10-2

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Figure 9-10-3 Location of records of Water Vole from desk study data and field survey



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- LEGEND**
- Order Limits
 - Water Courses Surveyed for Riparian Mammals
 - No Evidence for the Presence of Riparian Mammals
 - Gate Burton Riparian Mammal Survey
 - Water Vole Presence from Desk Study Records
 - Desk Study Records
 - Water Vole Presence from Desk Study Records (source: Clarkson Wood)
 - GCN Presence from Biological Record Centre
 - Water Vole
 - Mink
 - Water Course
 - Water Body

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FIGURE TITLE
Location of Records of Water Vole from Desk Study Data and Field Survey

FIGURE NUMBER
Figure 9-10-3

Appendix B: Water Vole Habitat Suitability Assessment Data

Watercourse reference (see Figure 9-10-1)	Summary description	Habitat Suitability	Photograph
1	<ul style="list-style-type: none"> ▪ Connected to three on-site watercourses (2, 14 and 15) ▪ Bankside vegetation is predominately grass, some herbaceous vegetation, occasional shrub ▪ Mainly herbaceous vegetation and occasional shrub in half of channel, the rest is open ▪ No year-round food source ▪ Wet in November 2022 (<15cm) ▪ Shaded in patches by occasional shrub on bankside, heavily shaded by vegetation in channel ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ Water quality moderate – no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. ▪ Condition assessment: poor 	Suitable but poor	
2	<ul style="list-style-type: none"> ▪ Connected to two on-site watercourses (1 and 3) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing 	Unsuitable	

**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

Watercourse Summary description reference (see Figure 9-10-1)	Habitat Suitability	Photograph
<ul style="list-style-type: none"> ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
<p>3</p> <ul style="list-style-type: none"> ▪ Connected to two on-site watercourses (2 and 4) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	(See ditch 2 for photo)
<p>4</p> <ul style="list-style-type: none"> ▪ Connected to three on-site watercourses (3, 6 and 7) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing 	Unsuitable	(See ditch 2 for photo)

**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

Watercourse Summary description reference (see Figure 9-10-1)	Habitat Suitability	Photograph
<ul style="list-style-type: none"> ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
<p>5</p> <ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (6) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	(See ditch 2 for photo)
<p>6</p> <ul style="list-style-type: none"> ▪ Hedgerow (no ditch) 	N/A	No photo

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 6a
- Not connected
 - Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation
 - Open channel
 - No year-round food source
 - Dry in June 2023
 - No shading
 - Steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 7
- Connected to three on-site watercourses (4, 8 and 9)
 - Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation
 - Open channel
 - No year-round food source
 - Dry in November 2022
 - No shading
 - Steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable

(See ditch 2 for photo)

**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**


Photograph


8	<ul style="list-style-type: none"> ▪ Connected to three on-site watercourses (7, 9, and 11) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	(See ditch 2 for photo)
9	<ul style="list-style-type: none"> ▪ Connected to three on-site watercourses (7, 8, and 10) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	(See ditch 2 for photo)

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- | | | | |
|----|---|------------|---|
| 10 | <ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (9) ▪ Bankside vegetation is predominately grass and reeds, limited herbaceous vegetation, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Dry in November 2022 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry | Unsuitable |  |
|----|---|------------|---|

- | | | | |
|----|--|-----|--|
| 11 | <ul style="list-style-type: none"> ▪ Hedgerow in dry, shallow ditch | N/A |  |
|----|--|-----|--|

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

12 ■ Defunct hedgerow in dry, shallow ditch

N/A



13 ■ Not connected
 ■ Hedgerow heavily encroaching ditch from the south side
 ■ Mixture of grass, herbaceous and woody vegetation on banksides
 ■ Mainly herbaceous and woody vegetation in channel, limited grass vegetation
 ■ No year-round food source
 ■ Dry in July 2023
 ■ Heavily shaded by encroaching hedgerow from the south side and vegetation in channel
 ■ Steep banks suitable for burrowing
 ■ Limited disturbance - adjacent to woodland strip on the north side and arable on the south side
 ■ No obvious signs of pollution e.g., agricultural run-off or litter debris
 ■ Condition assessment: N/A - Dry


Unsuitable



**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

- | | | |
|--|-------------------|--|
| <p>14</p> <ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (1) ▪ Hedgerow encroaching ditch from the west side ▪ Mixture of grass and woody vegetation on banksides, some herbaceous vegetation ▪ Mainly grass and woody vegetation in channel, limited herbaceous vegetation ▪ No year-round food source ▪ Dry in July 2023 ▪ Heavily shaded by encroaching hedgerow from the western side ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry | <p>Unsuitable</p> |  |
|--|-------------------|--|

Unsuitable



**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

- 15
- Connected to three on-site watercourses (1, 16 and 18)
 - Woodland edge heavily encroaching ditch from the south-west side
 - Mixture of grass, herbaceous and woody vegetation on banksides
 - Open channel (bankside vegetation overgrown into channel but no vegetation growing directly from the bottom of the channel)
 - No year-round food source
 - Wet in June 2023 (<10cm)
 - Heavily shaded by encroaching woodland edge from the south-west side and bankside vegetation
 - Steep banks suitable for burrowing
 - Limited disturbance - adjacent to woodland on the south-west side and arable on the north-east side
 - Water quality is moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor


Suitable but
 poor



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- | | | |
|--|-------------------|---|
| <p>16</p> <ul style="list-style-type: none"> ▪ Connected to three on-site watercourses (15, 17 and 18) ▪ Hedgerow encroaching ditch from the south side ▪ Mixture of grass and woody vegetation on banksides, limited herbaceous vegetation ▪ Mixture of grass, herbaceous and woody vegetation in channel ▪ No year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by encroaching hedgerow from the south side and bankside vegetation ▪ Steep banks suitable for burrowing ▪ Limited disturbance - adjacent to woodland on the north side and arable on the south side ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry | <p>Unsuitable</p> |  |
|--|-------------------|---|



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- 17
- Connected to one on-site watercourse (16)
 - Hedgerow in wet ditch
 - Mixture of grass and woody vegetation on banksides, limited herbaceous
 - Mainly woody vegetation in channel, some herbaceous vegetation, limited grass vegetation
 - No year-round food source
 - Wet in June 2023 (<10cm)
 - Heavily shaded by hedgerow in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - Water quality is moderate - no litter debris but a few signs of agriculture run-off / pollution from field drains e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- | | |
|----|--|
| 18 | <ul style="list-style-type: none">▪ Connected to two on-site watercourse (15 and 16)▪ Bankside vegetation is predominantly grass, limited herbaceous vegetation, no woody vegetation▪ Open channel▪ Limited year-round food source▪ Wet in November 2022 (<30cm), slight flow▪ No shading▪ Steep banks suitable for burrowing▪ Some disturbance - adjacent to arable on both sides▪ Water quality is moderate - no litter debris but some signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.▪ Condition assessment: poor |
|----|--|

Suitable but
poor



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

19 ■ Hedgerow in dry ditch

N/A



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

20 ■ Hedgerow in dry, shallow ditch

N/A



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- | | |
|----|--|
| 21 | <ul style="list-style-type: none">▪ Not connected▪ Bankside vegetation is predominately herbaceous, some grass vegetation, no woody vegetation▪ Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation▪ No year-round food source▪ Dry with wet patches in June 2023 (<10cm)▪ Heavily shaded by vegetation in channel▪ Steep banks suitable for burrowing▪ Some disturbance - adjacent to arable on both sides▪ No obvious signs of pollution e.g., agricultural run-off or litter debris▪ Condition assessment: N/A - Dry |
|----|--|

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

22 ■ Defunct hedgerow in dry ditch

N/A



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

- 23
- Not connected
 - Small hedge on the north side of ditch
 - Mixture of herbaceous and woody vegetation on bankside, limited grass vegetation
 - Mainly herbaceous vegetation in channel, some woody vegetation, limited grass vegetation
 - No year-round food source
 - Dry in June 2023
 - Shaded in patches by hedge on the north side and heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- 24
- Not connected
 - Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation
 - Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- 24a
- Connected to one on-site watercourse (24)
 - Hedgerow encroaching ditch from the north-east side
 - Mixture of grass and woody vegetation on banksides, limited herbaceous vegetation
 - Mainly grass vegetation in channel, some herbaceous vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by encroaching hedgerow from the north-east side
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

- 25a
- Connected to three on-site watercourses (25b, 40 and 39)
 - Bankside vegetation is predominately grass, some herbaceous vegetation, occasional tree
 - Mainly grass vegetation in channel, limited herbaceous vegetation, occasional tree
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel and by occasional tree
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

25b

- Connected to three on-site watercourses (25a and 38)
- Hedgerow encroaching ditch from the north-west side
- Mixture of grass and woody vegetation on banksides, limited herbaceous vegetation
- Mixture of grass, herbaceous and woody vegetation in channel
- No year-round food source
- Dry in June 2023
- Heavily shaded by encroaching hedgerow from the north-west side and vegetation in channel
- Steep banks suitable for burrowing
- Some disturbance - adjacent to arable on both sides
- No obvious signs of pollution e.g., agricultural run-off or litter debris
- Condition assessment: N/A - Dry

Unsuitable



26

- Connected to one on-site watercourse (26a)
- Bankside vegetation is predominately herbaceous, some grass vegetation, no woody vegetation
- Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
- Limited year-round food source
- Wet in June 2023 (<10cm)
- Heavily shaded by vegetation in channel
- Steep banks suitable for burrowing
- Some disturbance - adjacent to arable on both sides
- Water quality is good – no obvious signs of pollution e.g., agricultural run-off or litter debris
- Condition assessment: poor

Suitable but
poor



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 26a
- Connected to one on-site watercourse (26)
 - Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation
 - Patches of herbaceous vegetation in channel, no grass or woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded in patches by vegetation in channel
 - Steep banks suitable for burrowing
 - Limited disturbance - adjacent to woodland on the north side and arable on the south side
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

-
- 27
- Connected to one on-site watercourse (28)
 - Bankside vegetation is predominately grass, some woody vegetation, limited herbaceous vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



**Watercourse Summary description
reference
(see Figure
9-10-1)**

**Habitat
Suitability**

Photograph

28 ■ Hedgerow in dry, shallow ditch

N/A



29 ■ Hedgerow in dry, shallow ditch

N/A



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

-
- 30
- Not connected
 - Bankside vegetation is predominately grass, limited herbaceous vegetation, occasional shrub
 - Mixture of grass and herbaceous vegetation in channel, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Shaded in patches by occasional shrub on bankside, heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable





-
- 31
- Extension of ditch 30
 - Hedgerow in dry ditch

Unsuitable





Watercourse Summary description reference (see Figure 9-10-1)

32	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (34) ▪ Hedgerow on the south-west side ▪ Mixture of grass, woody and herbaceous vegetation on banksides ▪ Mainly herbaceous vegetation in channel, limited grass vegetation, limited woody vegetation ▪ No year-round food source ▪ Wet in north end (<20cm), dry for the rest in June 2023 ▪ Heavily shaded by hedgerow on the south-west side, bankside vegetation and vegetation in channel ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ Water quality is moderate – no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. ▪ Condition assessment: poor 	Suitable but poor	
33	<ul style="list-style-type: none"> ▪ Connected to two on-site watercourse (35 and 36) ▪ Mixture of grass and herbaceous vegetation on banksides, occasional shrub ▪ Mainly herbaceous vegetation in channel, limited grass vegetation, occasional shrub ▪ No year-round food source ▪ Dry in June 2023 ▪ Shaded in patches by occasional shrub on bankside, heavily shaded by in channel vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability



Photograph

	<ul style="list-style-type: none"> Condition assessment: N/A - Dry 		
34	<ul style="list-style-type: none"> Connected to one on-site watercourse (32) Mixture of grass and herbaceous vegetation on banksides, no woody vegetation Mainly herbaceous in channel, limited grass vegetation, no woody vegetation Limited year-round food sources Dry in June 2023 Heavily shaded by vegetation in channel Steep banks suitable for burrowing Some disturbance - adjacent to arable on both sides No obvious signs of pollution e.g., agricultural run-off or litter debris Condition assessment: N/A - Dry 	Unsuitable	
35	<ul style="list-style-type: none"> Connected to two on-site watercourses (33 and 36) Mixture of grass and herbaceous vegetation on banksides, occasional shrub Mainly herbaceous vegetation in channel, limited grass vegetation, occasional shrub No year-round food source Dry in June 2023 Shaded in patches by occasional shrub on bankside, heavily shaded by in channel vegetation 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability



Photograph

	<ul style="list-style-type: none"> ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
36	<ul style="list-style-type: none"> ▪ Connected to two on-site watercourses (33 and 35) ▪ Mixture of grass and herbaceous vegetation on banksides, no woody vegetation ▪ Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation ▪ No year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by in channel vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	
37	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (20) ▪ Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation ▪ Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation ▪ Year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by in channel vegetation ▪ Steep banks suitable for burrowing 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability



Photograph

	<ul style="list-style-type: none"> ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
38	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (25b) ▪ Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation ▪ Mixture of grass and herbaceous vegetation in channel, no woody vegetation ▪ Limited year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by in channel vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	
39	<ul style="list-style-type: none"> ▪ Connected to two on-site watercourses (25a and 41) ▪ Mixture of grass and herbaceous vegetation on banksides, occasional shrub ▪ Mainly herbaceous vegetation in channel, some grass vegetation, occasional shrub ▪ Limited year-round food source ▪ Dry in June 2023 ▪ Shading in patches by occasional shrub on banksides, heavily shaded by vegetation in channel 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

	<ul style="list-style-type: none"> ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
40	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (40) ▪ Hedgerow on the south-west side ▪ Bankside vegetation is predominately grass and woody vegetation, limited herbaceous vegetation ▪ Mainly grass and woody vegetation in channel, limited grass vegetation ▪ Limited year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by hedgerow on the south-west side and bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	
41	<ul style="list-style-type: none"> ▪ Hedgerow (no ditch) 	N/A	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 42a
- Connected to one on-site watercourse (42b)
 - Mixture of herbaceous and grass vegetation on banksides, limited woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Shaded by one shrub on bankside, heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 42b
- Connected to one on-site watercourse (42a)
 - Mixture of herbaceous and grass vegetation on banksides, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability



Photograph

- 43
- Connected to one on-site watercourse (44)
 - Encroaching scrubland at the west end of ditch from the south side
 - Bankside vegetation is predominantly herbaceous and woody vegetation, some grass vegetation
 - Mainly herbaceous vegetation in channel at the east end, mainly woody at the west end, limited grass vegetation at both ends
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by encroaching scrubland at the west end from the south side, and by vegetation in channel at the east end
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

		Habitat Suitability	Photograph
44	<ul style="list-style-type: none"> ▪ No connected ▪ Scrubland edge encroaching ditch from the west side ▪ Bankside vegetation is predominantly herbaceous and woody vegetation, some grass vegetation ▪ Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation ▪ No year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by encroaching scrubland edge from the west side, some shading by vegetation in channel ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to scrubland on west side and arable on east side ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	
45	<ul style="list-style-type: none"> ▪ Not connected ▪ Mixture of herbaceous and grass vegetation on banksides, no woody vegetation ▪ Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation ▪ No year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by vegetation in channel ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris 	Unsuitable	

**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

- Condition assessment: N/A - Dry

46

- No connected
- Hedgerow / line of trees at the west end of ditch on the north side
- Mixture of grass, woody and herbaceous vegetation on banksides
- Mainly herbaceous vegetation in channel, some woody vegetation, limited grass vegetation
- No year-round food source
- Dry in June 2023
- Heavily shaded by hedgerow / line of trees at the west end on the north side and by vegetation in channel
- Steep banks suitable for burrowing
- Some disturbance - adjacent to arable on both sides
- No obvious signs of pollution e.g., agricultural run-off or litter debris
- Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 47
- Not connected
 - Bankside vegetation predominately grass, limited herbaceous vegetation, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 48
- Hedgerow in dry ditch

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 49
- Not connected
 - Strip of scrubland on east side of ditch
 - Bankside vegetation is predominately woody, some herbaceous vegetation, limited grass vegetation
 - Mainly woody vegetation in channel, limited grass and herbaceous vegetation
 - No year-round food source
 - Dry with wet patches in June 2023 (<10cm)
 - Heavily shaded by scrubland on the east side and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - Water quality is moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Unsuitable



- 50
- Connected to one on-site watercourse (51)
 - Bankside vegetation is predominately herbaceous, limited grass vegetation, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- Condition assessment: N/A - Dry

51

- Connected to one on-site watercourse (50)
- Bankside vegetation is predominately herbaceous, some grass vegetation, occasional tree
- Mixture of grass and herbaceous vegetation in channel, no woody vegetation
- Limited year-round food source
- Dry in June 2023
- Shading in patches by occasional tree, heavily shaded by vegetation in channel
- Steep banks suitable for burrowing
- Some disturbance - adjacent to arable on both sides
- No obvious signs of pollution e.g., agricultural run-off or litter debris
- Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 52
- Not connected
 - Bankside vegetation is predominately herbaceous, limited grass vegetation, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - Year-round food source
 - Wet in June 2023 (could not assess water depth due to vegetation in channel)
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - Could not assess water quality due to vegetation in channel
 - Condition assessment: could not complete condition assessment due to vegetation in channel

Suitable but poor



- 53
- Connected to one on-site watercourse (54)
 - Hedgerow heavily encroaching ditch from the west side
 - Mixture of grass, woody and herbaceous vegetation on banksides
 - Mixture of grass, woody and herbaceous vegetation in channel
 - No year-round food source
 - Dry with wet patches (<10cm) in June 2023
 - Heavily shaded by encroaching hedgerow from the west side, by bankside vegetation and by vegetation in channel
 - Very steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability


Photograph

-
- 54
- Connected to three on-site watercourses (53 and 55)
 - Line of trees encroaching ditch from the south side
 - Mixture of grass, woody and herbaceous vegetation on banksides
 - Mainly herbaceous and woody vegetation in channel, limited grass vegetation
 - Limited year-round food source
 - Wet in June 2023 (<40cm)
 - Heavily shaded by line of trees from the south side, by bankside vegetation and by vegetation in channel
 - Very steep banks suitable for burrowing
 - Limited disturbance - large field margin (>50m) between arable field and ditch, garden on south side.
 - Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Suitable but poor



Watercourse Summary description reference (see Figure 9-10-1)

55	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (54) ▪ Hedgerow on the south side of ditch ▪ Mixture of grass, woody and herbaceous vegetation on banksides ▪ Mixture of grass and herbaceous vegetation in channel, some woody vegetation ▪ Limited year-round food source ▪ Wet in June 2023 (<20cm) ▪ Heavily shaded by hedgerow from the south side, by bankside vegetation and by vegetation in channel ▪ Very steep banks suitable for burrowing ▪ Some disturbance - large field margin (>50m) between arable and ditch, livestock on south side. ▪ Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. ▪ Condition assessment: poor 	Suitable but poor	
56	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (57) ▪ Mixture of grass and herbaceous vegetation on banksides, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Wet in November 2022 (<20cm) ▪ No shading ▪ Very steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled 	Suitable but poor	No photo

**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

	<ul style="list-style-type: none"> ▪ Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. ▪ Condition assessment: moderate 		
57	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (56) ▪ Mixture of grass and herbaceous vegetation on banksides, no woody vegetation ▪ Open channel ▪ No year-round food source ▪ Wet in November 2022 (<20cm) ▪ No shading ▪ Very steep banks suitable for burrowing ▪ Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled ▪ Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. ▪ Condition assessment: moderate 	Suitable but poor	No photo

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 58
- Not connected
 - Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation
 - Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 59
- Not connected
 - Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation
 - Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A- Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 60
- Not connected
 - Bankside vegetation is predominately grass, some herbaceous vegetation, no woody vegetation
 - Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 61
- Connected to one on-site watercourse (57)
 - Mixture of grass and herbaceous vegetation on banksides, occasional tree and shrub
 - Mixture of grass and herbaceous vegetation in channel, no woody vegetation
 - Limited year-round food source
 - Wet in November 2022 (<20cm)
 - Heavily shaded by in channel vegetation
 - Very steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled
 - Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Suitable but poor



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 62
- Connected to two on-site watercourses (59 and 61)
 - Hedgerow encroaching ditch from the south side
 - Mixture of grass, herbaceous and woody vegetation on banksides
 - Mixture of grass, herbaceous and woody vegetation in channel
 - Limited year-round food source
 - Wet in November 2022 (<10cm)
 - Heavily shaded by encroaching hedgerow from the south side and by in channel vegetation
 - Very steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable and evidence of hedgerow management
 - Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Suitable but poor



- 63
- Hedgerow in dry, shallow ditch

N/A



**Watercourse Summary description
 reference
 (see Figure
 9-10-1)**

**Habitat
 Suitability**

Photograph

- 64
- Connected to one on-site watercourse (65)
 - Mixture of grass and herbaceous vegetation on banksides, occasional tree and shrub
 - Mixture of grass and herbaceous vegetation in 1/3 of channel, open for the rest
 - Limited year-round food source
 - Wet in November 2022 (<20cm)
 - Shaded in patches by occasional tree and shrub, rest is not shaded
 - Very steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable, regularly managed by mowing and regularly reprofiled
 - Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Suitable but
 poor



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 65
- Connected to one on-site watercourse (64)
 - Defunct hedgerow in wet ditch
 - Mixture of grass, herbaceous and woody vegetation on banksides
 - Mainly woody vegetation in channel, limited grass and herbaceous vegetation
 - No year-round food source
 - Wet in November 2022 (<20cm)
 - Heavily shaded by hedgerow in channel
 - Very steep banks suitable for burrowing
 - Heavy disturbance - adjacent to arable and evidence of hedgerow management
 - Water quality moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc.
 - Condition assessment: poor

Unsuitable



- 66a
- Connected to one on-site watercourse (66b)
 - Line of trees on the north side of ditch
 - Mixture of grass, herbaceous and woody vegetation on banksides
 - Mainly herbaceous vegetation in channel
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by line of trees and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance – adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 66b
- Connected to one on-site watercourse (66a)
 - Line of trees on the north side of ditch
 - Mixture of grass, herbaceous and woody vegetation on banksides
 - Mainly herbaceous vegetation in channel
 - No year-round food source
 - Dry in June 2023
 - Heavily shaded by line of trees and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance – adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 67
- Not connected
 - Bankside vegetation is predominately grass, limited herbaceous vegetation, no woody vegetation
 - Mainly grass vegetation in channel, limited herbaceous vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 68
- Connected to one on-site watercourse (69)
 - Mixture of grass and herbaceous vegetation on banksides, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - Limited year-round food source
 - Wet in June 2023 (could not assess water depth due to vegetation in channel)
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - Could not assess water quality due to vegetation in channel
 - Condition assessment: could not complete condition assessment due to vegetation in channel

Suitable but poor



- 69
- Connected to two on-site watercourses (68 and 70)
 - Mixture of grass and herbaceous vegetation on banksides, no woody vegetation
 - Mainly herbaceous vegetation in channel, limited grass vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry



Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

70	<ul style="list-style-type: none"> ▪ Connected to two on-site watercourses (71 and 69) ▪ Bankside vegetation is predominately herbaceous, some grass vegetation, no woody vegetation ▪ Mainly herbaceous vegetation in channel, some grass vegetation, no woody vegetation ▪ Limited year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by bankside vegetation and by vegetation in channel ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	
71	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (70) ▪ Woodland edge at the east end of ditch ▪ Bankside vegetation is predominately grass, some herbaceous vegetation, limited woody vegetation ▪ Mainly herbaceous vegetation in channel, some grass vegetation, no woody vegetation ▪ Limited year-round food source ▪ Dry in June 2023 ▪ Heavily shaded by edge of woodland at east end, shaded by bankside vegetation and by vegetation in channel ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

- 72
- Not connected
 - Bankside vegetation is predominately herbaceous, limited grass vegetation, no woody vegetation
 - Mainly herbaceous vegetation in channel, some grass vegetation, no woody vegetation
 - Limited year-round food source
 - Dry in June 2023
 - Heavily shaded by bankside vegetation and by vegetation in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - No obvious signs of pollution e.g., agricultural run-off or litter debris
 - Condition assessment: N/A - Dry

Unsuitable



- 73
- Not connected
 - Hedgerow in wet ditch
 - Bankside vegetation is predominately woody, some grass and herbaceous vegetation
 - Mainly woody vegetation in channel, limited grass and herbaceous vegetation
 - No year-round food source
 - Wet in August 2023 (could not assess water depth due to hedgerow in channel)
 - Heavily shaded by hedgerow in channel
 - Steep banks suitable for burrowing
 - Some disturbance - adjacent to arable on both sides
 - Could not assess water quality due to vegetation in channel



Unsuitable



Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

	<ul style="list-style-type: none"> Condition assessment: could not complete condition assessment due to vegetation in channel 		
74	<ul style="list-style-type: none"> Not connected Hedgerow in wet ditch Bankside vegetation is predominately woody, some grass and herbaceous vegetation Mainly woody vegetation in channel, limited grass and herbaceous vegetation No year-round food source Wet in August 2023 (<10cm) Heavily shaded by hedgerow in channel Steep banks suitable for burrowing Some disturbance - adjacent to arable on both sides Water quality is moderate - no litter debris but a few signs of agriculture run-off / pollution e.g., green algae, oil on surface of water etc. Condition assessment: poor 	Unsuitable	
75	<ul style="list-style-type: none"> Connected to one on-site watercourse (76) Hedgerow encroaching ditch from the west side Mixture of woody and grass vegetation on banksides, some herbaceous vegetation Mixture of woody and grass vegetation in channel, some herbaceous vegetation No year-round food source 	Unsuitable	

Watercourse Summary description reference (see Figure 9-10-1)

Habitat Suitability

Photograph

	<ul style="list-style-type: none"> ▪ Dry in August 2023 ▪ Heavily shaded by encroaching hedgerow from the west side of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 		
76	<ul style="list-style-type: none"> ▪ Connected to one on-site watercourse (75) ▪ Hedgerow on the south side of ditch ▪ Mixture of woody and grass vegetation on banksides, some herbaceous vegetation ▪ Mainly reeds in channel, some grass and herbaceous vegetation ▪ Limited year-round food source ▪ Dry in August 2023 ▪ Heavily shaded by hedgerow on the south side of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance - adjacent to arable on both sides ▪ No obvious signs of pollution e.g., agricultural run-off or litter debris ▪ Condition assessment: N/A - Dry 	Unsuitable	