

Appendix 11.8 Water Vole Survey Results

Introduction

This report has been prepared by Tyler Grange Group Ltd on behalf of Northern Gateway Development Vehicle LLP (NGDV). It sets out the findings of water vole *Arvicola amphibius* surveys undertaken at 'Northern Gateway'.

The EIA¹ assesses the Project for Assessment, which measures approximately 570 ha. Within the Assessment Boundary, sits the Proposed Scheme (approximately 210 ha), for which an outline planning application is sought. Water vole surveys were undertaken within the Survey Area (**Figure 11.3**); which was largely defined by permitted access. Access was granted within the entirety of the Proposed Scheme, with the addition of fields immediately south of the southern Proposed Scheme boundary also permitted for access. All remaining areas outside of the Survey Area, but within the Project for Assessment were not surveyed in detail, and assumptions were made of the habitat type, condition and suitability through aerial imagery and views from Public Rights of Way (PRoW).

This survey has been undertaken to establish water vole presence/ absence within the Survey Area, to inform mitigation requirements.

Legislation and Conservation Status

Water vole are protected under the Wildlife and Countryside Act 1981 (as amended), this includes protection from killing or taking by certain prohibited methods and their breeding and resting places being fully protected from destruction or obstruction, it is also an offence to disturb them in these places.

From April 2008, water voles and their resting places were fully protected in England, it is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It will continue to be an offence to disturb them in their breeding or resting places.

Water vole are a Priority Species in the 'UK Post-2010 Biodiversity Framework which provides a statutory list of priority species in England, Scotland, Wales and Northern Ireland, as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (England), Section 7 of the Environment (Wales) Act 2016, Section 2(4) of the Nature Conservation (Scotland) Act 2004, and Section 3(1) of the Wildlife and Natural Environment Act (Northern Ireland) 2011. Decision-makers such as Local Planning Authorities must have regard to Priority species in all their activities, including when making decisions on planning applications regard to Priority species in all their activities, including when making decisions on planning applications.

Previous Surveys and Desk Study Records

Local record centre data from Greater Manchester Local Record Centre (GMLRC) was received in March 2024. The desk study analyses conducted on 28th March 2024 showed records of water vole within 2km of the Project for Assessment boundary. Despite the lack of records, a full suite of surveys were undertaken. See Methodology section below.

Survey Methodology

Due to previous involvement with Northern Gateway, Tyler Grange undertook a suite of water vole surveys in spring and summer 2022. Owing to the dynamic nature of ecological surveys, survey results older than 12 months are often considered to be outdated and therefore invalid. Tyler Grange therefore conducted another suite of surveys in spring and summer 2024 (see **Table A11.8.2** below

¹ NORM3018 Northern Gateway JPA 1.1 Environmental Impact Assessment

for further details). The results of the 2024 surveys are described in detail throughout this report. Reference is made to the results of the 2022 surveys to the rear of this report, however, details of methodologies, survey dates, times and surveyors are not detailed.

Survey effort was based on published guidance²(Box 1 pg 9), (**Table A11.8.1**); methodologies, surveyor dates, times and Survey Area are described below.

² Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series). Mammal Society, London.

Table A11.8.1 Guidance on Survey Effort and Likely Impacts

Type of Works	Example Project	To confirm presence or likely absence of water voles	Additional information (if water voles present)
Very small-scale works affecting up to 15 m of watercourse	Construction of an outfall, bridge repair works, or installation of pipes up to 15 m long within narrow field drains (where these do not form part of a larger development).	Field survey – footprint of the works, including temporary work areas, plus 100m upstream and downstream. A comprehensive desk study exercise will not necessarily be required.	Micro-mapping of the habitat and burrow locations to allow design to minimize impacts (where relevant). Further data may be needed to ensure that there is sufficient habitat available to displace water voles into.
Works temporarily affecting up to 50m of watercourse	Pipeline crossing a watercourse.	Field survey – footprint of the works, including temporary work areas, plus 200m upstream and downstream of the works. A comprehensive desk study exercise will not necessarily be required.	This may be obtained through a desk study, or a habitat assessment combined with 'spot checks' for water voles over a wider area (1 -2km upstream and downstream of the works).
Works temporarily affecting more than 50m of watercourse	Watercourse re-profiling or repair/re-instatement of bank stabilization structures.	Field survey – footprint of the works, including temporary work areas, plus at least 200m upstream and downstream of the works. For works affecting more than 500m of the watercourse the study area should increase to 500m upstream and downstream of the works. A comprehensive desk study exercise will not necessarily be required but would be advisable for works affecting $\geq 250\text{m}$ of watercourse.	Desk study – site and up to 2 km around it (or a habitat assessment combined with 'spot checks' for water voles) to inform the approach to mitigation and assessment of fragmentation effects. The study area should be proportionate to the length of habitat affected.
Works with permanent impacts affecting 15-50m of watercourse	Bankside revetment works.	Field survey – footprint of the works, including temporary work areas, plus 100-200m upstream and downstream of the works (proportionate to the length of watercourse affected).	Sufficient information is likely to have been provided by the 'presence/likely absence' surveys

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		Desk study – site and up to 2 km around it (or a habitat assessment combined with 'spot checks' for water voles).	
Works with permanent impacts affecting more than 50m of watercourse	Bankside revetment works.	Field survey – footprint of the works, including temporary work areas, plus 200-500m upstream and downstream of the works (proportionate to the likely fragmentation effects).	The study area for the desk study (or habitat assessment combined with 'spot checks' for water voles) may need to be increased to inform the approach to mitigation.
Works requiring permanent culverting of watercourses.	Highway schemes or some residential/mixed use developments.	Desk study – site and up to 2-5 km around it (or a habitat assessment combined with 'spot checks' for water voles).	
Very large-scale works.	Coastal re-alignment projects (where there are reasonable grounds to expect the presence of water voles).	Field survey – footprint of works, temporary work areas, plus approximately 1km around it. Desk study – site and up to 10km around it (or habitat assessment combined with 'spot checks' for water voles).	

Table 11.8.2 below outlines the survey dates, surveyors and weather conditions of the water vole surveys conducted within the Survey Area. All lead surveyors are appropriately experienced in conducting this type of survey. The extent of the survey area is illustrated on 16551 P11 and included 200m from the application boundary up and down stream (where accessible).

Table 11.8.2: Survey Dates, Surveyors and Weather Conditions of Otter Survey

Survey Visit	Date(s)	Weather Conditions	Lead Surveyor
1 Castle Brook	4 th June 2024	16°C, 8/8 cloud, 12mph wind	Bethany Pythian
2 Castle Brook	24 th September 2024	14°C, 3/8 cloud, 12mph wind	Bek Stobbart
1 Brightley Brook	29 th May 2024	15°C, 6/8 cloud, 14mph wind	Nick Bell
2 Brightley Brook	23 rd September	15°C, 8/8 cloud, 14mph wind; light rain towards the end of survey	Bek Stobbart
1 Whittle Brook	27 th June 2024	20°C, 2/8 cloud, 11mph wind	Richard Laws
2 Whittle Brook	29 th September 2024	13°C, 1/8 cloud, 8mph wind	Bek Stobbart

The survey methodology used was in accordance with published guidance^{3 4}. This consisted of identifying the extent and distribution of water vole through searches of both banks (where possible) of watercourses for field signs indicating recent activity (i.e. feeding stations and latrines), as well as signs of past and potentially present activity (i.e. burrows). Where conditions allowed, a surveyor walked in the watercourse channel to check for field signs along the water's edge.

The survey methodology involved recording all evidence of water vole activity, which is detailed below.

- **Faeces** – these are 8 – 12mm long and 4 – 5mm wide, with a smooth 'tic tac' like shape, varying in colour from green to black, and odourless with a putty-like texture;
- **Latrines** – found throughout the territory, often comprising a pile of flattened droppings, the fresh droppings on top, used to mark range boundaries or favoured spots close to burrows;
- **Feeding stations** – comprise a neat pile of chewed feeding remains, often comprising lengths of vegetation up to 10cm long, showing the marks of the two large incisors, typically showing a 45 degree cut;

³ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) *The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series)*. Mammal Society, London.

⁴ Dean, M. (2021) *Water Vole Field Signs and Habitat Assessment A Practical Guide to Water Vole Surveys*. Pelagic Publishing, London.

- **Burrows** – these are typically wider than they are high, with a diameter of 4 – 8cm, and are usually located along the water's edge;
- **Lawns** – around burrows there is often an area of grazed vegetation, surrounded by taller vegetation, these are most often produced when the female is nursing young;
- **Nests** – these comprise a large ball of shredded material, often woven into the bases of rushes and reeds, and are normally found in areas where the water table is high, such as wetlands;
- **Footprints** – as with other rodents, the footprints of the fore foot, show four toes in a star arrangement, with the hind foot showing five toes. The size of footprints for the hind foot is 26-34mm; and
- **Runways** – these are low tunnels within the vegetation, often adjacent to the water's edge.

Latrines are indicators of territorial behaviour, which in turn generally correlates with water vole breeding activity. For the presentation of water vole distribution data, sections of the ditch where latrines were identified would be illustrated as "Breeding Activity", and sections of the ditch where evidence other than latrines was identified would be illustrated as "Non-Breeding Activity".

Habitat Assessment

Assessments of habitat suitability give an indication of the likelihood of water vole presence within a watercourse. Habitat suitability was assessed by evaluating the features of each waterbody whilst considering the species-specific habitat requirements of water voles. Typically, the most desirable sites will include highly layered bankside vegetation with tall grasses, and stands of species such as willowherb (*Epilobium spp.*), purple loosestrife (*Lythrum salicaria*), meadowsweet (*Filipendula ulmaria*) or nettles that are often accompanied by rushes, sedges and reed⁵.

Habitat suitability assessments were carried out at each watercourse within the study area by an experienced ecologist. The assessment was based on the following criteria.

- Rate of water flow;
- Bank profiles;
- Degree of shading from overhanging trees;
- Extent of suitable emergent and bankside herbaceous vegetation for providing shelter, food and nesting material;
- Degree of cattle poaching (i.e. extent of damage to banks resulting from trampling by cattle);
- Levels of site disturbance (e.g. proximity to public rights of way, farm vehicle access tracks or road traffic);
- Potential for the waterbody to dry out;
- Suitability of bank substrates for burrowing; and
- Water quality.

⁵ Strachan, R., Moorhouse, T. and Gelling, M. (2011) *Water Vole Conservation Handbook*. Third Edition. Wildlife Conservation Research Unit, Oxford.

Table 11.8.3: Habitat Suitability

Habitat Suitability	Hydrology	Food Availability	Shelter Requirements
High	Slow flowing water course around 1–3 m wide and 1 m deep.	Abundant growth of both emergent and herbaceous vegetation	Moderately steep banks, minimal shading by trees and shrubs
Moderate	A variation of slow flowing optimal conditions and suboptimal conditions such as fast flowing or very shallow sections	Optimal feeding conditions interspersed with suboptimal conditions described in low suitability	Watercourse partially shaded with open area providing suitable conditions
Low	Fast flowing, widely fluctuating water levels prone to seasonal drying out	Little to no suitable food. Heavily poached by livestock	
Negligible	Little to no water present	No suitable food sources	Overgrown and 100% shaded

Limitations

There were no limitations in relation to survey timing or survey effort and all suitable habitats within the Survey Area were surveyed for water vole during the survey.

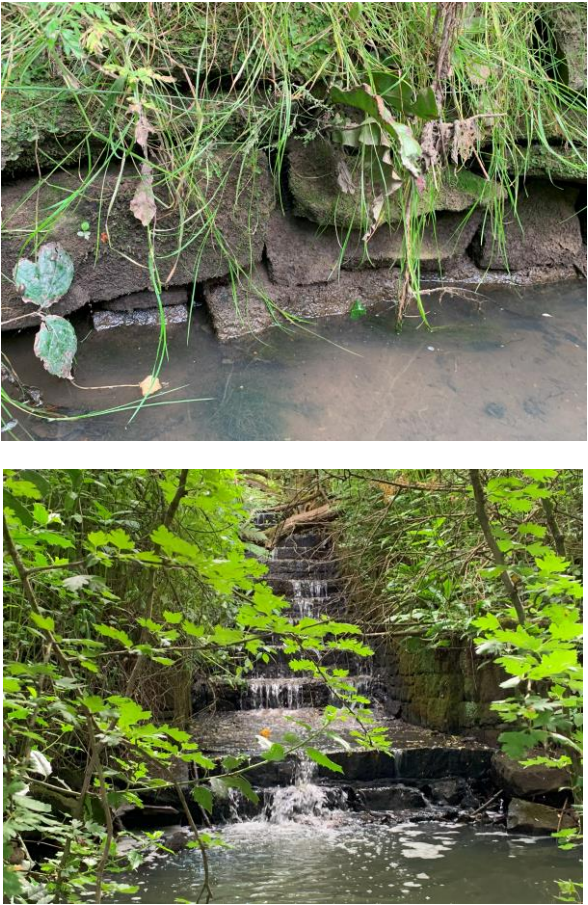
Results

No evidence of water vole was recorded during the surveys. **Table 11.8.4** provides additional information on habitat suitability and waterbody characteristics

Table 11.8.4: Survey Results

Waterbody Reference/ Name	Waterbody Characteristics	Photo	Habitat suitability	Field Sign
Brightley Brook	A manmade channel, flowing from Pilsworth Lake/ Fisheries. Large sections of this watercourse were stone-lined, with no natural embankment, with vegetation only present on the bank-top. The southern end is culverted, while there is a large man-made waterfall at the northern extent.		Poor	None

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	The watercourse was approximately 80cm wide and 25-30 cm deep, with a fast and fluctuating flow.			
Castle Brook	A small meandering natural watercourse which forms a tributary of the larger Whittle Brook. Embankments were predominantly grass-lined with the occasional scattered tree. There was little emergent vegetation. In some locations the watercourse was extremely narrow, at approximately 40cm; with an average depth of 40cm, with a fast and fluctuating flow.		Low	None

Whittle Brook	A large, meandering watercourse. There were areas of vegetated embankments, which were predominantly grasses, with areas of bare-earth embankment. Emergent vegetation was limited to small isolated areas. There were variations in hydrology, from slow flowing optimal conditions to suboptimal conditions such as fast flowing and very shallow sections. On average the width was 2m, although much narrower in some locations; with an average depth of 65-80cm. The eastern end was culverted underneath the M62.	 	Moderate	None
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Summary of 2022 Surveys Results

The 2022 surveys comprised the same survey scope (the same three watercourses were surveyed). Habitats and conditions were recorded as being similar to 2024. No evidence of water vole was recorded during the 2022 surveys.

Habitats Within the Wider Project for Assessment

The Brooks within the wider Project for Assessment area are considered to provide similar habitat types to that of the Survey Area/ Proposed Scheme (some of the brooks within the Project for Assessment are continuations of surveyed watercourses found within/ bordering the Proposed Scheme, i.e. Castle Brook). In the absence of data, it is considered unlikely that there would be populations of more than local ecological importance, as there's an absence of local record centre data and it is assumed that were there to be large populations of water vole, evidence would have been found within the surveyed watercourses.

