



Dŵr Cymru
Welsh Water

St Nicholas Wastewater Treatment Works Dormouse Survey Report

July 2023

Arcadis Consulting (UK)
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Prepared by Arcadis on behalf of
Welsh Water



Document control

St Nicholas WwTW Ecological Constraints Memo				
Arcadis Consulting (UK) Limited				
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1	For information	Siân Carr	Hannah Corcoran	July 2023
2	Local policy update	Julie Player	Siân Carr	July 2023

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1. Summary of Actions

Arcadis Consulting (UK) Ltd have been commissioned by Dŵr Cymru Welsh Water to undertake dormouse surveys to inform the design of the proposed extension and upgrade to St Nicholas Wastewater Treatment Works (WwTW) and the temporary access track required for construction traffic.

Previous walkovers of both the WwTW, the proposed extension and the access track have identified hedgerows and woodland blocks within the predominantly agricultural landscape that have the potential to support Hazel dormouse (*Muscardinus avellanarius*) with connectivity to the wider landscape and larger woodland blocks in the Vale of Glamorgan where dormouse are known to be present.

The proposals will lead to the removal of one section of hedgerow and have potential impacts if dormouse were identified as a potential constraint to the project. Nest tube surveys were therefore undertaken within the hedgerow network surrounding the WwTW between July and November 2022, and April and June 2023.

No Hazel dormouse were found during the surveys, therefore no impacts are anticipated on Hazel dormouse. However, sensitive directional vegetation clearance towards retained habitat is recommended as detailed in the Preliminary Ecological Appraisal (PEA) report for other protected and priority species that may be present. In addition, replacement hedgerow planting should be included in the design to ensure a net benefit for biodiversity and alternative green corridors/connectivity for other species as described in the PEA.

1. Introduction

1.1 Objectives

Arcadis Consulting (UK) Ltd have been commissioned by Dŵr Cymru Welsh Water (DCWW) to undertake dormouse surveys to inform the design team within the optioneering stage of the project to upgrade St Nicholas Wastewater Treatment Works (WwTW). The objective of this report is to detail the results of the dormouse surveys undertaken on site. At the time of this assessment, the site was agricultural land comprising predominantly semi-improved grassland with hedgerows, scattered trees, and scrub.

2. Quality Assurance

As part of our quality control this report was prepared in line with the Arcadis Business Management System (BMS). Our BMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the International Organization for Standards (ISO) 9001, ISO 45001 and ISO 44001.

All Arcadis UK Ecologists that worked on this report are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct¹ when undertaking ecological work.

3. Legislation and Policy

This section provides an overview of the legislation applicable to dormice. For further information the source legislation should be reviewed.

The dormouse is protected by National and European legislation. It is listed under Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended)² which makes it an offence to:

- intentionally kill, injure or take a dormouse;
- possess or control any live or dead specimen or anything derived from a dormouse;
- intentionally or *recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a dormouse (whether occupied or not); and
- intentionally or *recklessly disturb a dormouse while it is occupying a structure or place which it uses for that purpose.

*The term “recklessly” was added as an amendment to the Wildlife and Countryside Act 1981 (as amended) as a result of the Countryside and Rights of Way Act 2000³.

The dormouse is included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 2017⁴ which makes it an offence to:

- deliberately capture or kill a dormouse;
- deliberately disturb a dormouse;
- damage or destroy a breeding site or resting place of a dormouse; and
- keep, transport, sell or exchange, or offer for sale or exchange a live or dead dormouse or any part of a dormouse.

¹ CIEEM (2022) Code of Professional Conduct. CIEEM, Romsey, Hampshire.

² Wildlife and Countryside Act 1981. Available at <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed 1 June 2023]

³ Countryside and Rights of Way Act 2000. Available at: <https://www.legislation.gov.uk/ukpga/2000/37/contents> [Accessed 1 June 2023].

⁴ The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed 1 June 2023].

The dormouse was a UK Biodiversity Action Plan (BAP) Priority Species and is now included on Section 7 of the Environment (Wales) Act 2016⁵.

National and local policies are in place to ensure developments have regard to protected sites and species that are notable or locally important in the area. Planning Policy Wales 2021⁶, supplemented by Technical Advice Note 5⁷, states that planning authorities must seek to maintain and enhance biodiversity providing a net benefit.

Local planning policy for ecology and biodiversity is provided in the Vale of Glamorgan Replacement Local Development Plan (LDP⁸). The following policies are of most relevance to this report:

POLICY MD9 - PROMOTING BIODIVERSITY

New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless it can be demonstrated that:

1. The need for the development clearly outweighs the biodiversity value of the site; and
2. The impacts of the development can be satisfactorily mitigated and acceptably managed through appropriate future management regimes.

POLICY SP10 - BUILT AND NATURAL ENVIRONMENT

Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including:

1. The architectural and / or historic qualities of buildings or conservation areas, including locally listed buildings;
2. Historic landscapes, parks and gardens;
3. Special landscape areas;
4. The Glamorgan Heritage Coast;
5. Sites designated for their local, national and European nature conservation importance;
6. Important archaeological and geological features.

POLICY MG19 - SITES AND SPECIES OF EUROPEAN IMPORTANCE

Development proposals likely to have a significant effect on a European site, when considered alone or in combination with other projects or plans will only be permitted where:

1. The proposal is directly connected with or necessary for the protection, enhancement and positive management of the site for conservation purpose; or
2. The proposal will not adversely affect the integrity of the site;
3. There is no alternative solution;
4. There are reasons of overriding public interest; and
5. Appropriate compensatory measures are secured.

Development proposals likely to have an adverse effect on a European protected species will only be permitted where:

1. There are reasons of overriding public interest;
2. There is no satisfactory alternative; and
3. The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

POLICY MG20 – NATIONALLY PROTECTED SITES AND SPECIES

Development likely to have an adverse effect either directly or indirectly on the conservation value of a site of special scientific interest will only be permitted where it is demonstrated that:

1. There is no suitable alternative to the proposed development; and

⁵ Environment (Wales) Act 2016, Section 7. Available at <https://www.legislation.gov.uk/anaw/2016/3/section/7> [Accessed 1 June 2023].

⁶ Planning Policy Wales Edition 11 (February 2021) Welsh Government

⁷ Technical Advice Note 5 Nature Conservation and Planning (September 2009) Welsh Government

⁸ Vale of Glamorgan Council (2017) Vale of Glamorgan Local Development Plan 2011 – 2026. Vale of Glamorgan Council, Barry.

2. It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site; and
3. Appropriate compensatory measures are secured; or
4. The proposal contributes to the protection, enhancement or positive management of the site.

Development proposals likely to affect protected species will only be permitted where it is demonstrated that:

1. The population range and distribution of the species will not be adversely impacted;
2. There is no suitable alternative to the proposed development;
3. The benefits of the development clearly outweigh the adverse impacts on the protected species; and
4. Appropriate avoidance, mitigation and compensation measures are provided.

Where impacts are identified the Council will require applicants to demonstrate that appropriate measures have been incorporated to reduce, or minimise the impact identified to the lowest possible acceptable level.

4. Background

Arcadis Consulting (UK) Ltd (Arcadis) working as part of the DCWW Capital Delivery Alliance (CDA) undertook an ecological constraints walkover at St Nicholas WwTW “the site” (National Grid Reference: ST 08789 73303) in June 2021, the results of which identified hedgerows and trees within the site as having the potential to support Hazel dormouse⁹.

The site is located south of St Nicholas village, Vale of Glamorgan, off Brook Lane accessed from the A48 to the north. The proposed development site is surrounded by grazing pasture in all orientations around the

⁹ Arcadis (2022) St Nicholas Wastewater Treatment Works Ecological Constraints Memo (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0052)

site. The site's location is shown below in Figure 1a. A temporary access track from Duffryn Lane to the east will need to be used for construction traffic, as shown in Figure 1b.

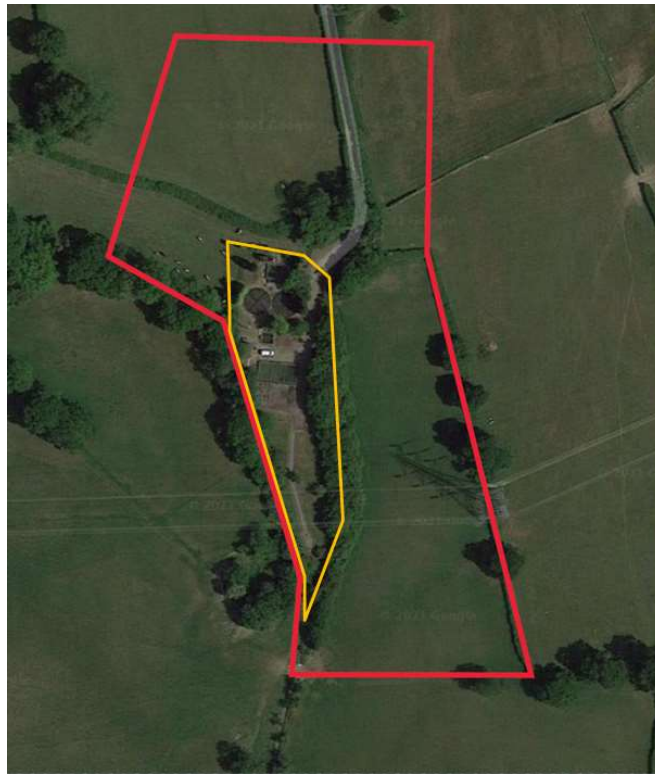


Figure 1a: Aerial image of St Nicholas WwTW (approx. yellow line boundary) and the proposed development boundary (approx. red line boundary).



Figure 1b: Aerial image of the proposed access track through grassland to Duffryn Lane

5. Methodology

5.1 Desk study

A desk study was undertaken to determine the presence of any designated nature conservation sites and/or records of protected, notable or invasive species within 2km of the proposed development.

Biological records were requested from Aderyn¹⁰ in May 2023. Only records from the last 10 years (2013-2023) were included. The following sources were also consulted as part of the desk study:

- St Nicholas Wastewater Treatment Works Ecological Constraints Memo ¹¹;
- St Nicholas Wastewater Treatment Works access Track Preliminary Ecological Appraisal ¹²; and
- The Multi Agency Geographical Information for the Countryside (MAGIC) website¹³ for designated sites.

5.2 Field surveys

Dormouse surveys were undertaken in accordance with the guidance provided in The Dormouse Conservation Handbook¹⁴.

The 'dormouse nest-tube survey methodology' was used, whereby specially constructed artificial nesting tubes were fastened underneath horizontal branches in areas of suitable habitat using garden wire and were left in place over a period of several months. When present, dormice often find and make nests in these tubes and their presence can then be detected by means of periodic monitoring to find actual animals or nests, both of which are distinctive.

The standard survey methodology requires the deployment of at least 50 nest tubes and uses an index of probability to calculate a survey effort score. Nest tubes are most frequently occupied in May, August and September and so these months score the highest. The guidelines state that "assumed absence should not be based on a search effort score of less than 20".

Sixty dormouse tubes were deployed on the hedgerows identified as suitable dormouse habitat. These locations can be found on Drawing B10181-0AG964-DR-NB-ED0247.

Nest tube checks were carried out monthly between July and November 2022, and April and June 2023. Surveys were carried out by licensed surveyors: Julie Player (S089877-1) and Siân Carr (SO89962-1) and assisted by Joseph D'Souza and Dafydd James as indicated in the Table 1 below.

Table 1 - Dormouse survey visits

Survey date	Surveyors	Weather conditions	Survey Score
25 July 2022	Julie Player MCIEEM (NRW licence number: S089877-1) and Joseph D'Souza	Warm and dry	2
25 August 2022	Siân Carr MCIEEM (NRW licence number: SO89962-1) and Julie Player	Dry after morning showers	5
9 September 2022	Siân Carr and Julie Player	Warm and dry	7
27 October 2022	Siân Carr and Julie Player	Warm and dry	2
17 November 2022	Siân Carr and Dafydd James	Dry after showers, cool but no frost	2
21 April 2023	Siân Carr and Joseph D'Souza	Cool and dry	1

¹⁰ <https://aderyn.lercwales.org.uk/>

¹¹ Arcadis (2022) St Nicholas Wastewater Treatment Works Ecological Constraints Memo (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0052)

¹² Arcadis (2023) St Nicholas Wastewater Treatment Works Access Track Preliminary Ecological Appraisal (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0132)

¹³ <https://magic.defra.gov.uk/>

¹⁴ Bright, P., Morris, P., & Mitchell-Jones, T (2006) Dormouse Conservation Handbook (Second edition). English Nature, Peterborough

19 May 2023	Siân Carr	Warm and dry	4
8 June 2023	Julie Player and Dafydd James	Hot and dry	2
			Total 23

5.3 Limitations

No nest tubes were installed along the hedgerows that the proposed access track will pass through. This is because the access track will go through existing gateways and no impact to potential dormouse hedgerow habitat has been identified. Due to the proximity between the WwTW boundary and the access track the survey results from the WwTW were considered sufficient to presume presence/absence in the hedgerows along the access track due to the connecting hedgerows and sufficient survey effort is considered to have been undertaken in line with guidance with a total survey score for the site of 23.

6. Results

6.1 Desk Study

The desk study did not return any records of Hazel dormouse (*Muscardinus avellanarius*) within 2km of the site, but dormice are known to be present in the vicinity of the site and across the Vale of Glamorgan from previous Arcadis project experience. The Coed y Cwm Site of Interest for Nature Conservation has also been noted for its potential to support Hazel dormouse¹⁵. Hedgerows and woodland blocks in the area were considered to have potential to support dormouse^{16, 16}.

6.2 Field Survey

No dormouse nests were recorded during the dormouse survey. One wood mouse (*Apodemus sylvaticus*) nest was recorded in box number 1 on the most eastern hedgerow (Drawing B10181-0AG964-DR-NB-ED0247) during the October survey as detailed in Table 2.

Table 2: Dormouse nest tube survey results

Survey Date	Survey Result
25 July 2022	N/A - tubes installed
25 August 2022	None
9 September 2022	None
27 October 2022	Wood mouse in tube 3, east hedgerow of survey area
17 November 2022	Remnants of wood mouse nest in tube 3, east hedgerow of survey area
21 April 2023	None
19 May 2023	None
8 June 2023	None

7. Discussion and Conclusion

The proposals include the removal of approximately 100m of hedgerow between the existing WwTW site boundary and the proposed extension to the east as noted in Figure 2. The removal of this hedgerow had previously been identified as a potential risk to individual dormouse (death/injury), loss of resting and foraging habitat and potential loss of connectivity¹⁷. However, the surveys have demonstrated the likely absence of Hazel dormouse and therefore the risk is considered negligible.

¹⁵ Arcadis (2023) St Nicholas Wastewater Treatment Works Access Track Preliminary Ecological Appraisal (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0132)

¹⁶ Arcadis (2022) St Nicholas Wastewater Treatment Works Ecological Constraints Memo (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0052)

¹⁷ Arcadis (2022) St Nicholas Wastewater Treatment Works Ecological Constraints Memo (Doc Ref B10180-0AG964-ZZ-ZZ-RP-NA-ED0052)



Figure 2 Section of hedgerow to be removed highlighted in red.

A licence will not be required for vegetation clearance but a method statement detailing approaches such as sensitive directional clearance, towards retained habitat, is recommended. The method statement will form part of the Construction Environment Management Plan (CEMP) and replacement hedgerow planting should be included in the design to ensure a net benefit for biodiversity and alternative green corridors/connectivity for other species as described in the previous reports ^{16,17}.

An Ecologist should continue to be consulted as the design develops and the onsite construction works progress.

DRAWING B10181-0AG964-DR-NB-ED0247 – Dormouse Nest Tube Location Plan

