CD 12.9

Appeal Ref: APP/R4408/W/24/3341097
Planning Ref: 2022/0115

Appeal against refusal for residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane, Carlton, Barnsley (Outline with all matters reserved apart from means of access).

Proof of evidence ecology

submitted by the appellant.

By

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1. Qualifications

1. I am Andrew Baker, and I am Director of the ecological consultancy Baker Consultants Limited, which I established in March 2009. I have a Bachelor of Science degree with Honours in Botany from the University of Nottingham (1986). I have been a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) since 1994.

2. I have been a practising ecologist for over 30 years, having worked throughout the UK for organisations such as English Nature (now Natural England), Nottinghamshire Wildlife Trust, the Peak District National Park Authority, large civil engineering consultancies and private ecological firms. Much of my work involves providing expert advice to clients on Environmental Impact Assessments (EIA) and Habitats Regulations Assessments (HRA) of the impacts of proposals on international sites (Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites) and Sites of Special Scientific Interest (SSSI).

3. In my work in private practice my clients come from the public, private and voluntary sectors. Public sector clients include English Nature (as was), the Department of the Environment Transport and the Regions (as was), the Environment Agency and Local Planning Authorities. My work for private clients includes numerous residential projects ranging from small schemes of two or three dwellings to large urban extensions of 2000 plus units. I have also worked on many leisure projects (theme parks, caravan sites and hotels) and large port, airport developments and a nuclear power station.

4. I am actively involved in the development of the ecological profession. I have published articles on EIA and protected species legislation. I am a member of the United Kingdom Environmental Law Association (UKELA) and a former Convenor of

its Nature Conservation Working Group. As Convenor of the working group, I was responsible for coordinating comments on emerging wildlife legislation and policy, such as the now superseded Planning Policy Statement 9. In 2003 I was a member of the then Highways Agency's (now Highways England) Translocation Steering Group, which subsequently published a best practice guide on habitat translocation. I was a member of the steering group working with the British Standards Institute and the Association of Local Government Ecologists to produce a 'Publicly Available Specification' that provides recommendations for the integration of biodiversity conservation into land use and spatial planning in the UK. This was the forerunner of British Standard BS42020.

5. I am currently a standing member on CIEEM's disciplinary board and I am frequently called upon to hear cases that are brought against members of the profession, often chairing the hearings.

6. I have considerable expertise in the practical application of nature conservation law and I have published widely on the subject including (along with Browne Jacobson Solicitors) the 2nd Edition of 'A Manual of Nature Conservation Law' edited by Michael Fry. Through my involvement in the UKELA I have been actively involved in the development of nature conservation law and planning policy that affects ecological issues. I have specific expertise of the practical application of this area of law and I teach on European and domestic nature conservation law and its associated guidance and policy. In 2015 I was made a Fellow of CIEEM in recognition of my contribution to this field of work (along with my work on eco-acoustics).

7. I am frequently called upon to give evidence to both local plan examinations and public inquiries into individual planning applications. I have also presented evidence to a Parliamentary Select Committee. I am currently working on preparing evidence for the forthcoming DCO material change to Hinckley C nuclear power station on behalf of EDF.

8. In May 2024 I was included in the ENDS report power list of the most influential environmental consultants.

9. Further information of my recent project experience can be found in Appendix 1 of the proof.

10. The evidence I have prepared and provided to this inquiry is true and I confirm that the opinions I express here are my true and professional judgements based on scientific evidence and my professional experience. I consider that my duties as a witness are to the inspector and I present my evidence and professional views independently of the party that has called me to give evidence.

2. Background

11. This appeal has been made against Barnsley Metropolitan Borough Council's decision to refuse planning application No,2022/0115 for up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane, Carlton (Outline with all matters reserved apart from means of access). The planning application, made by Network Space, was refused by the council on 27/09/2023.

12. The red line boundary of the proposed development consists of 7.57 ha of agricultural land which forms part of the Mixed Use Allocation MU3 of the Local Plan and part of the Carlton Masterplan Framework. The MU3 allocation allows for a total of 1683 residential dwellings.

13. The site is currently a field which is under arable production, with the eastern boundary marked by fenced railway land and to the west more agricultural land and the now disused canal beyond. The field is boarded by poor quality hedgerows and there is a pond located in the field.

14. I first visited the site on April 23rd 2024 and I have made a number of subsequent visits since that date.

15. The decision notice cites six reasons for refusal, of which only reason for refusal four is relevant to my area of expertise,

'4 The site is adjacent to the statutorily designated Carlton Marsh (Dearne Valley Wetlands SSSI). The applicants have not adequately assessed the impact of the development on the SSSI, and as such, the sensitive location of the application site in relation to the surrounding designated sites is not given adequate consideration with the ecological submission, both in terms of potential impacts, but also on the potential to positively contribute to nature's recovery in this location, contrary to Local Plan Policy BIO1 'Biodiversity and Geodiversity' and the associated SPD 'Biodiversity and Geodiversity'.'

3. Scope of Evidence

16. My evidence will consider the impacts that the proposed development will have on the ecology of the site and the surrounding area. This will set within the context of the legal, policy and guidance framework that protects ecological features.

17. I will examine is the intrinsic ecological value of the site and how any impacts will be fully mitigated.

18. I will examine the potential for the development to give rise to impacts upon nearby Dearne Valley Wetlands SSSI.

19. As part of my evidence, I have also assessed the adequacy to the ecological data that has been provided by the applicant and their interpretation of that data.

4. Legal, Policy and Guidance

20. In this section I examine the proposal against any relevant legal protection of sites and species along with the national and local plan policies.

National Planning Policy Framework (NPPF Dec 2023)

21. The NPPF includes several policies that are designed to project biodiversity and site designated for their nature conservation value, however none of these policies are mentioned in RfR 4. It should be noted that while the NPPF has been updated since planning permission was refused the text of the relevant policies has remained unchanged apart from the paragraph numbers.

22. The NPPF biodiversity policies relevant to the inquiry are as follows,

23. Paragraph 180 states,

180. Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

24. The first sentence of paragraph 181 is also relevant, which states,

181. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[62]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

25. Paragraph 186 states

> 186. When determining planning applications, local planning authorities should apply the following principles:
>
> a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
>
> b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
>
> c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[67] and a suitable compensation strategy exists; and
>
> d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Wildlife and Countryside Act 1981 (as amended) (SSSIs)

26. The Wildlife and Countryside Act 1981 (amended) includes a wide number of measures that protect biodiversity. Of relevance to this inquiry are those provisions that protect Sites of Special Scientific Interest (SSSIs). The relevant section is 28 notably Section 28 G that confers general duties in relations to SSSIs. Section 28G(2) states,

(1) An authority to which this section applies (referred to in this section and in sections 28H and 28I as "a section 28G authority") shall have the duty set out in subsection (2) in exercising its functions so far as their exercise is likely to affect the flora, fauna or geological or physiographical features by reason of which a site of special scientific interest is of special interest.

(2) The duty is to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest.

(3) The following are section 28G authorities—

(a) a Minister of the Crown (within the meaning of the Ministers of the M1 Crown Act 1975) or a Government department;

(b) the National Assembly for Wales;

(c) a local authority;

(d) a person holding an office—

(i) under the Crown,

(ii) created or continued in existence by a public general Act of Parliament, or

(iii) the remuneration in respect of which is paid out of money provided by Parliament;

(e) a statutory undertaker F2 . . . ; and

(f) any other public body of any description.

(4) "Statutory undertaker" means a person who is or is deemed to be a statutory undertaker for the purposes of any provision of Part 11 of the Town and Country Planning Act 1990.]]

Adopted Local Plan and Carlton Masterplan

27. As mentioned in the RfR 4 the policies within the Adopted Local relevant to the inquiry are Bio1 reproduced below. Also relevant is the Supplementary Planning Document on Biodiversity and Geodiversity (CD 4.6). The SPD is cited in the RfR4 although it was not adopted until March 2024, six months after planning permission was refused.

28. The allocation of the site under the adopted local plan (allocation MU3 of which this application is a part) was the subject of the Carlton Masterplan Framework and Design Code which was adopted by the Council in January 2021 (CD 5.1). The purpose of this Masterplan Framework is to inform planning applications for the allocations. Ecological aspects of the framework are addressed at section 5.6 and document also considers the proximity of the Dearne Valley Wetland SSSI (see pages 5, 24, 35 and 60). Section 7.8 (page 64) of the Masterplan Framework sets out how the Design Code will address ecology and biodiversity. This section includes consideration of

ecological data to inform any planning application and the requirement to achieve a minimum of 10% biodiversity net gain (BNG) see below.

Policy BIO1 Biodiversity and Geodiversity

Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.

Maximising biodiversity and geodiversity opportunities in and around new developments.

Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.

Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.

Protecting ancient and veteran trees where identified.

Encouraging provision of biodiversity enhancements.

Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI).

Biodiversity Net Gain

29. The Environment Act 2021 introduced the requirement for most developments within in England to secure 10% biodiversity net gain (BNG). This requirement was made mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021) on February 12th 2024; the planning application was submitted before this date and so there is no legal requirement to deliver BNG in this case. As set out above the mandatory BNG requirements however were pre-empted by the Carlton Masterplan Framework and Design Framework.

5. Assessment of the ecological value

Ecological Surveys

30. The planning application has been informed by an ecological survey which was carried out in July 2021 (CDs 6.3, 6.4, 6.7, 6.9 and 6.39). I have reviewed these surveys and found it to be an accurate description of the ecological features of the site. The survey was carried out at the correct time of year and it is my view the that survey effort was proportionate to the ecological value of the site and that the ecological value is low to negligible. It is my view that the ecological surveys that were submitted in support of the planning application were accurate and sufficient to inform the planning application.

31. The 2021 surveys are now out of date and in order to aid the inspector Baker Consultants Ltd has completed a suite of ecological surveys the results of which are provided in Appendix 2 of this proof. The 2024 surveys have confirmed that the site has remained unchanged since 2021 and the evaluation remains valid.

32. In summary, the area comprises an agricultural field which remains under arable cultivation. The field margins support narrow bands of ruderal vegetation with some hedgerow around the periphery of the site. The only area which is not under arable cultivation is a narrow liner pond which is surrounded by a narrow band of ruderal vegetation and scrub.

33. The 2024 surveys also,

- Presented an up-to-date data trawl of biological records
- Report on eDNA tests for Great Crested Newts of the pond on site and other ponds within 500m of the site boundary
- Complete breeding bird surveys of the site.
- Updated badger surveys

34. The 2024 surveys confirmed that the site is of low ecological interest. The eDNA test for the pond on site were negative confirming that Great Crested Newts are not present within this pond. One nearby pond returned a positive result but this is located over 200m from the site and there is low ecological connectivity between this pond and the site as the pond is located to the south of Shaw Lane and as such the road is an effective barrier to movement of GCN. In can therefore be concluded that the site does not support Great Crested Newts.

35. The breeding bird surveys recorded low numbers of species breeding within the site of within the peripheral habitats a result which would be expected given the arable nature of the site and the low ecological value. Only two common species (Chaffinch and Magpie) were confirmed as breeding on the site and these were both recorded in the hedgerows around the periphery of the site. A further eight species were considered to be '*probably*' breeding on site (this is when behaviours such as alarm calling and territorial defence are recorded but no nest site is found). All species that were either confirmed as breeding or were classified as probably breeding[1] were associated with the peripheral hedges or the pond. The distribution of the breeding sites is shown in Appendix 3 of the survey report appended to this proof of evidence. The numbers of breeding birds present are not considered to be significant.

36. The acoustic bird detector surveys for birds are designed to provide complimentary data to breeding bird surveys particularly for species that may be roosting on the site and may not have been present during the breeding bird surveys. The only species which is of interest is the registrations of Lapwing which are also listed on the Dearne Valley Wetland SSSI citation. However, more detailed analysis of the data shows that the use of the site was highly sporadic and does not show regular use of the site by

[1] (those considered to be 'possible' breeders are not included as the likelihood of breeding is considered too low to demonstrate relance in the site.

this species. Further assessment of the bird data is given below where I address the potential for effects upon the SSSI.

37. No badgers, or signs of badgers, were recorded on site or in the immediate surrounds.

38. The 2024 surveys confirm that the site is of low to negligible value for biodiversity.

Biodiversity Net Gain

39. The planning application was also the subject of a Biodiversity Impact Assessment (CD6.4) which included a BNG calculation which was based upon the proposed Landscaping Masterplan. The BNG calculation used the Defra Metric that was current at the time (version 3.1) and the calculation show a 10.43% net gain for biodiversity for habitat and 9.63% for hedgerows.

40. BNG calculations now use a different metric (Statutory Metric) and therefore Baker Consultants Ltd has provided the inspector with and updated BNG calculation (Appendix 2 of this proof of evidence). The new calculation given a 17.97% net gain for habitats and 10.18% for hedgerows and therefore goes beyond the minimum 10% minimum policy requirement for BNG. The BNG calculation can be found appended to this proof of evidence (Appendix 3).

6. Potential for impacts upon the SSSI

41. In its reason for refusal 4 the Council stated '*The applicants have not adequately assessed the impact of the development on the SSSI*' a reference to the Dearne Valley Wetlands SSSI.

42. The Dearne Valley Wetland SSSI is a large archipelago site comprising a total of 649.99 ha across Barnsley, Rotherham and Doncaster (CD5.18). The species interest of the site breeding and non-breeding birds associated with wetland habitats. The nearest parts of the SSSI to the proposed development are compartment units 001 and 002 Pool Ings and Sandybridge and Carlton Marsh respectively which are located

to the east of the railway line which marks the eastern boundary of the development site.

43. The railway line which is raised on an embankment along the length of the development site boundary offers a considerable physical buffer between the site and the SSSI.

44. Both SSSI units 001 and 002 are accessible to the public. The Pool Ings and Sandybridge unit is located immediately to the south of Rabbit Ings Country Park and within the SSSI there are numerous footpaths that connect with the Country Park. Furthermore, the SSSI notification papers from May 2021 (CD5.19) highlight that the site is important for recreation where at paragraph 1.4 it is stated '*The site is important for both formal and informal recreation and attracts people from a wide area. A significant part of the attraction for visitors is its nationally important wildlife interest and there are key visitor facilities at the RSPB site of Old Moor, one of five RSPB reserves within the SSSI*'. There is no suggestion in the SSSI documents that recreational pressure is currently or may be in the future be likely to cause damage to the site and should therefore be restricted.

45. The designation document lists operations that require will require Natural England's consent this list includes '*Recreational or other activities likely to damage or disturb the features of special interest.*' It is clear therefore that recreational activities only need to be considered where they are likely to damage or disturb the features of special interest.

46. Public access to Carlton Marsh Nature Reserve (SSSI unit 002) is actively promoted on the Yorkshire Wildlife Trust website (https://www.ywt.org.uk/nature-reserves/carlton-marsh-nature-reserve). The only restriction set out on the website is for dogs to be kept on leads. Facilities include a car park (off Shaw Lane), a picnic area and a network of walking routes. Pool Ings (Unit 001) of the SSSI also has public

rights of way through the site and a network of informal paths and tracks that connect with Rabbit Ings Country Park which is located immediately to the north of the SSSI.

47. There is no evidence to suggest that the footpath network which may be accessed by new residents at the proposed development will result in any adverse effects upon the SSSI's features of special interest. NE has not identified any threats from recreational pressure in their SSSI notification documents and YWT promote access to Carlton Marsh. Furthermore, the Carlton Masterplan Framework highlights the linkages to the SSSI as a benefit of the allocation of MU3 (see for example page 5 and page 60).

48. Finally, is should be noted that both of the SSSI units 001 and 002 are classified as being in "favourable" condition with 'no identified condition threats' [2].

Natural England's consultation response

49. Natural England was consulted by the Council and a response was received dated 12 April 2022 (CD10.6). Natural England has <u>not</u> objected to the planning application but rather has requested that further information be provided regarding possible impacts on the Dearne Valley Wetland SSSI including an assessment of impacts of water quality, increase recreational pressure, loss of functionally linked land and air quality. I have addressed issue of recreational pressure in detail above and address each of the other issues raised by NE below.

Water Quality

50. Discharges of foul and surface water are fully addressed in the evidence of Mr A Laird. In summary, surface water drainage will be through a Sustainable Urban Drainage System (SUDS) in order to maintain green field runoff rates. SUDS also assists in maintaining water quality such as reducing suspended solids. By designing the SUDS in accordance with Construction Industry Research and Information Association

[2] https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000814

(CIRIA) "The SuDS Manual" (C753) the quality of surface water runoff will be maintained and potentially improved when compared to the current agricultural drainage.

51. Foul water will be discharged into the existing sewage system and will therefore be treated in within current sewage treatment works consents.

52. The proposed project will therefore have no effects upon the Dearne Valley Wetlands SSSI through changed in hydrology or water quality.

Loss of Functionally Linked Land

53. The concept of 'functionally linked land' FLL is one which is usually applied to Habitats site (Special Protection Area, Special Areas of Conservation and Ramsar sites). While I am very familiar with the application of this concept to these sites, despite my wide experience in the application of nature conservation law I have never before known the concept of FLL to be applied to Sites of Special Scientific Interest. The concept of FLL is entirely based on the legal structure of the Habitats Regulations 2017 (as amended) and those legal tests are not mirrored in the legal structure of those parts of the Wildlife and Countryside Act 1981 (as amended).

54. Nonetheless I have below addressed NE's comments on the possible loss of functionally linked land as set out in its consultation response.

55. Functionally linked lands is defined as '*areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated*. '[3] It is clear from this definition that FLL must have an ecological 'function' which is not trivial, but one which is 'critical to or necessary for' supporting the

[3] NERC361. Natural England Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England.

qualifying features of a designated site. If the concept of FLL can be applied to a SSSI (and given that the concept is entirely based on authoritative decisions concerning Habitats sites[4] I think this is highly problematic) in order for land to be FLL for an SSSI it would have to provide a critical function for the interest features of the SSSI. Given that the Dearne Valley Wetlands is designated for the wetland birds it supports the proposed site would have to provided habitat that would be critical to supporting those interest features.

56. In this case the features present on the proposed development site are not those which can be considered critical to supporting the SSSI. The arable land which makes up the majority of the site will not provide critical feeding habitat for wetland birds. Nor would it provide roosting habitat that would be any more attractive than any of the other arable land in the areas. The loss of the arable land could not therefore have any significant effect upon the Dearne Valley Wetland SSSI.

57. Furthermore, during 2024 Baker Consultants has carried out a full breeding bird surveys of the development site including the placement of audio recorders in the vicinity of the pond to detect which species are using the site.

58. As would be expected of primarily arable land the site supports very low numbers of breeding birds (see Appendix 2). The only species of bird confirmed as breeding on the site chaffinch and magpie are not listed on the SSSI citation. Of those classed as probably breeding only yellowhammer and reed bunting are listed on the SSSI citation. There is no way of knowing whether these birds that are nesting outside the SSSI have any relationship with habitats within the SSSI or vice versa but in any event the numbers of pairs present are not significant (see Appendix 2). Furthermore, both the reed bunting and yellowhammer were associated with the habitats which can be enhanced within the proposed development as part of the biodiversity net gain

[4] CHAPMAN, C. & TYLDESLEY, D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number207.

associated with the proposed development; breeding opportunities for these species will be improved.

59. As well as reed bunting and yellowhammer the acoustic bird surveys recorded an additional 7 bird species that are listed on the SSSI citation these are black-headed gull, long-tailed tit, lapwing, lesser whitetroat, linnet, snipe and water rail. The number of registrations for black-headed gull, lesser whitethroat, linnet, snipe and water rail were very small and not consistent across the recording periods. None of these species were therefore present on the site with such regularly as to demonstrate a functional linkage with the SSSI.

60. In the case of lapwing and long-tailed tit more detailed analysis of the data shows that the number of registrations across the acoustics survey periods are highly variable (see Figure 2 of Appendix 2 of this proof). This data cannot therefore be interpreted to demonstrate any consistent use of the site by either lapwing or long tailed tit and that they are using the site in a manner that would demonstrate any functional linkage.

61. It should also be noted that the habitat that will be lost as a consequence of planning permission being granted is arable land. As the aerial photographs demonstrate, for example see Figure 1 of Appendix 2 of this proof, there is a considerable amount of arable land in close proximity to the Dearne Valley Wetlands SSSI, particularly to the east which is also available to the bird species that are listed in the SSSI citation.

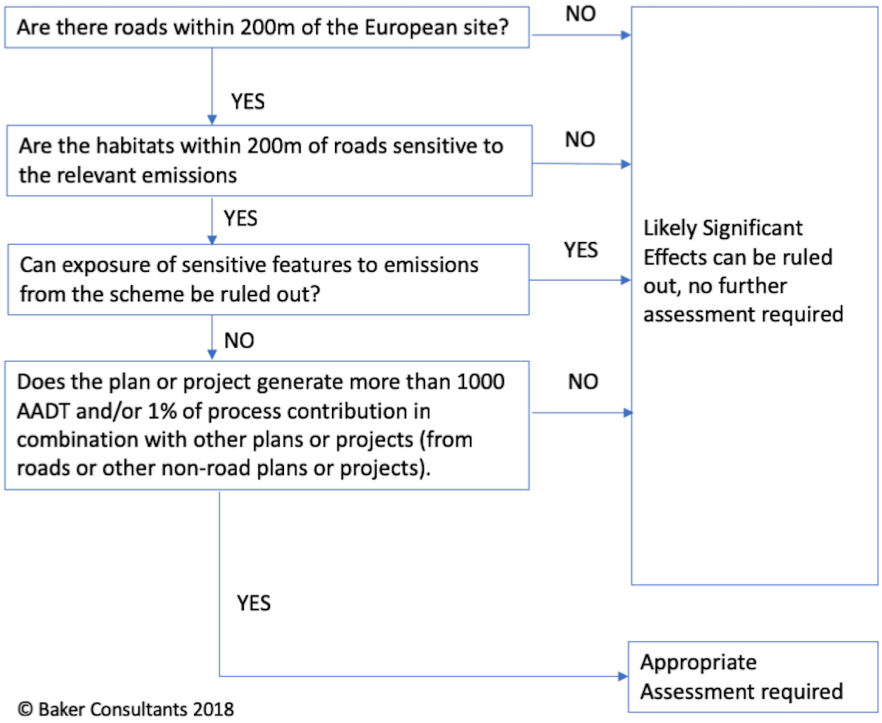
62. The data shows that the development site is not critical to or necessary for supporting the SSSI and cannot therefore be considered Functionally Linked Land. When considered in combination with other development identified within the Local Plan the same conclusion would be reached simply based on the extent of arable land available within the locality that is outside site allocation and is therefore unlikely to be developed in the future.

Air Quality

63. Natural England has advised that the effect of potential changes in air quality should be assessed using Natural England guidance NEA001[5] (CD5.20). This guidance has been prepared to primarily apply to Habitats sites through the Habitats Regulations2017 (as amended). I have therefore set out below an assessment of the air quality impacts using this guidance however it must be born in mind that the Habitats Regulations has very different and much more strict impact thresholds when compared to the protection of SSSIs under the Wildlife and Countryside Act 1981 (as amended) and the guidance cannot therefore be transferred *in totum* across to SSSIs. For example, the legal test of 'Like Significant Effects' and the need of 'Appropriate Assessment' only apply to Habitats sites not SSSIs.

64. NEA001 has a number of steps that can be applied to the assessment of changes in air quality. These are summarised in Figure 1 below.

HRA traffic emissions Likely Significant Effects screening flow chart



[5] Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations Version: June 2018

65. If we assume that the term "European site" in the flow chart is substituted for SSSI in this case there is a road which passes within 200m of the SSSI, Shaw Lane.

66. That being the case it is then necessary to consider whether the habitat within 200m of Shaw Lane are likely to support SSSI bird interest features that are considered to be sensitive to changes in air quality. In order to consider this one must refer to the Air Pollution Information System (APIS) website https://www.apis.ac.uk/srcl which sets out the critical loads and sensitivities for SSSIs. The APIS webtool shows that none of the species that are the interest features of the site are sensitive to changes in ammonia (NH_3), oxides of Nitrogen (NOx) or Sulphur Dioxide (SO_2). The APIS webtool also sets out critical loads for nutrient nitrogen and sensitivities for Dearne Valley Wetland SSSI. This shows that there is only 1 species where a critical load has been set for nutrient nitrogen and a further four species for which critical loads are not set yet the feature is considered sensitive and decisions should be taken on a site-specific level. The detailed are summarised Table 1 below.

Table 1. Extract from Air Pollution Information System APIS site relevant critical loads for nutrient nitrogen for Dearne Valley Wetlands SSSI

	Min critical load for N (kg N/ ha/yr)	Max critical load for N (kg N/ha/yr)	Nitrogen critical load class	Reason
Bittern	15	25	Rich Fen	Potential negative impact on species due to impacts on the species' broad habitat.
Northern Shoveler	-	-	No comparable habitat with established critical load estimate available	Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.
Gadwall	-	-	No comparable habitat with established critical load estimate available	Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.
Common pochard	-	-	No comparable habitat with established critical load estimate available	Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.

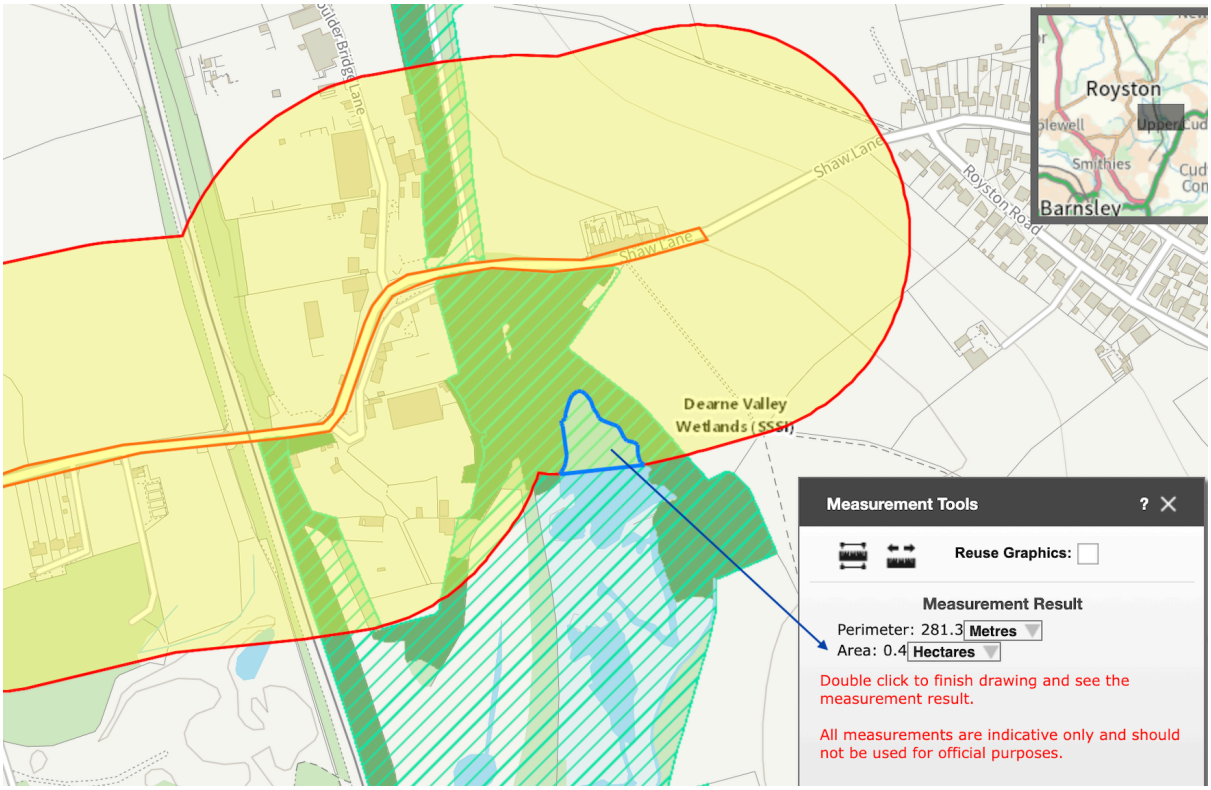
Black headed gull	-	-	No comparable habitat with established critical load estimate available	Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.

67. The only road which could be subjected to change in air quality as a consequence of the project that is located within 200m of the SSSI is Shaw Lane. That being the case it is then necessary to establish whether the habitats within the SSSI that are within 200m of the road are likely to be supporting habitat for the species listed in Table 1. In the case of Bittern this is rich fen and for the other species they are mainly associated with open water habitats.

68. Bittern is only recorded within the SSSI at Dearne Valley Old Moor site which is located approximately 9km from the proposed development site. Any changes in air quality along Shaw Lane could not therefore affect this species.

69. The SSSI habitats that are within 200m of Shaw Lane are predominantly broad-leaved woodland flanking Cudworth Dyke and to the south of Shaw Lane (see Figure 2 below). These are not key habitats for Northern Shoveler, Gadwall, Common Pochard nor Black Headed Gull. The only habitat within the 200m zone that could support these species is a small area of open water amounting to 0.4 ha in area. This is not a significant area of open water in the context of the entire SSSI which covers a total area of 650 ha (0.06% of the SSSI).

Figure 2 SSSI Habitat within 200m of Shaw Lane.



70. If changes in air quality were to occur as a result of the proposed development any significant effects upon the SSSI can be ruled out as the habitat that could be affected is small and cannot be considered significant. The same conclusion would apply for any in combinations effects that these would affect the same area.

7. Other ecological Impact

71. The intrinsic ecological interest of the proposed development site is low to negligible. This is demonstrated by the BNG assessment which shows that the baseline score over much of the site could not be lower. The only area of ecological interest within the site boundary is the pond and any loss is more than balanced by green infrastructure and the delivery of BNG. The proposed development will result in above 10% gains for habitats and hedgerows. The proposed development is therefore entirely acceptable as it has negligible impact upon the natural environment and delivers net gain for biodiversity.

72. A number of objectors have raised comments about loss of habitat and the proximity of the SSSI which I have addressed above. In addition, comments have been made about effects on water voles on the Royston Canal (to the west), impacts on badgers, and deer, foxes, marshland, birds, insects and plants. The proposal does not affect the canal and therefore will not affect water voles (should they be present). There is no evidence that water vole are sensitive to disturbance. Currently the canal towpath is well used by walkers and the canal is fished. As outlined above the site does not support habitats that could support any notable populations of birds, insects or plants confirmed by the ecological survey evidence. Species of deer and foxes may be seen on the land from time to time however the habitats present do not provide either good cover or significant foraging habitat for either species. The ecological surveys have found no badgers on site.

8. Summary and Conclusions

73. The proposed development site is of low ecological interest. It does not support protected species and the pond located within the site does not support protected species. The proposed development will deliver BNG more then 10% gains as required by local plan policy.

74. The proposed development will pose no risk to the nearby Dearne Valley Wetlands SSSI and would not be contrary to the Wildlife and Countryside Act 1981 as amended.

75. The proposed development complies with both national policies that seek to protect biodiversity and the local plan policy. The proposal is also compliant with the Carlton Masterplan Framework and Design Code as regards protection and enhancement of the natural environment.

76. There are no ecological grounds for rejecting the appeal and reason for refusal 4 is not supported by the evidence and should be rejected.

Appendix 1 Examples of previous project experience

Hinkley Point C Material Change DCO (EDF)
For the past 2 years I have been assisting EDF in preparing evidence for the forthcoming Material Change DCO application to their Hinckley C nuclear power station for which I will be one of their expert ecology witnesses at the hearing. This is a highly complex project involving a package of compensation measures for the removal of a previously proposed Acoustic Fish Deterrent that was to be mounted on the cooling water intake heads for the new power station. The project includes close collaboration with the various Statutory Nature Conservation Bodies from both England and Wales and the Marine Management Organisation.

Halo Student Village, Penvose Cornwall
In the early part of 2024 I was commissioned by Verto Homes to provide expert ecology advice on the development of a c.20ha site at Penvose, near Falmouth. The site has been granted outline permission for the development of 2000 bed space student village and associated amenities however reserved matters permission was refused because of the potential impacts upon the bat population of the area. Verto Homes appealed the decision, and a hearing was held in May 2024. The effects upon the bat population was the only issue at the hearing. In the run up to the hearing I gave detailed advice on the ecology of the site and how the site would function for the bat populations recorded in the areas. My company also carried further bat surveys to demonstrate the level of bat activity within the site. At the hearing I presented detailed analysis the value of the site for bats and a critique of the mitigation measures associated with the development. A decision on the appeal is awaited.

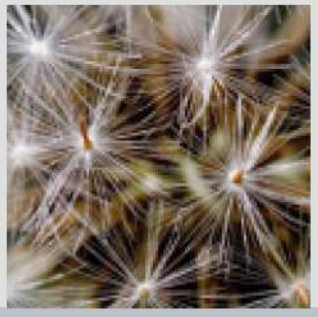
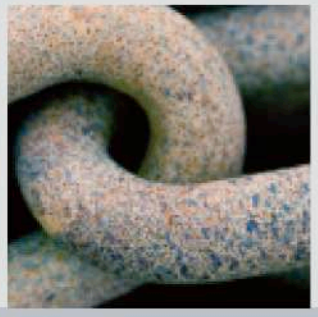
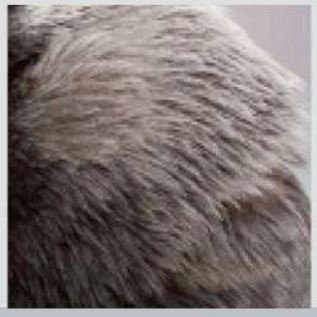
Gregory Quarry Mansfield (Mansfield District Council)
In 2022, commissioned by Mansfield District Council, I gave evidence to the inquiry into the planning appeal into the redevelopment of Gregory Quarry and the building of c. 200 residential units. The LPS had refused planning permission; the site was not allocated in the local plan and was of high ecological value with some parts of the site designated as a Local Nature Reserve. The applicant cleared the site of vegetation prior to the inquiry. I gave evidence to the inquiry on a wide range of ecological issues including bats, Biodiversity Net Gain, loss of habitats, and the adequacy of the ecological surveys. The appeal was dismissed.

Barton on Humber (Banks Group)
From 2021 my team was involved in gathering ecological data on a proposed residential development at Barton on Humber for c200 units. The site posed a number of ecological challenges due to its close proximity to the Humber Estuary Special Protection Area and the fact the site was greenbelt. The planning application was refused leading to an appeal hearing by written representations. The hearing was very complex due to objections both from the LPA ecologist and Natural England. Natural England's position was highly problematic as they changed their views during the hearing and gave conflicting evidence but did not withdraw the objection. I provided the inspector with detailed written representations at every stage of the hearing – responding to each point that was raised by Natural England as they were made. The appeal was allowed and permission granted despite Natural England's objection.

Appendix 2 2024 ecological surveys.

Shaw Lane
Bird, Badger and Great Crested Newt Factual Survey Report

20th June 2024

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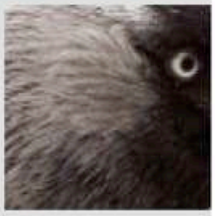

Who we are:
Baker Consultants is an ecology and sustainability consultancy. We work in terrestrial, freshwater and marine environments, providing a range of services to industry, government, developers, public services and utilities.

Baker Consultants comprises a highly experienced team of professional ecologists. We do wildlife surveys - but they are only the first steps in the process for most projects. We are also involved in ecological assessment, environmental law, biodiversity management and design planning.

We don't just work with wildlife, because we know that communication with clients, design teams and conservation bodies is the key to project success. Explaining the implications of survey data, and interpreting legislation, policy and best practice is one of our strengths. We help decisions to be made and actions taken, allowing constraints to be kept to a minimum and project risks to be managed.

Our approach is scientific, pragmatic and creative. Alongside tried and tested methods, we seek to innovate, introduce clients to new ways of thinking and always deliver sound commercial awareness. You will find us honest and approachable, but we're not afraid to be robust and challenging - or to ask difficult questions.

We do believe in nature conservation. But we also believe in good development, well delivered. We know that, with our input, projects and plans can provide benefits for both nature and people.

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Client	Spawforths on behalf of Network Space
Project	Shaw Lane
Report title	Bird, Badger and Great Crested Newt Factual Report
File reference	1979 SurveyReport.pdf
Team leader	Andrew Baker
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Unless otherwise stated in this document, the assessments made assume that the study site referred to will continue to be used for its current purpose without significant change. The assessment, recommendations and conclusions contained in this document may be based upon information provided by third parties and upon the assumption that the information is relevant, correct and complete. There has been no independent verification of information obtained from third parties, unless otherwise stated in the report.

Where field investigations have been carried out, these have been restricted to the agreed scope of works and carried out to a level of detail required to achieve the stated objectives of the services. Natural habitats and species distributions may change over time and further data should be sought following any significant delay from the publication of this document.

Report Contents

1 Introduction

1.1 Scope of Works

1.1.1 Baker Consultants was commissioned by Spawforths in February 2024 on to undertake the following update surveys:

- Data Trawl
- Breeding Bird,
- Badger,
- Great Crested Newt eDNA

1.1.2 This report takes into account standard guidance from a variety of sources including the Chartered Institute of Ecology and Environmental Management [1] [2] [3], British Standards Institution [4], and www.gov.uk [5].

1.2 Study Area

1.2.1 The study area is located north of Shaw Lane, Carlton, Barnsley, with the central grid reference SE 37385 10333 – see Figure 1 below. The site is located in the rural-urban fringe, approximately 4.5km to the northeast of Barnsley, South Yorkshire.

1.2.2 It comprises a single arable field, with hedgerow margins to the north, south and west, and a small pond in the centre of the site, with some marginal vegetation. To the eastern boundary is a minor railway, with Shaw Lane to the south. The surrounding landscape is predominantly a mixture of arable and urban residential.

[1] CIEEM (2018). Guidelines for Ecological Impact Assessment In The UK And Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
[2] CIEEM (2015). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
[3] CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management, Winchester.
[4] BSI (2013). BS42020:2013 Biodiversity – Code of Practice for Planning and Development
[5] https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications

Figure 1. Site Location

2 Methods

2.1 Introduction

2.1.1 Wherever appropriate, Natural England's Standing Advice on Protected Species [6] was taken into account, along with a wide range of other best practice guidance on survey methods. These are referenced in the text below. However, the professional judgement and expertise of the surveyors is always important when determining the site conditions and also when undertaking any detailed assessments. This may require adopting a bespoke approach, which may differ from the published guidance - where this is considered necessary case, detailed justification will be provided, as appropriate.

2.2 Surveyor Qualifications and Experience

2.2.1 Ecologist Martin Ledger (ACIEEM) completed three of the four breeding bird surveys, badger survey, and Great Crested Newt eDNA surveys. Martin has 13 years consultancy experience, and is an experienced bird surveyor, as well as experienced in carrying out Badger and GCN surveys.

2.2.2 Senior Ecologist Isabel Syddall completed one of the four breeding bird surveys. Isabel has over four years of professional experience in consultancy and has carried out numerous breeding bird surveys in this time as well as before this as a volunteer for her local Wildlife Trust where she undertook territory mapping surveys for wading birds, nightjar, and skylark.

2.2.3 Ecologist Rae Smith completed a Badger survey of the site. Rae has over two years consultancy experience, and in that time has carried out several appraisals of sites for Badger, targeted Badger surveys, bait marking surveys and Badger ECOW.

2.2.4 Assistant Ecologist Matthew Keough assisted during the eDNA survey. Matthew has 18 months consultancy experience, and in that time has undertaken several eDNA surveys.

2.3 Desk-study

2.3.1 A data search was undertaken for designated sites of nature conservation interest, priority habitats and records of protected and priority species. Data for these was gained through the sources listed in Table 1 below:

Table 1. Desk-study Data Sources

Organisation/source	Data sought	Search area
Multi-Agency Geographic Information for the Countryside (MAGIC)	Statutory designated sites, Habitats of Principal Importance	1km
Local Biological Records Centre	Non-statutory designated sites of nature conservation and records of protected/notable species.	1km

2.3.2 Natural England's online Impact Risk Zone tool was also consulted[7]. This identifies

[6] https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications
[7] Available at: http://www.magic.gov.uk

whether developments are likely to have an impact on Sites of Special Scientific Interest (SSSIs), based upon their type and location, and whether Natural England should be consulted as part of the proposals.

2.4 Birds

2.4.1 The breeding birds survey broadly followed the 'Common Bird Census' method [8]. This technique involves walking the site during the bird breeding season, while watching and listening for birds. The location and behaviour of every bird recorded during this survey is then mapped using a standardized system of notation.

2.4.2 The surveyor assessed all habitats on, and immediately adjacent to the site for evidence of breeding birds.

2.4.3 Four visits were undertaken to during the bird breeding season in suitable weather conditions. The visits were made either in the early morning, when birds are most active. The surveyors, dates, times and weather conditions during these surveys are detailed in Table 2.

Table 2. Breeding Birds Survey Conditions

Date	Surveyor	Sunrise	Survey Time	Weather conditions
21/03/2024	ML	06:05	07:40-08:25	8°C, 100% cloud, dry, BF1
29/04/2024	IS	05:34	06:27-07:16	6-8°C, 30% cloud, dry, sunny, BF3
15/05/2024	ML	05:04	05:50-06:35	12°C, 100% cloud, dry, BF1-2
04/06/2024	ML	04:40	07:25-08:00	15°C, 90% cloud, dry, sunny spells, BF3

Surveyor Key: ML = Martin Ledger; IS = Isabel Syddall

Automated bird survey

2.4.4 A single automated acoustic recorder was also deployed to record birds within and close to the site. The survey was undertaken in accordance with Passive Acoustic Survey methods outlined in the bird survey guidelines [9].

2.4.5 A Wildlife Acoustics SongMeter Mini recorder was deployed at two sampling points within the study area including at the central pond, and western site boundary (Figure 2). The acoustic frequency range 180 Hz to 10 kHz was recorded all day and night, with one minute acoustic recording every 10-minute interval. The deployment periods are provided in Table 3.

[8] Marchant, J.H. (1983). Common Bird Census Instructions. British Trust for Ornithology, Tring.
[9] Bird Survey & Assessment Steering Group. (2023). Bird Survey Guidelines for assessing ecological impacts, v.1.1.0. https://birdsurveyguidelines.org [14 Sep. 23].

Figure 2. Bird Automated Acoustic Detector Location

Table 3. Acoustic Detector Deployment Dates

	Detector ID	Deployment Dates
D1	SMU10111	20/03/2024 – 04/04/2024
D2	SMU10478	29/04/2024 – 15/05/2024
D3	SMU10478	15/05/2024 – 04/06/2024

2.4.6 After collection, the acoustic recordings were analysed to quantify the number of bird vocalisation and the bird species. The audio recordings were processed using Kaleidoscope Pro software, with bird vocalisation phrases being subject to identification initially through Cornell Lab @Birdnet Analyzer on Raven Pro *10*. Calls were then manually checked.

2.5 Badger

2.5.1 A survey for Badger was undertaken by Rae Smith on 23/04/2024. The site was also inspected during the breeding bird and eDNA surveys, with any new signs noted by surveyors. The study area includes a 50m buffer zone, in order to check for nearby badger setts. Survey methods used were in accordance with published guidance *11*, and involved

10 K. Lisa Yang Center for Conservation Bioacoustics. (2023). Raven Pro: Interactive Sound Analysis Software (Version 1.6.5) [Computer software]. Ithaca, NY: The Cornell Lab of Ornithology. Available from https://ravensoundsoftware.com/.
11 Harris, S, Cresswell, P & Jeffries, D. (1989). Surveying Badgers. An occasional publication of the Mammal Society – No 9. Mammal Society, London.

walking across the study area, looking for signs of badgers, including their setts.

2.5.2 Evidence of badger is often characteristic and can include tufts of hair caught on barbed wire fences, conspicuous badger paths, footprints, small excavated pits or latrines in which droppings are deposited, scratch marks on trees, and snuffle holes, where badgers have searched for insects and plant tubers.

2.5.3 Active badger setts normally have entrances 25 - 35cm in diameter and shaped like a 'D' on its side, with large spoil heaps and bedding outside.

2.6 Great Crested Newt

Habitat Appraisal

2.6.1 The habitats within and immediately adjacent to the site were assessed by Martin Ledger and Matthew Keough on 15/05/2024 for their potential to support populations of amphibians according to published guidance [12]. Great Crested Newts need both aquatic and terrestrial habitat, and the study area was assessed for suitable areas such as ponds, ditches, rough grassland, woodland, scrub and piles of debris.

2.6.2 The quality of the on-site pond for Great Crested Newts was assessed using the Habitat Suitability Index (HSI) [13] [14]. This provides a numerical score to grade the quality, between 0 and 1, with 0 indicating unsuitable habitat and 1 representing optimal habitat.

Environmental DNA surveys:

2.6.3 A survey for Great Crested Newt, was undertaken by Martin Ledger and Matthew Keough on 15/05/2024. This included the on-site waterbody (P1), and two waterbodies identified within 500m of the site (P2 and P3). Waterbody locations are provided in Figure 3.

2.6.4 The ponds were surveyed for the presence or absence of Great Crested Newts using an eDNA (environmental DNA) sampling kit, in reasonable weather conditions. The field sampling protocol followed the steps outlined in the Technical Guidance [15], with 20 samples of pond water being taken from around the pond edge before being mixed and stored in sample tubes. Individual kits were used for each pond sample to prevent cross-contamination.

2.6.5 The collected samples were then sent to a Natural England-approved laboratory for analysis. As eDNA persists in waterbodies (excluding sedimentary deposits) for a relatively short period of time, collected samples should contain the DNA fragments of great crested newts that were recently present within the waterbody.

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[12] English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature.
[13] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.
[14] ARG UK (2010). Advice Note 5. Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.
[15] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R. A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

Figure 3. Pond Locations

3 Results

3.1 Study Limitations

3.1.1 It is important to note that, even where data is returned for a desk-study, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest since the area may simply be under-recorded. Equally, due to the level of recording, some species should be considered more frequent than indicated by the records provided within a desk-study.

3.1.2 Whilst every effort was made in the field survey to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment. Also, natural and semi-natural habitats are subject to change, species may colonise the site after surveys have taken place and results included in this report may become less reliable over time.

3.1.3 Survey data is generally only considered valid if it is from the current or previous active season. In some cases, surveys up to 3 years old may be considered acceptable by consultees if the habitats have not significantly changed in the intervening period.

3.1.4 The water in Pond 1 was flowing, and it is assumed that it is connected to subsurface drains within the field. Running water generally not used by GCN, and samples taken from still edges among vegetation, so any traces of DNA should have been picked up. It should be noted that previous surveys found the pond to be mainly dry with very little open water.

3.1.5 Along the eastern boundary the scrub could not be accessed as it is railway land and also fenced off, however the lack of direct access was not considered to be a significant constraint as the birds surveyors could still observe activity and any signs of badger movement onto the site will still have been picked up.

3.2 Designated Sites

3.2.1 The desk-study provided information on the designated sites listed below in Table 4. Locations are provided in Appendix 1.

Table 4. Designated Sites

Name	Status	Location/distance	Interest
Statutory sites			
Dearne Valley Wetlands	SSSI	40m south east	Important for breeding birds including Gadwall, Shoveler, Garganey, Pochard Bittern, black Headed Gull and Willow Tit. Also important for non-breeding Gadwall and Shoveler. Supports diverse assemblage of breeding birds of lowland damp grassland, lowland scrub. Habitats including lowland open water and lowland fen.
Non-statutory sites			
49 – Barnsley Canal	LWS	40m west	A disused canal, with Reed Sweet-grass dominant. Supports several UKBAP species, including Reed Bunting, Grasshopper Warbler and Willow Tit.

Name	Status	Location/distance	Interest
60 – Rabbit Ings	LWS	850m north	A reclaimed colliery on low-lying wetland, with restoration works meaning the site is dominated by unimproved neutral grassland, scattered scrub and several waterbodies. A small area of dry heath and acid grassland is also present to the east. UKBAP species including Water Vole, Badger, Great Crested Newt, Grass Snake and Lapwing.

3.2.2 Natural England's online MAGIC tool identified that one SSSI is within 1km of the site.

3.2.3 The Dearne Valley Wetlands is c50m from the south eastern site boundary, to the east of the railway and south of Shaw Lane. This is a narrow strip of the SSSI, which covers an area of almost 650ha to the east of the site, stretching north and south.

3.2.4 The closest non-statutory designated site is Barnsley Canal LWS which lies 40m to the west of the site. Barnsley Canal LWS is a disused canal, designated for supporting several BAP species, including Reed Bunting, Grasshopper Warbler and Willow Tit.

3.3 Birds

Desk Study

3.3.1 The desk study returned over 2000 records for birds, including 107 species. Species include Barn Owl, Brambling, Cetti's Warbler, Cuckoo, Willow Tit and Yellow Hammer. Most records are associated with the Dearne Valley Wetlands SSSI (previously recorded as Carlton Marsh LWS). No records were could be attributed as being from within the site boundary.

Transect Survey

3.3.2 A total of 31 species of birds were recorded on the site or within the site boundary during the site transect surveys, of which two species were confirmed to be breeding (B) (chaffinch and magpie), nine probably breeding (Pr) and five possibly (Po) breeding. 15 species are considered to be non-breeding visitors (N).

3.3.3 Of the 31 species recorded during the site transects, 17 are considered to be notable species, listed on the BoCC5 amber or red list, included on Section 41 of Natural Environment and Rural Communities Act (2006) and/or mentioned within the citation of Dearne Valley Wetlands SSSI.

3.3.4 Of the 17 notable species, Dunnock, Reed Bunting, Woodpigeon and Yellowhammer were regarded as probable breeders on the site. See Appendix 2 for a detailed species list, their breeding status, the habitat in which the bird was recorded and their legal protection. Identified territories are provided in Appendix 3.

Automated Surveys

3.3.5 A total of 4,915 bird vocal registrations were identified during the automated detector survey on site. The highest number of vocalisations recorded were of Great Tit (753 recordings), Robin (655), Lapwing (623), Pheasant (454), Blackbird (335), Yellowhammer (316) and Long-Tailed Tit (219). During the transect surveys, Lapwing were suspected of breeding off-site to the north, which could explain the high number of calls recorded.

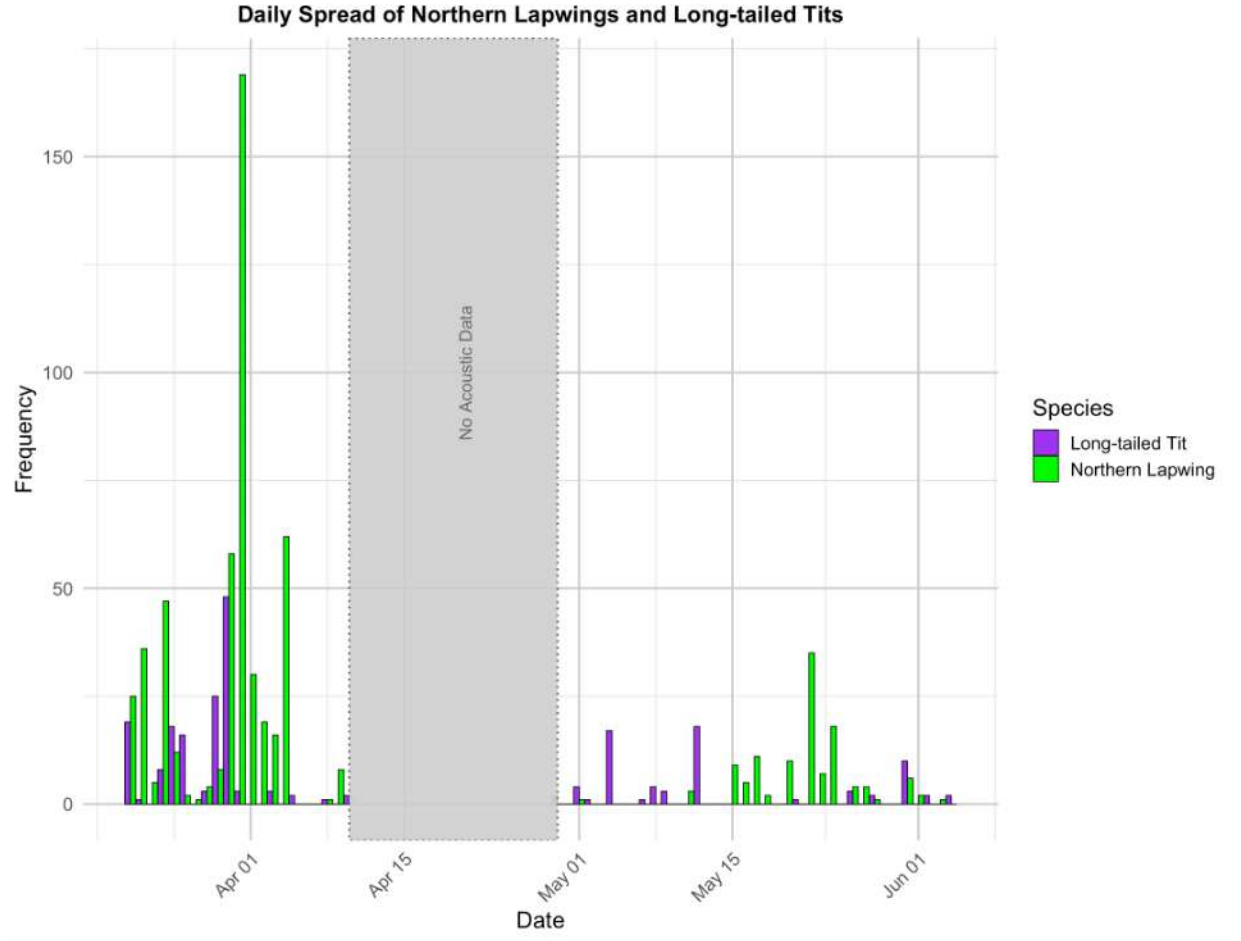
3.3.6 A total of 57 species were picked up on the detectors. Of these, 30 species were recorded also during the transect surveys, with Herring Gull being the only species from the transects not picked up on the recorder. This species was recorded as a single bird flying over the site.

3.3.7 The detector recorded an additional 27 species not recorded on or within the site boundary during the four breeding bird transects. These included Tawny Owl (55 recordings), Chiffchaff (31), Canada Goose (27), Linnet (25), Redwing (24), Coot (22), Whitethroat (22), Moorhen (21), Buzzard (15), Siskin (12), Teal (11), Black-Headed Gull (10), Kestrel (10), Little Owl (10) and Willow Warbler (10).

3.3.8 All additional birds detected were recorded in very low abundance (less than 10 recordings). The only species recorded less than 10 times on the recorders but were also noted during the site transects were Song Thrush (9), Carrion Crow (8 recordings), Reed Bunting (6 recordings), Feral Pigeon (5 recordings), Rook (5 recordings), Jay (4 recordings), Grey Wagtail (3 recordings) and Stock Dove (3 recordings).

3.3.9 The only species that were recorded in any numbers by the acoustics reordered were Lapwing and Long-Tailed Tit both of which feature in the SSSI citation. More detailed analysis of the acoustic date however shows that detections were not consistent across the season. For example, a large proportions of the Lapwing registrations occurred in one day.

Figure 4. Daily acoustic registrations of lapwing and Long-tailed Tit



3.3.10 Similarly the registrations of Long-Tailed Tit are highly inconsistent and none of this data can be interpreted to suggest the site is of particular importance for these species.

3.3.11 Many of the species picked up on the recorders but not during the site transects, (particularly those associated with water), are considered likely to have been recorded flying over the site, or occasionally foraging on site, rather than breeding on site.

3.3.12 Results from the static deployment are summarised in Appendix 2.

3.3.13 The site transect surveys found the site to be generally poor for breeding birds, with few habitats present that could support a significant number of individual birds and species.

3.3.14 Of the habitats present, the hedgerows were found to hold most bird interest, with all 10 confirmed/probable site breeding bird species being found there, although all were found only in small numbers.

3.3.15 The pond/ scrub habitat on site also contained up to four probable breeding species, all of which were also suspected of breeding within the hedgerows.

3.3.16 Of the bird species noted within the Dearne Valley Wetlands SSSI citation, only Reed Bunting and Yellowhammer were assessed as being probable breeders on site, with a maximum of four Yellowhammer territories noted and up to two Reed Bunting territories. The presence of such small numbers of these birds is not considered to be significant.

3.3.17 The majority of the site is composed of arable habitat, which is to be lost by the proposed development. No evidence was found of any bird species breeding within the arable habitat, with up to two Skylark noted intermittently singing over it, but with no evidence that they bred on-site. The loss of the arable habitat is therefore not considered likely to have any impact on ground nesting, arable birds such as Skylark.

3.3.18 The proposed development intends to retain, and in places re-plant gaps in the existing defunct hedgerows. This will avoid any negative impacts to the breeding bird assemblage on site, and may enhance the site for breeding and foraging birds.

3.4 Badger

3.4.1 The desk study returned four records for Badger from 2000-2022. The closest record is approximately 200m to the east of the site, for a sighting of a live Badger by Shaw Lane in 2019. Another record from 2000 is for a live badger crossing Shaw Lane. The remaining two records are for field signs of Badger. No known sett was returned in the desk study.

3.4.2 No field signs of Badger were identified during the Badger survey, or during any of the breeding bird or GCN eDNA surveys. Several holes were noted along the north and western site boundary hedgerows, however these holes were too small to be used by badger, and are more typical for Rabbit (Figure 4).

3.4.3 Some signs of digging were also identified in the hedgerows, however these were empty, with no signs of them being used as latrines (Figure 5). Due to proximity to the rabbit warren, it is therefore believed that the digging is a result of Rabbit activity, rather than Badger.

3.4.4 No latrines, prints or hairs were identified during any of the site visits, and it is therefore considered to be unlikely that a Badger sett is nearby. The site provides suboptimal habitat for Badger, with narrow arable margins along the hedgerows. However, Badger may be occasionally present on site due to suitable foraging habitat in the wider landscape. The site boundaries may be occasionally used by passing individuals.

Figure 5. Rabbit warren in western hedgerow

Figure 6. Rabbit digging in western hedgerow

3.5 Amphibians

3.5.1 The desk study returned 28 records for amphibians, including Common Frog (2 records, 2000-2012), Common Toad (14, 2000-2022), and Smooth Newt (12, 2000-2022). No records for Great Crested Newt were returned within the search area. Three records for Common Toad are associated with the Rabbit Ings LWS 1km from the site. All remaining records are associated with "Carlton Marsh LWS", which is now Dearne Valley Wetlands SSSI.

Habitat Appraisal

3.5.2 A waterbody (P1) is present in the centre of the site (Figure 6), which may provide suitable breeding habitat for amphibians. However, the waterbody is isolated, within an arable field which provides limited terrestrial habitat for amphibians. The surrounding hedgerows provide limited shelter, which could be used by a small number of amphibians, if present. however, more suitable, dense scrub habitat is present within Barnsley Canal LWS to the west, and along the railway embankment to the east.

3.5.3 A Habitat Suitability Index (HSI) survey was undertaken of the waterbody on site to determine suitability for supporting Great Crested Newt populations (Table 4). The pond was found to be of 'good' suitability (HSI = 0.71).

Table 5. Habitat Suitability Index Assessment

Feature	Category	HSI score
SI1 - Location	Zone A - Optimal	1
SI2 - Pond area	150m2	0.4
SI3 - Pond drying	Rarely	1
SI4 - Water quality	Moderate	0.67
SI4 - Shade	70%	0.7
SI6 - Fowl	Absent	1
SI7 - Fish	Absent	1
SI8 - Ponds	6 per 1km	0.8
SI9 - Terrestrial habitat	Poor	0.33
SI10 - Macrophytes	40%	0.7
Habitat Suitability Index		**0.71**

Environmental DNA

3.5.4 The eDNA results for P1 were 0/12 results for presence of GCN DNA, a negative result indicating the species is absent from the pond on site.

3.5.5 Two waterbodies were identified within 500m of the site, both of which are located on land to the south of Shaw Lane, approximately 200m to the south of the site. P2 is an overgrown wet ditch (Figure 7), and P3 is a larger pond with marginal vegetation (Figure 8).

3.5.6 Results for P3 were 12/12 results for presence of GCN DNA, a positive result indicating the species is present and breeding within the pond, and present in the surrounding terrestrial habitat. Results for P2 were indeterminate.

3.5.7 The eDNA results are provided in Appendix 3.

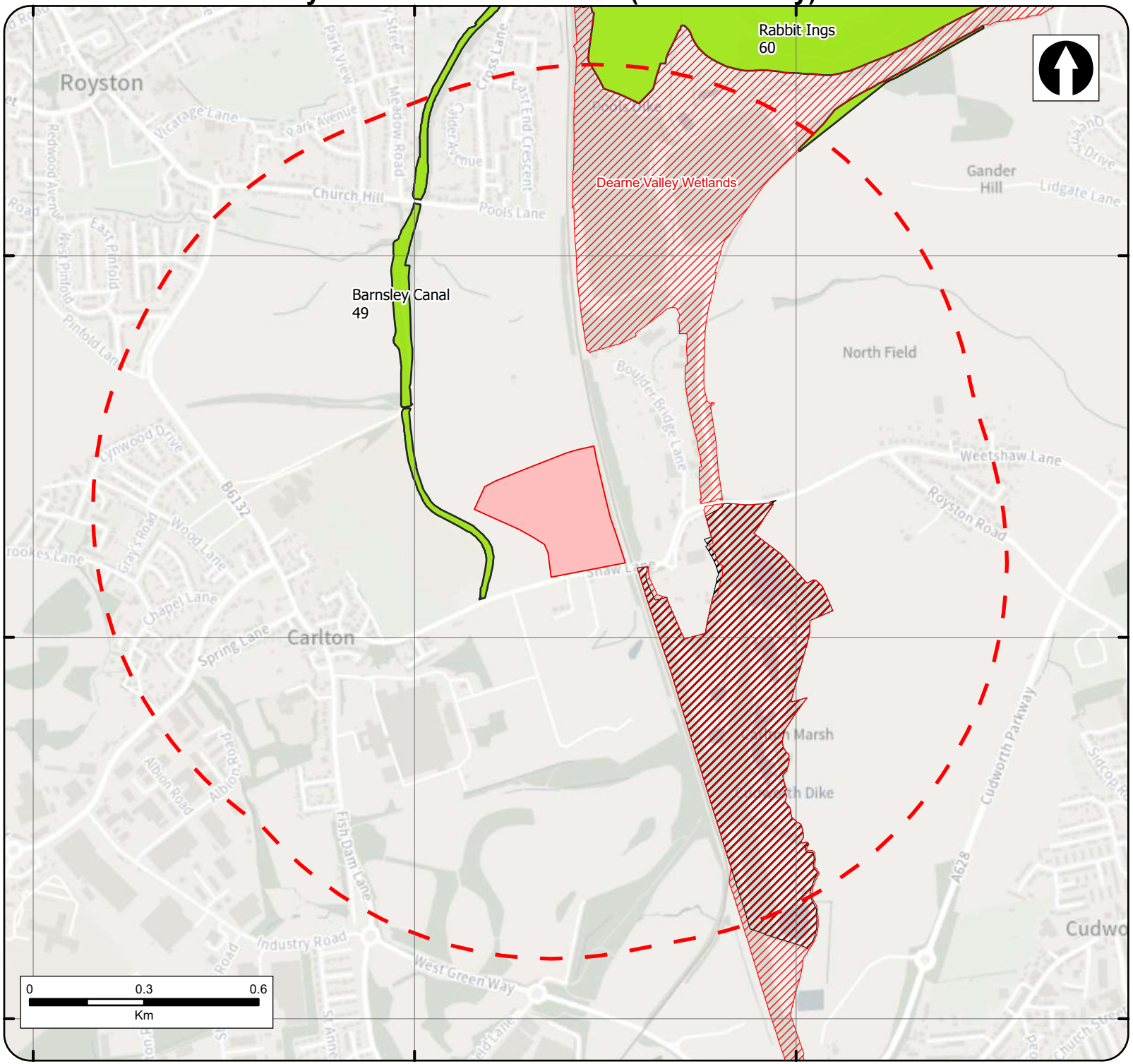
Figure 7. On-site pond P1

Figure 8. Off-site wet ditch P2

Figure 9. Off-site pond P3

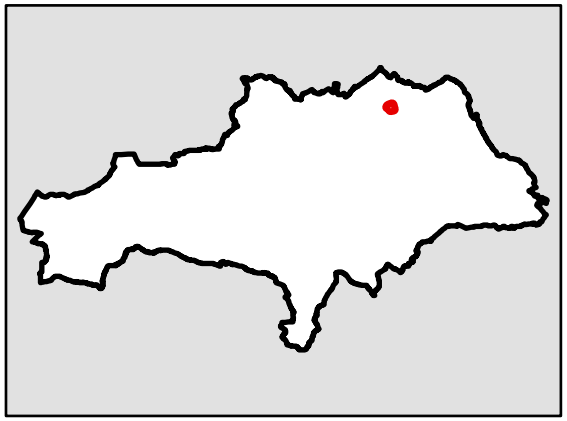
Appendix 1: Designated Site Locations

Boundaries of Statutory and Local Wildlife Sites (non-statutory) Within the Search Area



Land North Of Shaw Lane

- SSSI (England) © Natural England
- Barnsley Boundary
- Local Wildlife Sites - Barnsley
- LNR NEngland
- 1979 red line
- 1km radius



BARNSLEY Metropolitan Borough Council

Appendix 2: Breeding Bird Survey Data

Transect Results

Table 6. Notable Bird Species

Common Name	Scientific Name	Site Breeding Status and Breeding Habitat	Conservation Status	Listed within Dearne Valley Wetlands SSSI Citation?	BoCC Status
		Probable Breeding			
Dunnock	*Prunella modularis*	Hedgerows	Sect.41		A
Reed Bunting	*Emberiza schoeniclus*	Hedgerows / Pond habitat	Sect.41	Yes	A
Woodpigeon	*Columba palumbus*	Hedgerows			A
Yellowhammer	*Emberiza citronella*	Hedgerows	Sect.41	Yes	R
		Possible Breeding			
Long-Tailed Tit	*Aegithalos caudatus*	Hedgerows		Yes	G
Skylark	*Alauda arvensis*	Arable	Sect.41		R
Song Thrush	*Turdus philomelos*	Hedgerows	Sect.41		A
Wren	*Troglodytes troglodytes*	Hedgerows			A
		Non-breeding			
Greenfinch	*Carduelis chloris*	Non-breeding			R
Grey Partridge	*Perdix perdix*	Non-breeding	Sect.41		R
Grey Wagtail	*Motacilla cinerea*	Non-breeding			A
Herring Gull	*Larus argentatus*	Non-breeding			R
Lapwing	*Vanellus vanellus*	Non-breeding	Sect.41	Yes	R
Mallard	*Anas platyrhynchos*	Non-breeding			A
Meadow Pipit	*Anthus pratensis*	Non-breeding			A
Rook	*Corvus frugilegus*	Non-breeding			A
Stock Dove	*Columba oenas*	Non-breeding			A

Table 7. Common Bird Species

Common Name	Scientific Name	Site Breeding Status and Breeding Habitat
	Confirmed Breeding	
Chaffinch	*Fringilla coelebs*	Hedgerows
Magpie	*Pica pica*	Hedgerows
	Probable Breeding	
Blackbird	*Turdus merula*	Hedgerows
Blue Tit	*Cyanistes caeruleus*	Mature trees
Great Tit	*Parus major*	Hedgerows
Robin	*Erithacus rubecula*	Hedgerows
	Possible Breeding	
Goldfinch	*Carduelis carduelis*	Hedgerows
Pheasant	*Phasianus colchicus*	Hedgerow grass margins
	Non-breeding	
Carrion Crow	*Corvus corone*	Non-breeding

Common Name	Scientific Name	Site Breeding Status and Breeding Habitat
Feral Pigeon/Rock Dove	*Columba livia domesticus*	Non-breeding
Jackdaw	*Corvus monedula*	Non-breeding
Jay	*Garrulus glandarius*	Non-breeding
Pied Wagtail	*Motacilla alba*	Non-breeding
Red-Legged Partridge	*Alectoris rufa*	Non-breeding

Acoustic Detector Results

Table 8. Notable Bird Species

Common Name	Scientific Name	Count of Registrations			Conservation Status	Listed within Dearne Valley Wetlands SSSI Citation?	BoCC Status
		D1	D2	D3			
Bewick's swan	*Cygnus columbianus bewickii*	3		1	WCA1, BD, Sch.41		R
Black-headed Gull	*Chroicocephalus ridibundus*	10				Yes	A
Bullfinch	*Pyrrhula pyrrhula*	5			Sect. 41		A
Dunnock	*Prunella modularis*	161		36	Sect. 41		A
Greenfinch	*Carduelis chloris*	15		11			R
Grey Partridge	*Perdix perdix*			86	Sect. 41		R
Grey Wagtail	*Motacilla cinerea*	3					A
Greylag Goose	*Anser anser*	4					A
House martin	*Delichron urbicum*	1					R
Kestrel	*Falco tinnunculus*	10					A
Lapwing	*Vanellus vanellus*	504	4	115	Sect. 41	Yes	R
Lesser Whitethroat	*Sylvia curruca*	1	1	3		Yes	G
Linnet	*Carduelis cannabina*	25			Sect. 41	Yes	R
Long Tailed Tit	*Aegithalos caudatus*	149	50	20		Yes	G
Mallard	*Anas platyrhynchos*	36					A
Meadow Pipit	*Anthus pratensis*	30					A
Mistle Thrush	*Turdus viscivorus*	6		1			R
Moorhen	*Gallinula chloropus*	17		4			A
Redwing	*Turdus iliacus*	24			WCA1		A
Reed Bunting	*Emberiza schoeniclus*	4		2	Sect. 41	Yes	A
Rook	*Corvus frugilegus*	5					A
Skylark	*Alauda arvensis*	163		19	Sect. 41		R
Snipe	*Gallinago gallinago*	3				Yes	A
Song Thrush	*Turdus philomelos*	8		1	Sect. 41		A
Stock Dove	*Columba oenas*	3					A
Tawny Owl	*Strix aluco*	41	5	9			A
Teal	*Anas crecca*	8	2	1			A
Tree Pipit	*Anthus trivialis*	4		2	Sect. 41		R
Water Rail	*Rallus aquaticus*	1				Yes	G
Whitethroat	*Sylvia communis*			22			A

Common Name	Scientific Name	Count of Registrations			Conservation Status	Listed within Dearne Valley Wetlands SSSI Citation?	BoCC Status
		D1	D2	D3			
Willow Warbler	*Phylloscopus trochilus*	7		3			A
Woodpigeon	*Columba palumbus*	33	7	86			A
Wren	*Troglodytes troglodytes*	6		81			A
Yellowhammer	*Emberiza citrinella*	177	80	59	Sect. 41	Yes	R

Table 9. Common Bird Species

Common Name	Scientific Name	Count of Registrations		
		D1	D2	D3
Canada Goose	*Branta canadensis*	13	10	4
Carrion Crow	*Corvus corone*	1	7	
Coal Tit	*Parus ater*			3
Buzzard	*Buteo buteo*	15		
Chaffinch	*Fringilla coelebs*	1		18
Chiffchaff	*Phylloscopus collybita*	23		8
Blackbird	*Turdus merula*	77	17	241
Blue Tit	*Cyanistes caeruleus*	142	3	6
Coot	*Fulica atra*	21		1
Jackdaw	*Corvus monedula*	9		1
Jay	*Garrulus glandarius*	3	1	
Magpie	*Pica pica*	33	4	86
Siskin	*Carduelis spinus*	12		
Goldfinch	*Carduelis carduelis*	22	1	3
Robin	*Erithacus rubecula*	134	29	492
Grey Heron	*Ardea cinerea*	8		
Great Spotted Woodpecker	*Dendrocopos major*	8		
Great Tit	*Parus major*	751	1	1
Little Owl	*Athene noctua*	9		1
Red-legged Partridge	*Alectoris rufa*	9	7	18
Pheasant	*Phasianus colchicus*	238	100	116
Feral Pigeon	*Columba livia*	5		
Pied Wagtail	*Motacilla alba*	22	2	

Breeding Status

The breeding status of birds encountered within the survey area are classified in three categories as a result of behaviour observed during the surveys and following the criteria set out by the European Ornithology Atlas Committee.

Confirmed breeding	Nest containing eggs located. Nests with young seen or heard. Used nests or eggshells found. Recently fledged or downy young observed. Adults entering/leaving nest, particularly if with food or faecal sacs. Distraction display or injury feigning by disturbed adult.
Probable breeding	Pairs observed in suitable nesting habitat in the breeding season. Permanent territory presumed through registration or territorial behaviour on at least two different visits at the same place. Display and courtship behaviour observed. Birds seen visiting probable nest site. Agitated behaviour or anxiety calls from adults. Building nest or excavating nest hole.
Possible breeding	Species observed in breeding season in likely nesting habitat. Singing male(s) present or breeding calls heard.

Legislative Status

BB	All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended)
BD	Listed in Annex 1 of the Birds Directive (2009)
Sect.41	Section 41 species on Natural Environment and Rural Communities Act (2006)
WCA1	Listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)

Birds of Conservation Concern (BoCC)

Birds are included on the BoCC list after assessment against a set of objective criteria which places each species on one of three lists, green, amber or red, indicating an increasing level of conservation concern.

R	Species is red listed
A	Species is amber listed
G	Species is green listed
No status	Non-native species, not assessed

Appendix 3: Breeding Bird Survey Plan

Legend

Red Line Boundary

Record Type

Alarm Call

Nest Identified

Species Code

B. - Blackbird
BF - Bullfinch
BT - Blue Tit
CH - Chaffinch
D. - Dunnock
GT - Great Tit
MG - Magpie
R. - Robin
RB - Reed Bunting
WP - Woodpigeon
WR - Wren
Y. - Yellowhammer

Project Name: Shaw Lane
Project Number: 1979
Project Location: Barnsley, South Yorkshire

Plan Title: Breeding Bird Results - Confirmed and Probable Breeders

Client: Spawforths on behalf of Network Space

Map scale: 1 : 1,800 @A4 | Drawn by: RS | Date: 20/06/2024

baker consultants
ECOLOGY DEVELOPMENT INNOVATION

Cromford Station, Cromford Bridge, Matlock, DE4 5JJ | Company. No: 06702156 | 01629 593 958 | bakerconsultants.co.uk

Appendix 4: eDNA results

Client: Rae Smith
Baker Consultants

ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-5081	Condition on Receipt: White Precipitate	Volume: Only 5 tubes
Client Identifier: Brook to south of site	Description: pond water samples in preservative	
Date of Receipt: 17/05/2024	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	0 of 2	Real Time PCR	24/05/2024
Degradation Control[§]	Evidence of degradation or residual inhibition	Real Time PCR	24/05/2024
Great Crested Newt*	Indeterminate	Real Time PCR	24/05/2024
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	28/05/2024	Date of issue:	28/05/2024

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

Client: Rae Smith
Baker Consultants

ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-5085	Condition on Receipt: Low Sediment	Volume: Only 5 tubes
Client Identifier: On site pond	Description: pond water samples in preservative	
Date of Receipt: 17/05/2024	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	24/05/2024
Degradation Control[§]	Within Limits	Real Time PCR	24/05/2024
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	24/05/2024
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	28/05/2024	Date of issue:	28/05/2024

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

Client: Rae Smith
Baker Consultants

ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-5086	Condition on Receipt: Low Sediment	Volume: Only 5 tubes
Client Identifier: Pond off site to south	Description: pond water samples in preservative	
Date of Receipt: 17/05/2024	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	28/05/2024
Degradation Control[§]	Within Limits	Real Time PCR	28/05/2024
Great Crested Newt*	12 of 12 (GCN positive)	Real Time PCR	28/05/2024
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	28/05/2024	Date of issue:	28/05/2024

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

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Appendix 3 Updated BNG assessment report

Shaw Lane, Biodiversity Net Gain Feasibility Assessment

March 2024



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Who we are:
Baker Consultants is an ecology and sustainability consultancy. We work in terrestrial, freshwater and marine environments, providing a range of services to industry, government, developers, public services and utilities.

Baker Consultants comprises a highly experienced team of professional ecologists. We do wildlife surveys - but they are only the first steps in the process for most projects. We are also involved in ecological assessment, environmental law, biodiversity management and design planning.

We don't just work with wildlife, because we know that communication with clients, design teams and conservation bodies is the key to project success. Explaining the implications of survey data, and interpreting legislation, policy and best practice is one of our strengths. We help decisions to be made and actions taken, allowing constraints to be kept to a minimum and project risks to be managed.

Our approach is scientific, pragmatic and creative. Alongside tried and tested methods, we seek to innovate, introduce clients to new ways of thinking and always deliver sound commercial awareness. You will find us honest and approachable, but we're not afraid to be robust and challenging - or to ask difficult questions.

We do believe in nature conservation. But we also believe in good development, well delivered. We know that, with our input, projects and plans can provide benefits for both nature and people.

That's not the whole story.
For more information, look at our web site www.bakerconsultants.co.uk, subscribe to our blog, or call us on 01629 593958.

Client	Spawforths on behalf of Network Space
Project	Shaw Lane Public Inquiry
Report title	Biodiversity Net Gain Feasibility Report
File reference	1979_AmendedBNG.docx
Project Manager	Andrew Baker
Contact details	A.Baker@bakerconsultants.co.uk

	Name	Position	Date	Report Revision	Metric File Reference
Author	Rae Smith	Assistant Ecologist	18/03/2024	V1	1979_RevisedBNG.xlsm
Reviewed	Andrew Baker	Managing Director	4/4/2024	V1	1979_RevisedBNG.xlsm
Revised					

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Unless otherwise stated in this document, the assessments made assume that the study site referred to will continue to be used for its current purpose without significant change. The assessment, recommendations and conclusions contained in this document may be based upon information provided by third parties and upon the assumption that the information is relevant, correct and complete. There has been no independent verification of information obtained from third parties, unless otherwise stated in the report.

Where field investigations have been carried out, these have been restricted to the agreed scope of works and carried out to a level of detail required to achieve the stated objectives of the services. Natural habitats and species distributions may change over time and further data should be sought following any significant delay from the publication of this document.

Report Contents

1 Executive Summary

1.1 Background

1.1.1 This report provides a biodiversity net gain (BNG) assessment for the proposed development of land at Shaw Lane, Barnsley, related to proposals to construct up to 215 dwellings (planning reference: 2022/0115).

1.1.2 This report has been prepared based on ecological surveys and previous BNG calculations completed by Rachel Hacking Ecology in 2021-2022. This report updates the previous BNG assessment to correct for minor errors, and update the post-development habitats in-line with the latest Indicative Landscape Masterplan.

1.1.3 As the planning application was made in January 2022, it is considered appropriate to use of the Natural England Biodiversity Metric Calculator Version 3.1, which was current at the time of submission. The full metric calculator is enclosed with this feasibility report (file ref: 1979_RevisedBNG.xlsm).

1.1.4 Post-development calculations have been undertaken of the updated Indicative Landscape Plan for the Site (P0-MP-SPA-P3921-5IL-1000-0001_INDICATIVE_ MASTERPLAN_20230103indd[70].pdf).

1.1.5 The proposed scheme is not subject to mandatory 10% BNG under the Environment Act 2021. However, the Carlton Masterplan Framework (November 2021) states that developments are expected to deliver a minimum of 10% Biodiversity Net Gain.

1.1.6 The purpose of this report is to assess if the proposed development can meet the required 10% net gain, as required in the Carlton Masterplan Framework.

1.2 Conclusions

1.2.1 The conclusion of this report is that a **17.97% net gain for habitats** and **10.18% net gain for hedgerows** is realised. As such, it is considered that the proposed development will achieving the required level of net gain. This is achieved through the creation of a mix of Modified Grassland, Other Neutral Grassland, Sustainable Urban Drainage, Urban Trees and Ponds. Newly planted hedgerows around the site perimeter and within the residential areas will ensure hedgerow losses are adequately compensated for.

2 Introduction

2.1 Site Description

2.1.1 The proposed development site is located of Shaw Lane, Carlton, Barnsley, with central grid reference SE 37417 10347. The site location is shown in Figure 1.

2.1.2 The site is currently managed as an arable field, with hedge margins to the south, west and north. Shaw Lane runs along the southern site boundary, with a railway line running 15m from the eastern site boundary. The Site is separated from the railway by boundary scrub.

2.2 Proposed Development

2.2.1 The proposed development is for outline planning for up to 215 residential dwellings, with car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane.

2.3 Study Scope

2.3.1 Baker Consultants was commissioned by Spawforths to review the Rachel Hacking Ecology BNG reports, and update the BNG assessment in view of the latest Indicative Landscape Plan, to assess if the scheme can deliver the required 10% net gain on-site.

2.3.2 To inform this assessment, Baker Consultants have reviewed the Rachel Hacking Ecology BNG reports (revisions B and C).

3 Methods

3.1 Data Collection

3.1.1 The baseline data was collected by Rachel Hacking Ecology in July 2021 (EXTENDED PHASE 1 HABITAT SURVEY.pdf). This was subsequently used to inform condition assessments of the habitats on site, and input into Natural England's Biodiversity Metric 3.1.

3.1.2 No update survey was carried out in 2024, as this was not considered to be appropriate due to the risk of a shifting-baseline, and the site now being assessed at a higher value than when the planning submission was initially made.

3.2 Biodiversity Net Gain Assessment

3.2.1 To inform Baker Consultant's updated BNG assessment, the Rachel Hacking Ecology BNG reports were reviewed, and used to inform the baseline biodiversity score. Details of amendments to the baseline calculation are detailed in Section 4.1.

3.2.2 To obtain a baseline biodiversity score the following information was entered onto the Natural England Biodiversity Metric Calculator Version 3.1, in line with standard guidance[1][2]:

- Habitat types and area or length measurements (ha / km);
- The ecological condition of each habitat parcel according to the Biodiversity Net Gain Technical Supplement[3], and;
- The strategic significance of each habitat parcel, determined by reference to the Local Nature Recovery Strategy (if applicable) and Local Planning Policy.

3.2.3 To obtain a post development biodiversity score the Indicative Landscape Plan (Appendix 1) was reviewed. The following details were entered onto the calculator:

- The area of retained and proposed created habitats including residential areas, associated infrastructure and ecological enhancements;
- The proposed ecological condition of post-development habitats, and;
- The strategic significance of post-development habitats.

3.2.4 The difference between pre- and post-development scores provides the percentage net gain or loss in biodiversity unit value which will be provided by the proposed development.

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1 Panks, S., *et al.* (2022). *Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide*. Natural England.
2 Baker, J. *et al.* (2019) *Biodiversity net gain. Good practice principles for development. Part A: A practical guide*
3 *Panks, S. et al.* (2022). *Biodiversity Metric 3.1: Auditing and accounting for biodiversity - Technical Supplement.* Natural England

4 Results

4.1 On-site Baseline Conditions

4.1.1 The following summary description should be viewed alongside the BNG Calculation spreadsheet (ref: 1979_RevisedBNG.xlsm).

Habitat Summary

4.1.2 A baseline habitat plan is provided in Appendix 2. The site is predominantly Cereal Crop, with a small pond in the centre of the site. As the pond on site does not meet the criteria for a priority pond, it has been assessed as a Non-Priority Pond. This pond was previously assessed as Poor condition. The pond is surrounded by a stand of Ruderal/Ephemeral which was previously assessed to be in Moderate condition.

4.1.3 The access track consists of a mix of bare ground and short perennial growth, and has therefore been assessed as Sparsely Vegetated Ground, Ruderal/ Ephemeral, in poor condition.

4.1.4 12 small trees are also present across the site, assessed as small Urban Trees, in Moderate condition.

Hedgerows…

4.1.5 How the baseline assessment differs from the Rachel Hacking Ecology BNG Reports is summarised below:

A. The original metric had an error inputting the area of urban trees as 0.488ha, which has now been corrected to 0.0488ha.
B. Field margins assessed as Cereal Crop, rather than Ruderal/ Ephemeral, as narrow margins are a part of the arable habitat types. Hedgerow condition assessment also considers the value of these vegetated margins.
C. Access track has been assessed as Sparsely Vegetated Ground, Ruderal/ Ephemeral in Poor condition, to account for mixture of short perennial vegetation and bare ground.
D. The Pond had previously been assessed as 'location ecologically desirable but not in local strategy'. This is not considered accurate, and it has been assessed as 'area/compensation not in local strategy/ no local plan.'
E. Hedgerows and Urban Trees have been assessed as 'formally identified in local strategy', as the Carlton Masterplan Framework states developments should retain existing hedgerows and trees where possible.
F. Hedgerow baseline has been amended, as the southern hedgerow was double counted.
G. 42m of defunct hedgerow (Native Hedgerow, Moderate condition) has been included for the south-eastern site boundary.
H. The northern hedgerow was assessed as a Native Hedgerow Associated with a Ditch, but the ditch lies on the southern site hedgerow (see Rachel Hacking Ecology BNG Report Phase 1 Habitat map), which has now been corrected.

Summary of Ecological Significance

4.1.6 Carlton Masterplan Framework Place Making Principle 3 states that trees and hedgerows will be retained as far as is possible across developments. Therefore, the Urban Trees and hedgerows on site have been assessed as 'formally identified in a local strategy'. The remaining habitat types have therefore been assessed as being of 'low' strategic significance.

Baseline Biodiversity Value Assessment

4.1.7 The baseline biodiversity value of the site is 15.67 habitat units (Table 1) and 5.92 hedgerow units (Table 2).

Table 1. Baseline Habitat Units

Habitat Type	Area (ha)	Distinctiveness	Condition	Strategic Significance	Baseline units
Cereal Crops	7.4446	Low	N/A	Low	14.89
Ponds (Non-Priority)	0.0165	Medium	Poor	Low	0.07
Ruderal/ Ephemeral	0.0426	Low	Moderate	Low	0.17
Ruderal/ Ephemeral	0.0499	Low	Poor	Low	0.10
Urban Tree	0.0488	Medium	Poor	High	0.45
Total Baseline Habitat Units					**15.67**

Table 2. Baseline Hedgerow Units

Hedgerow Type	Length (km)	Distinctiveness	Condition	Strategic Significance	Baseline units
Native Hedgerow – Associated with Ditch	0.19	Medium	Good	High	2.62
Native Hedgerow	0.215	Low	Good	High	1.48
Native Hedgerow	0.235	Low	Good	High	1.62
Native Hedgerow	0.042	Low	Moderate	High	0.19
Total Baseline Hedgerow Units					**5.92**

4.2 On-site Post-development Conditions

4.2.1 All baseline area habitats have been assessed as lost, except for the Urban Trees which will be retained by the scheme.

4.2.2 The post-development site creates 4.8158ha of residential area, which has been assessed at a 70:30 ratio for Developed Land, Sealed Surface, and Vegetated Garden, in line with guidance. The roads also create approximately 1.26ha of Developed Land, Sealed Surface.

4.2.3 The Indicative Landscape Plan also creates approximately 0.14ha of SUDS, which has been assessed as achieving moderate condition.

4.2.4 The Public Open Space central to the development has been assessed as Modified Grassland in Moderate condition. POS in the north west of the site, and along the southern boundary has been assessed as Other Neutral Grassland, in Moderate condition.

4.2.5 To compensate for the loss of the small pond central to the site, it has been assumed that a 0.01ha pond will be created in an area of the POS, to satisfy trading rules. This has been assessed as achieving Moderate condition.

4.2.6 A minimum of 55 urban trees will be planted across the POS and as street trees.

4.2.7 Of the four hedgerows present on site, approximately 80m of will be lost to create vehicular access and footpaths across the development.

4.2.8 The remaining length of the defunct hedgerow at the southeast of the site will be enhanced to a Native Species Rich Hedgerow through planting of gaps with a species rich mix. This hedgerow has been assessed as achieving 'Good' condition.

4.2.9 At the north west of the site, 90m of Native Species Rich Hedgerow with Trees will be planted, assessed as achieving Good condition.

4.2.10 A minimum length of 40m of Native Species Rich Hedgerow in Moderate condition has also been assessed as planted across the residential development.

4.2.11 Created Urban Trees and Hedgerows have been assessed as high strategic significance, to reflect that the Carlton Masterplan Framework Landscape/ Ecology Framework identifies for sites to be enhanced through the creation of hedgerows as trees to increase connectivity across sites.

4.2.12 All habitat conditions are considered to be achievable under appropriate creation and management, which will be detailed in a Habitat Management and Monitoring Plan (HMMP) which can be secured through planning condition.

4.2.13 The post-development habitat plan is provided in Appendix 3. The post-development biodiversity value of the site as assessed is 18.49 habitat units (Table 3), and 6.52 hedgerow units (Table 4).

Table 3. Post Development Habitat Units

Habitat Type	Area (ha) Retained	Created	Distinctiveness	Condition	Strategic Significance	Total units
Developed Land; Seales Surface		3.3711	Very Low	N/A - Other	Low	0.00
Vegetated Garden		1.4447	Low	Condition Assessment N/A	Low	2.79
Developed Land; Seales Surface		1.2579	Very Low	N/A - Other	Low	0.00
Sustainable Urban Drainage System		0.1423	Low	Moderate	Low	0.34
Modified Grassland		0.3504	Low	Moderate	Low	1.22
Other Neutral Grassland		0.9772	Medium	Moderate	Low	6.54
Ponds (Non-Priority)		0.01	Medium	Moderate	Low	0.07
Urban Tree	0.0488	2.0144	Medium	Moderate	High	7.08
Total Post Development Units						**18.49**

Table 4. Post Development Hedgerow Units

Hedgerow Type	Length (km)			Distinctiveness	Condition	Strategic Significance	Total units
	Retained	Created	Enhanced				
Native Hedgerow - Associated with bank or ditch	0.146			Medium	Good	High	2.01
Native Hedgerow	0.205			Low	Good	High	1.41
Native Hedgerow	0.225			Low	Good	High	1.55
Native Species Rich Hedgerow			0.026	Medium	Good	High	0.32
Native Species Rich Hedgerow with trees		0.09		High	Good	High	0.91
Native Species Rich Hedgerow		0.04		Medium	Moderate	High	0.31
Total Post Development Units							**6.52**

5 Assessment Summary

5.1 Assessment of Feasibility

5.1.1 The habitat creation, enhancement and long-term management will be described in a HMMP. The implementation of the plan will ensure that the proposed habitats and their condition will be achieved.

5.1.2 Any future Masterplanning and/or landscaping schemes that change areas of greenspace as recommended within this report will result in a proportionate increase/decrease of habitat and/ or hedgerow unit loss on site.

5.1.3 As currently assessed, the proposed development results in a gain of 2.82 habitat units **(17.97% net gain)** and a gain of 0.6 hedgerow units **(10.18% net gain)**. See the Metric spreadsheet for full details.

5.1.4 All trading rules set by the Metric are met. As such, the scheme demonstrates feasibility to achieve the 10% Biodiversity Net Gain requirements of the Carlton Framework Masterplan.

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