

# **Great Yarmouth Third River Crossing Application for Development Consent Order**

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## **Document 6.2: Environmental Statement Volume II: Technical Appendix 8F: Water Vole Survey Report**

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**Planning Act 2008**

**The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) (“APFP”)**

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# 1 Introduction

## 1.1 Project Background

- 1.1.1 The Great Yarmouth Third River Crossing (the Scheme) involves the construction, operation and maintenance of a new crossing of the River Yare in Great Yarmouth. The Scheme consists of a new dual carriageway road, including a road bridge across the river, linking the A47 at Harfrey's Roundabout on the western side of the river to the A1243 South Denes Road on the eastern side. The area through which the Scheme would pass largely comprises urbanised land, with small areas of vegetation in the form of gardens and allotments. Watercourses are present on the west side of the river running parallel to the A47 and William Adams Way as well as within the industrial area boarded by the A47 and William Adams Way. The location of the Scheme is shown in Site Location Plan included in Figure 2.1 of Volume III of the Environmental Statement (ES) (document reference 6.3).
- 1.1.2 The proposed river crossing construction will require the modification and/or destruction of some watercourses and adjacent bank habitats.

## 1.2 Ecological Background

- 1.2.1 A Preliminary Ecological Appraisal of the Project Site was undertaken in September 2016 (Technical Appendix 8B) (Ref. 8F.1). This was updated in July 2018 (Technical Appendix 8C) (Ref. 8F.2) after the survey boundary was amended to include the roundabout which intersects the A47 and William Adams Way and section of the A47 stretching to the north and south. A desk study identified 14 records of water vole *Arvicola amphibius* within 2 km of the Project Site, the most recent of which was from December 2012. Watercourses within the Project Site were assessed for their suitability to support water vole broadly in line with methodology provided in standard guidance (Ref. 8F.3). The surveys were carried out in 2017 (Technical Appendix 8E) (Ref. 8F.4). These surveys, however, were limited by access constraints such that only the watercourse bordering Southtown Common Recreation Ground was surveyed. Three findings of water vole droppings and two recordings of feeding remains were made at the eastern-most section of this watercourse. Further surveys of the remaining watercourses were recommended.
- 1.2.2 This report presents the findings of the subsequent surveys for water voles. The watercourses surveyed are shown in Figure 8F.1 of Volume III of the ES (document reference 6.3) and are referred to in this report as the Survey Area.

### **1.3 Brief and Objectives**

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**1.3.1** Water vole surveys undertaken in accordance with good practice guidance (Ref. 8F.3) addressed the following objective:

- To establish whether water voles are present or likely to be absent from the Survey Area.

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## 2 Methods

### 2.1 Overview

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2.1.1 To establish whether water voles were present or likely to be absent a survey was carried out in accordance with current good practice guidance (Ref. 8F.3). This survey comprised one survey visit to each watercourse to search for water vole field signs.

### 2.2 Water Vole Survey

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2.2.1 A Survey Area including all watercourses identified during the extended Phase 1 habitat survey within the Principal Application Site was surveyed for signs of water voles (Figure 8F.1). Watercourses are labelled WC1-WC6.

2.2.2 All survey visits were carried out within the appropriate season for water vole survey (late April to early October). Each survey visit comprised three elements as follows:

- A walked survey of the entire length of the watercourses within the Survey Area during which a thorough visual inspection of the banks and immediate vicinity of each watercourse, searching for water voles or their field signs, was undertaken. Water vole field signs include faeces, latrines, feeding stations, burrows, 'lawns', nests, footprints and runways in vegetation;
- Recording of habitat variables and features relevant to water voles, for example, habitat type, shore/bank substrate, bordering land use, vegetation, degree of disturbance, bank profile, water depth; and
- Recording of field signs or evidence of other wildlife, such as otter *Lutra lutra*, mink *Neovison vison* or brown rat *Rattus norvegicus*.

### 2.3 Dates of Survey and Personnel

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2.3.1 The water vole survey was undertaken by a competent surveyor with 12 years' experience of ecological survey, including extensive water vole survey experience, and a strong understanding of the ecology of water voles and the ability to identify their field signs.

2.3.2 Surveys were completed between 8th and 19th of September 2018.

### 2.4 Notes and Limitations

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2.4.1 The survey sought only to establish whether water voles may be at risk from the Scheme, and to inform as to whether further measures in relation to

water voles may be necessary. Water vole survey guidance recommends that to enable complete information on water voles to be obtained such as may be required to advise on the need for a licence application, two surveys within the appropriate season (late April to early October) are required. Further surveys are therefore recommended closer to the time of construction. For the purposes of this assessment, one survey visit is sufficient.

- 2.4.2 The northern bank of the watercourse which borders Southtown Common Recreation Ground was inaccessible and banks could not be examined thoroughly because of the presence of impenetrable vegetation covering the northern bank and deep water preventing the watercourse being crossed.
- 2.4.3 The sections of the watercourses bordering the A47, which continue beyond the Principal Application Site boundary, could not be accessed safely because of steep banks above deep water. This meant that surveys could not be carried out within the section of watercourses immediately south of the Principal Application Site (Figure 8F.2).

## 3 Results and Evaluation

### 3.1 Overview

3.1.1 Evidence of water voles, predominantly droppings, was recorded along the banks of watercourses WC1, WC2 and WC3. One recording of feeding remains was made along WC1. Evidence of burrows was limited, with a single possible burrow identified along the banks of WC1 and another on WC4.

### 3.2 Survey Findings

3.2.1 The watercourses surveyed comprised a series of drainage ditches running parallel with the A47 and William Adams Way within the Survey Area, and a connected watercourse flowing through the industrial estate north-east of the A47/William Adams Way roundabout. Watercourses WC1, WC2 and WC3 were linked and can be considered a single continuous watercourse. WC4 and WC5 are also linked, while WC6 appears isolated. All watercourses surveyed are hydrologically linked. However, at the time of survey, culverts linking watercourses were significantly silted to the point of preventing full connectivity.

#### Watercourse 1 (WC1)

3.2.2 WC1 comprised three distinct sections:

- The western section bordering the A47, which was substantially shaded by small shrubs. The western bank of this section is shallow with no ground vegetation. The eastern bank is steep, and covered in dense scrub, becoming gently sloping where it reaches the water. In this section water depth is shallow, 2-5cm, over muddy sediment, and less than 0.5m wide with no emergent vegetation. Water flow is static to sluggish. This section of the watercourse provides poor habitat for water voles.
- WC1 becomes wider at the point where it splits to the north and west (Figure 8F.1). The northern arm is 2m wide and 1.5-2m deep over silt. No emergent vegetation is present and water flow is static to sluggish. The banks of this section are suitable for use by water vole. The eastern bank is steeply angled and covered in herbaceous vegetation 40-60cm high, while the western bank is flat and densely covered with herbaceous vegetation. Three records of water vole droppings were noted, with multiple droppings at each location. Evidence of water vole feeding was also confirmed.

3.2.3 The eastern section of WC1 is over 2m wide and 0.5-1m deep over a silt substrate dominated by rotting vegetation. Dense emergent vegetation, including reed mace *Typha latifolia* and common reed *Phragmites australis*



occur adjacent to a heavily shaded bank to the south under a canopy of trees and a flat bank to the north covered in dense herbaceous vegetation. The habitat on the northern bank is a continuation of that on the eastern bank of the section of WC1, described in 3.2.2 above, and provides suitable habitat for water vole.

### Watercourse 2 (WC2)

3.2.4 WC2 is a continuation of WC1, linked to it via a culvert which passes under Queen Anne's Road. The watercourse comprises two sections as follows:

- To the south the WC2 passes through a caravan sales area. At this point the watercourse has steep, well-managed banks. The western bank is covered with hardstanding and gravel and is not suitable for use by water vole. The eastern bank is vegetated with short-cropped grass that is regularly managed. This bank is of moderate suitability for water voles. The watercourse, which is 1-2m wide and approximately 0.5-1.0m deep, contains dense emergent vegetation dominated by branched bur-reed *Sparganium erectum*. Water vole evidence was recorded on the eastern bank (Figure 8F.2), in the form of a possible water vole burrow and water vole droppings at a single location.
- The northern section of WC2 passes through a densely wooded area to an open area further west. In this section the watercourse is 2m wide and 0.5-1.0m wide, with banks that vary from shallow to steeply sloped. Under the canopy the water is static to sluggish in flow rate. The bankside vegetation on both sides is dense and dominated by woody species, with no significant herbaceous vegetation, and of poor suitability for water vole. In the open area the watercourse is filled with emergent vegetation, with herbaceous vegetation on the banks. Possible water vole droppings were recorded on floating debris.

### Watercourse 3 (WC3)

3.2.5 WC3 was not originally identified during preliminary survey work. The watercourse is not continuous, as it is dry for the majority of its length. However, shallow pools of water occur in places. The watercourse is heavily shaded by trees which have prevented the growth of herbaceous vegetation on the banks. This watercourse was assessed as of poor suitability for water voles.

### Watercourse 4 (WC4)

3.2.6 Running adjacent to Southtown Common Recreation Ground, WC4 is slow-flowing, 2-5m wide and 1-2m deep with banks that vary in slope from shallow to steep. For its length the watercourse is dominated by dense reed mace *Typha latifolia*, common reed *Phragmites australis* and reed sweet grass *Glyceria maxima*. The north-western bank is densely vegetated with scrub and was inaccessible during the survey (Figure 8F.2). As the watercourse

extends south beyond the red line boundary it becomes increasingly deep. The majority of the watercourse is of moderate to good suitability to support water voles and one occurrence of water vole droppings and one water vole burrow were recorded on the eastern bank.

### Watercourse 5 (WC5)

- 3.2.7 This watercourse runs parallel to the western edge of the A47. The banks of WC5 are steep and support a mixture of vegetation, including areas of tall herbaceous vegetation as well as immature trees, notably grey willow *Salix cinerea*. Water flow is static to sluggish, and the watercourse is 1-2m wide and 0.5-1.0m deep. WC5 is densely vegetated with common reed and reed mace. Water is not continuous along the length of the watercourse, which contains some dry sections - in particular, areas where grey willow is present, and some areas where water forms pools. Beyond the Principal Application Site to the south the watercourse becomes increasingly deep. Although no evidence of water vole was found here, WC5 is of moderate suitability to support water voles and is directly connected to WC4 where water voles were confirmed to be present.

### Watercourse 6 (WC6)

- 3.2.8 This watercourse is predominantly dry for its entire length, although some areas of saturated mud are present. Pools of water occur at a single location. Lack of water may be a result of the dry summer in 2018. WC6 is heavily shaded by bankside trees. In its current condition WC6 is of low suitability for water voles, but if it were to re-emerge as a watercourse then it would provide moderate suitability for water voles.

## 3.3 Summary of Results

- 3.3.1 The survey confirmed water vole presence within the Survey Area. Water vole evidence is summarised in Table 3.1 below.

Table 3.1: Summary of Survey Findings

| Watercourse | Date       | Description of Evidence Present (see Figure 8E.2)  |
|-------------|------------|--|
| WC1         | 18/09/2018 | Water vole droppings: three separate recordings of multiple water vole droppings (recording 2, 3 and 4).<br>Feeding remains: 8-10cm lengths of grass cut at a 45° angle at the end (recording 4a). |
| WC2         | 18/09/2018 | Water vole droppings: a single recording of multiple water vole droppings on floating debris (recording 5).  |

| Watercourse | Date       | Description of Evidence Present (see Figure 8E.2)  |
|-------------|------------|--|
|             |            | Water vole burrow: a single recording of a water vole burrow (recording 8).  |
| <b>WC3</b>  | 18/09/2018 | No evidence of water vole.   |
| <b>WC4</b>  | 18/09/2018 | Water vole droppings: three separate recordings of multiple water vole droppings (recording 11, 13, and 14).<br>Water vole burrow: a single recording of a water vole burrow (recording 12). |
| <b>WC5</b>  | 19/09/2018 | No evidence of water vole.   |
| <b>WC6</b>  | 19/09/2018 | No evidence of water vole.   |

**3.3.2** Field signs of other mammals were also recorded during the surveys. Droppings and prints of muntjac deer *Muntiacus reevesi* were recorded on the banks of WC1 (recording 1, Figure 8F.2) and WC3. A sighting of a field vole *Microtus agrestis* was recorded at WC2 (recording 9, Figure 8F.2). Along all watercourses, burrows of other unidentified mammals were observed.

### 3.4 Implications for the Scheme

#### Overview

**3.4.1** Water voles are protected from killing, injury and disturbance under UK legislation; in addition, planning policy affords further protection within the planning system, as described below. As water voles have been confirmed to be present within the Principal Application Site, appropriate avoidance and/or mitigation measures should be included within the Scheme.

#### Legal Compliance

**3.4.2** Water voles are fully protected under The Wildlife and Countryside Act (1981) (as amended) (Ref. 8F.5), meaning it is an offence to kill, injure or take this species, damage or destroy places of rest or shelter, or disturb this species whilst it is occupying a place of rest or shelter.

**3.4.3** Water voles are listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England, in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 8F.6). Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

### Planning Policy Compliance

- 3.4.4 Planning policy on transport network Nationally Significant Infrastructure Projects (NSIPs) is contained in the National Policy Statement for National Networks (NPS NN) (Department for Transport, 2014) (Ref. 8F.7). Guidance specifically in relation to ecology and nature conservation is provided within paragraphs 3.2 – 3.5, 4.15 – 4.21, 4.22 – 4.25, and 5.25 – 5.38 of the NPS NN. Paragraphs 5.20-25 and 5.31-38 are relevant to water voles, and are fully detailed in Chapter 8: Nature Conservation of the ES.
- 3.4.5 At the national level the National Planning Policy Framework (2019) (NPPF) (Ref. 8F.8) forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including water vole. The NPPF in its relevance to ecology is fully documented in Chapter 8: Nature Conservation of the ES. The Office of the Deputy Prime Minister (ODPM) circular 06/2005 (Ref. 8F.9) also provides supplementary guidance, including confirmation that *“the presence of a protected species is a material consideration when a planning authority is considering a development proposal”* (Para 98).

### Other Guidance

- 3.4.6 Water voles are a priority species in the Norfolk Biodiversity Action Plan (Ref. 8F.10).

## 4 Conclusion

- 4.1.1 Water voles were confirmed to be present within the Principal Application Site. Evidence of their presence was found within or around watercourses WC1, WC2 and WC4, principally in the form of water vole droppings, though two burrows and one feeding location were also identified.
- 4.1.2 The suitability of habitats within the Principal Application Site to support water vole was variable. Some watercourses had partially dried and large sections significantly shaded by trees and dense scrub, preventing habitat suitable for use by water voles to develop. There is connectivity between the watercourses, indicating the potential for water voles to spread across the Principal Application Site where and when conditions are suitable.
- 4.1.3 Sections of watercourses WC3 and WC5 outside the Principal Application Site were unable to be surveyed safely. The omission of survey information from these areas does not affect the validity of the survey findings for the purpose of this report as here we seek to identify presence/absence of water voles within the survey area and not to identify population.

## 5 References

Ref. 8F.1: Mouchel Ltd (2016). The Great Yarmouth Third River Crossing: Preliminary Ecological Appraisal. Leeds.

Ref. 8F.2: WSP (2018). Preliminary Ecological Appraisal Update. Leeds.

Ref. 8F.3: Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook, Third edition. The Wildlife Conservation Research Unit, University of Oxford.

Ref. 8F.4: WSP (2017). Great Yarmouth Third River Crossing Protected Species Report.

Ref. 8F.5: Her Majesty's Stationary Office (HMSO) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000).

Ref. 8F.6: HMSO (2006). Natural Environment and Rural Communities Act.

Ref. 8F.7: Department for Transport (2014). National Policy statement for National Networks, Department of Transport, London.

Ref. 8F.8: Department for Communities and Local Government (2019). National Planning Policy Framework. Department for Communities and Local Government, London.

Ref. 8F.9: HMSO (2005). Biodiversity and Geological Conservation – Statutory Obligations and Their Impact Within the Planning System. Office of the Deputy Prime Minister (ODPM) Circular 06/2005 HMSO, Norwich.

Ref. 8F.10: Norfolk Biodiversity Partnership (2002). Norfolk Biodiversity Action Plan – Water Vole Species Action Plan.

## Annex 8F.1: Indicative Species List for Riparian Planting

| Common Name           | Latin Name                          |
|-----------------------|-------------------------------------|
| <b>Reeds/Grasses</b>  |                                     |
| Reed canary grass     | <i>Phalaris arundinacea</i>         |
| Common reed           | <i>Phragmites australis</i>         |
| Reed sweet grass      | <i>Glyceria maxima</i>              |
| Meadow grasses        | <i>Poa trivialis, P. pratensis</i>  |
| Cocksfoot             | <i>Dactylis glomerata</i>           |
| Sweet grasses         | <i>Glyceria fluitans, G. notata</i> |
| False oat-grass       | <i>Arrhenatherum elatius</i>        |
| Tufted hair-grass     | <i>Deschampsia caespitosa</i>       |
| Sweet vernal-grass    | <i>Anthoxanthum odoratum</i>        |
| Yorkshire fog         | <i>Holcus lanatus</i>               |
| Creeping soft grass   | <i>H. mollis</i>                    |
| Creeping bent         | <i>Agrostis stolonifera</i>         |
| Timothy               | <i>Phleum pratense</i>              |
| Marsh foxtail         | <i>Alopecurus geniculatus</i>       |
| Meadow foxtail        | <i>A. pratensis</i>                 |
| Purple moor-grass     | <i>Molinia caerulea</i>             |
| <b>Rushes</b>         |                                     |
| Hard rush             | <i>Juncus inflexus</i>              |
| Soft rush             | <i>J. effusus</i>                   |
| Conglomerated rush    | <i>J. conglomeratus</i>             |
| Sharp-flowered rush   | <i>J. acutiflorus</i>               |
| Jointed rush          | <i>J. articulatus</i>               |
| <b>Sedges</b>         |                                     |
| Greater tussock sedge | <i>Carex paniculata</i>             |
| False fox-sedge       | <i>C. otrubae</i> Podp.             |

| Common Name                           | Latin Name  |
|---------------------------------------|---|
| Hairy sedge                           | <i>C. hirta</i>   |
| Bottle sedge                          | <i>C. rostrate</i>  |
| Pendulous sedge                       | <i>C. pendula</i>   |
| Black sedge                           | <i>C. nigra</i>   |
| Greater pond-sedge                    | <i>C. riparia</i>   |
| <b>Water Plants</b>                   |   |
| Branched bur-reed                     | <i>Sparganium erectum</i>   |
| Unbranched bur-reed                   | <i>S. emersum</i>   |
| Common water-plantain                 | <i>Alisma plantago-aquatica</i>   |
| Flowering rush                        | <i>Butomus umbellatus</i>   |
| Broad-leaved pondweed                 | <i>Potamogeton natans</i>   |
| Hornwort                              | <i>Ceratophyllum demersum</i>   |
| Yellow flag iris                      | <i>Iris pseudacorus</i>   |
| Bogbean                               | <i>Menyanthes trifoliata</i>  |
| Pond lilies                           | <i>Nymphoides peltata</i> , <i>Nuphar lutea</i> ,<br><i>Nymphaea alba</i>   |
| Bulrush                               | <i>Schoenoplectus lacustris</i>   |
| Water crowfoots                       | <i>Ranunculus peltatus</i> , <i>R. aquatilis</i> , <i>R. penicillatus</i> , |
| Watercress                            | <i>Nasturtium officinale</i>  |
| <b>Wetland / Riparian edge plants</b> |   |
| Bistort                               | <i>Polygonum amphibium</i>  |
| Marsh marigold                        | <i>Caltha palustris</i>   |
| Celery-leaved buttercup               | <i>Ranunculus sceleratus</i>  |
| Lesser spearwort                      | <i>R. flammula</i>  |
| Greater spearwort                     | <i>R. lingua</i>  |
| Cuckoo flower                         | <i>Cardamine pratensis</i>  |
| Meadowsweet                           | <i>Filipendula ulmaria</i>  |
| Water avens                           | <i>Geum rivale</i>  |



| Common Name         | Latin Name                     |
|---------------------|--------------------------------|
| Purple loosestrife  | <i>Lythrum salicaria</i>       |
| Fools watercress    | <i>Apium nodiforum</i>         |
| Angelica            | <i>Angelica sylvestris</i>     |
| Marsh bedstraw      | <i>Galium palustre</i>         |
| Water forget-me-not | <i>Myosotis scorpioides</i>    |
| Water mint          | <i>Mentha aquatica</i>         |
| Brooklime           | <i>Veronica beccabunga</i>     |
| Marsh valerian      | <i>Valeriana officinalis</i>   |
| Marsh sowthistle    | <i>Sonchus palustris</i>       |
| Water figwort       | <i>Scrophularia auriculata</i> |
| Gypsywort           | <i>Lycopus europaeus</i>       |