

**LAND SOUTH OF HIGH STREET,
GREAT WAKERING, ESSEX**

WATER VOLE SURVEY

A Report to: Taylor Wimpey

Report No: RT-MME-119852-03-RevA

Date: July 2016



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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

Report Version	Date	Completed by:	Checked by:	Approved by:
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DISCLAIMER

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Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in water vole status on site, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In June 2015, Middlemarch Environmental Ltd was commissioned by Taylor Wimpey to carry out a Water Vole Survey at land south of High Street, Great Wakering, Essex. This information is required to inform a planning application associated with the redevelopment of the site for housing. The illustrative masterplan indicates that the site will mainly comprise residential housing, and that the Local Wildlife Site adjacent to the south of the site boundary will be retained. The drainage plans indicate that drainage from the site will run into the ponds within the LWS to the south of the site, and that a balancing pond will be constructed to the south of the LWS.

An ecological desk study from Essex Ecology Services Ltd and Essex Field Club identified a total of two records of water vole within a 2 km radius of the proposed development site, both from 2011 and located within the development site boundary, in Star Lane Pits Local Wildlife Site.

In line with the specifications detailed by Strachan *et al.* (2011), a habitat assessment and presence / likely absence survey was undertaken on the ponds and ditches within the site on 30th June 2015 by Jemma Gaskin (Principal Technical Ecological Consultant) and Indre Barsketyte (Ecological Consultant). Pond P5 and all ditches within and adjacent to the site were dry and deemed unsuitable for water vole. Pond P6, a small duck pond situated outside of the development site boundary, was also deemed unsuitable for water vole. The habitat assessment identified that Ponds P3 and P4, situated within Star Lane Pits Local Wildlife Site (LWS) provided suitable water vole habitat. No evidence of water vole, such as burrows, footprints, latrines and feeding remains, were recorded along the banks of any of the ponds surveyed, although it should be noted that access was not possible to all of the pond's edges due to the presence of thick vegetation and steep banks.

However, due to the records of water vole on the site in the past, limitations with access to the pond edges and the presence of suitable habitat, it is possible that water voles may still be present within the LWS. Full details of the proposed works are currently unknown and therefore a precautionary approach has been adopted when discussing the potential for the development to impact water voles. The recommendations, which should be reviewed and amended, where appropriate, once the proposals are finalised, are as follows:

- R1** As drainage from the residential development to the north of the LWS will run into ponds within the LWS, an updated water vole survey visit of the drainage area within the LWS will be required once the drainage plans for the site have been finalised.
- R2** As water voles have been recorded on site in the past and may colonise the site in future, if feasible, consideration should be given to the potential for positive enhancement measures for water voles within any waterbodies created within the development area.
- R3** If development works have not commenced within 24 months, this survey should be updated as water vole usage of the ponds within the site may change.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In June 2015, Taylor Wimpey commissioned Middlemarch Environmental Ltd to undertake a survey for water vole *Arvicola amphibius* at the site of a proposed development at land south of High Street in Great Wakering, Essex. This information is required to inform a planning application associated with the redevelopment of the site for housing. The illustrative masterplan indicates that the site will mainly comprise residential housing, and that the Local Wildlife Site adjacent to the south of the site boundary will be retained. The drainage plans indicate that drainage from the site will run into the ponds within the LWS to the south of the site, and that a balancing pond will be constructed to the south of the LWS.

Middlemarch Environmental Ltd has previously carried out Extended Phase 1 Habitat Survey and Initial Ecological Appraisal at this site in 2012 (Report number RT-MME-112349). In addition, Middlemarch Environmental Ltd has undertaken the following assessments:

- Preliminary Ecological Assessment, Report RT-MME-119852-01;
- Initial Badger Survey, Report RT-MME-119852-02;
- Invertebrate Survey, Report RT-MME-119852-04;
- Reptile Survey, Report RT-MME-119852-05;
- Great Crested Newt Habitat Assessment and eDNA Sampling, Report RT-MME-119852-06;
- Breeding Bird Survey, Report RT-MME-119852-07;
- Wintering Bird Survey, Report RT-MME-119852-08;
- Daytime Bat Survey, Report RT-MME-120478-01; and,
- Preliminary Bat Roost Assessment, Report RT-MME-122103-01; and,
- Habitat Regulations Assessment: Stage 1 Screening Report (Report RT-MME-121553).

Water vole receive protection under UK law and are capable of being material considerations in the planning process. Further information about the legislation that protects water vole is provided in Appendix 1. This section also provides some brief information on their ecology.

1.2 SITE DESCRIPTION AND CONTEXT

The surveyed area was a flat, roughly rectangular-shaped area of land measuring approximately 32 ha, located to the south west of Great Wakering, Essex, centred at National Grid Reference TQ 9374 8723. The survey area was dominated by arable farmland consisting of large cereal fields delineated by a mixture of open boundaries, ditches and irregularly managed hedgerows. To the south of the site boundary (but within the surveyed area) were several pools and ponds surrounded by dense scrub interspersed with some areas of short grassland possessing colonising scrub and tall ruderal vegetation. This section is designated as a Local Wildlife Site. Additional habitats recorded within the survey area included bare ground and buildings/structures.

The site is bordered to the north by residential properties situated off the High Street and Southend Road. To the west lies a former industrial estate, a small area of active works and Star Lane. Bordering the site to the east is a belt of dense scrub with residential properties to the south-east, and to the south of the site was the LWS and two arable fields that formed part of the survey area (see Drawing C119852-03-01 RevA in Chapter 7).

1.3 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Location Plan: 1571 / P / 10-01	CMYK (Planning & Design) Ltd
Illustrative Site Layout: 1571 / P / 10-02	CMYK (Planning & Design) Ltd
Drainage Strategy: ST-2488-17-E	Stomor Civil Engineering Consultants
Foul Drainage Strategy: ST-2488-23	Stomor Civil Engineering Consultants
Landscape Masterplan: TWEL20425-10	ACD Environmental
Landscape Proposals: TWEL20425-11	ACD Environmental

Table 1.1: Documentation Provided by Client

2. METHODOLOGIES

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-119852-01) an ecological desk study was undertaken. The consultees for the desk study were:

- Natural England - *MAGIC* website for statutory conservation sites;
- Essex Ecology Services Ltd; and,
- Essex Field Club.

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by these organisations. Relevant badger data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

2.2 HABITAT ASSESSMENT

In line with the specifications detailed by Strachan *et al.* (2011), the ponds within the proposed development site were surveyed on all banks with regard to their suitability for water vole.

Pond P5, and all ditches within and adjacent to the site were deemed unsuitable for water vole and ruled out of further assessment due to being dry, heavily shaded in parts, with no aquatic vegetation and minimal bankside habitat. Pond P6 is a small duck pond, also unsuitable for water vole. These waterbodies will not be discussed further within this report.

2.3 PRESENCE / LIKELY ABSENCE SURVEY

In line with the specifications detailed by Strachan *et al.* (2011), this consisted of a search of the ponds located on the development site for any signs of water vole presence, such as burrows, droppings, latrine sites, feeding stations or footprints/runs. The search area encompassed the banks of all ponds, where access and health and safety allowed.

The survey area is illustrated on Drawing C119852-03-01 RevA in Chapter 7.

3. DESK STUDY RESULTS

3.1 BIOLOGICAL RECORDS

As part of the Preliminary Ecological Assessment completed by Middlemarch Environmental Ltd, a desk study for records of protected species was completed. This desk study identified the following records of water vole within a 2 km radius of the proposed development site. These data are summarised in Table 3.1.

Date	Grid Reference	Proximity of Record	Additional Information
2011	TQ 9375 8721	On site	Droppings
2011	TQ 9375 8721	On site	Droppings

Table 3.1: Water Vole Records Within 2 km of the Development Boundary

3.2 PREVIOUS WATER VOLE SURVEYS

No previous reports were provided to Middlemarch Environmental Ltd.

4. RESULTS

4.1 INTRODUCTION

The survey was carried out on 30th June 2015 by Jemma Gaskin (Principal Technical Ecological Consultant) and Indre Barsketyte (Ecological Consultant). Table 4.1 details the weather conditions at the time of the survey.

Parameter	Condition
Temperature (°C)	35
Cloud (%)	0
Wind (Beaufort)	0-1
Precipitation	Dry

Table 4.1: Weather Conditions During the Field Survey

The weather prior to this survey had been clement and Middlemarch Environmental is not aware of any heavy rainfall or flooding that could wash away signs of water vole in the days preceding the survey.

4.2 SURVEY CONSTRAINTS

Many of the banks of the ponds were very steep and formed of deep silt, and could therefore not be accessed fully for reasons of health and safety.

4.3 HABITAT ASSESSMENT

This section describes the habitat characteristics along the banks of the ponds surveyed. Photographs of the area surveyed are included in Chapter 8.

4.3.1 Pond P1

Pond P1 is a large, irregular shaped pond, which stretches across the northern region of Star Lane Pits LWS. Sparse pockets of marginal vegetation encroached into the water. Species present included bulrush *Typha latifolia* and common reed *Phragmites australis*. The majority of the pond was surrounded by dense scrub and trees.

4.3.2 Pond P2

Pond P2 is a medium-sized, irregular shaped pond, located in close proximity to Pond P1. Pockets of marginal vegetation were present, dominated by lesser bulrush *T.angustifolia* and common reed. The pond was surrounded by dense scrub and trees.

4.3.3 Pond P3

Pond P3 is a medium-sized, irregular shaped pond, situated within the eastern region of the LWS, and adjacent to the eastern development site boundary. Large areas of marginal vegetation were present, including water lilies *Nymphaea sp.*, yellow flag iris *Iris pseudacorus* and lesser bulrush. The pond was surrounded by dense scrub and trees.

4.3.4 Pond P4

Pond P3 is a long, narrow pond, which stretches across the southern region of the LWS and widens out at either end. The steep sided banks of the pond were dominated by dense scrub. Pockets of marginal vegetation consisted of yellow flag iris, common reed, lesser bulrush and hard rush *Juncus inflexus*.

Table 4.2 details the characteristics of the ponds surveyed.

Feature	Pond P1	Pond P2	Pond P3	Pond P4
Channel				
Width	15 – 90 m	20 m	65 m	42 m at widest point
Length	300 m	50 m	140 m	220 m
Depth	Unknown.	Unknown.	Unknown.	Unknown.
Substrate	Silt.	Silt.	Silt.	Silt.
Vegetation				
Marginal	Pockets of marginal vegetation, including typha and common reed.	Some areas of marginal vegetation dominated by lesser bulrush and common reed.	Large areas of marginal vegetation, including water lilies, yellow flag iris and lesser bulrush.	Pockets of marginal vegetation, including yellow flag iris, common reed, typha and hard rush.
Floating	None.	None.	Water lilies.	None.
Water				
Flow	N/A	N/A	N/A	N/A
Quality	No visibility.	No visibility.	Medium visibility.	Medium visibility.
Banks				
Height	0.5 – 1 m	0.5 – 1 m	0.3 – 0.8 m	0.5 – 3 m
Width	0.5 m	0.5 – 1 m	0.5 – 1 m	0.5 – 4 m
Angle	80° – 90°	80° – 90°	70° – 90°	80° – 90°
Substrate	Soil	Soil	Soil	Soil/earth banks
Vegetation	Majority of banks surrounded by grassland, tall ruderal vegetation, dense scrub and trees.	Majority of banks surrounded by grassland, tall ruderal vegetation, dense scrub and trees.	Banks surrounded by scrub.	Banks dominated by dense scrub.
Shading	Heavily shaded on south bank due to trees, moderate shading on other banks.	Heavily shaded on all banks due to trees.	Shading on some banks due to trees.	Shading on some banks due to trees.
Suitability for water voles	Suitable, but limited due to sparse pockets of marginal vegetation.	Limited suitability, due to limited habitat, but connectivity to other ponds provides potential.	Moderate suitability, due to plenty of marginal vegetation.	Moderate suitability, due to plenty of marginal vegetation.

Table 4.2: Habitat Characteristics of Ponds P1 to P4

Ponds P3 and P4 were found to provide suitable habitat for water voles to be present, due to the presence of:

- An abundance of marginal and bank side vegetation offering suitable foraging resources for water vole.
- Banks which were suitable for the establishment of water vole burrows.
- Unshaded habitats and contained open water, with only small sections found to be dry or shaded by trees.

Ponds P1 and P2 provided much more limited suitable habitat for water voles, due to sparse pockets of marginal vegetation, and a high level of shading on the majority of banks.

4.4 PRESENCE / LIKELY ABSENCE SURVEY

Within the ponds surveyed, no evidence of water voles, or evidence of recent activity of water voles, e.g. burrows, footprints, latrines, feeding stations or lawns were recorded along any of the banks, although due to access constraints it cannot be conclusively confirmed that water vole are not present within the ponds surveyed.

5. DISCUSSION AND CONCLUSIONS

5.1 SUMMARY OF SITE PROPOSALS

The water vole survey works are required as part of the baseline survey work to inform a planning application associated with the proposed development of the Great Wakering site.

The illustrative masterplan indicates that the Local Wildlife Site will be retained, with a new balancing pond created to the south of the LWS, and land to the north of the LWS will be developed for housing. The masterplans also indicate that drainage from the residential development to the north of the LWS will run into ponds within the LWS.

The following discussions and proposals are based on Middlemarch Environmental Ltd.'s current understanding of the site proposals, as detailed on the Illustrative Masterplans (see Table 1.1). Detail of the likely construction methods is not known at this stage, and therefore a precautionary approach has been adopted when considering the potential for the works to impact water voles. The following discussion and recommendations should be reviewed and amended, where appropriate, once the site proposals are finalised.

5.2 STATUS OF WATER VOLE ON SITE

The habitat assessment identified that Ponds P3 and P4 provided moderate habitat suitable for water vole, whilst Ponds P1 and P2 provided some limited suitability for water vole. Two records of water vole were recorded within a 2 km radius of the proposed development site, both recorded in 2011 within the development site boundary. No evidence of water vole, such as burrows, latrines and feeding remains, was recorded along the banks of the ponds surveyed. However, access was restricted at some locations to the pond edge and as such evidence may have been missed.

5.3 CONCLUSIONS AND SUMMARY OF POTENTIAL IMPACTS

Whilst no evidence of water voles was found during the surveys, it is possible that water vole are present within Star Lane Pits LWS. As drainage from the residential development to the north of the LWS will run into ponds within the LWS, an updated water vole survey visit of the drainage area within the LWS will be required once the drainage plans for the site have been finalised. A precautionary recommendation in this regard is provided in Chapter 6.

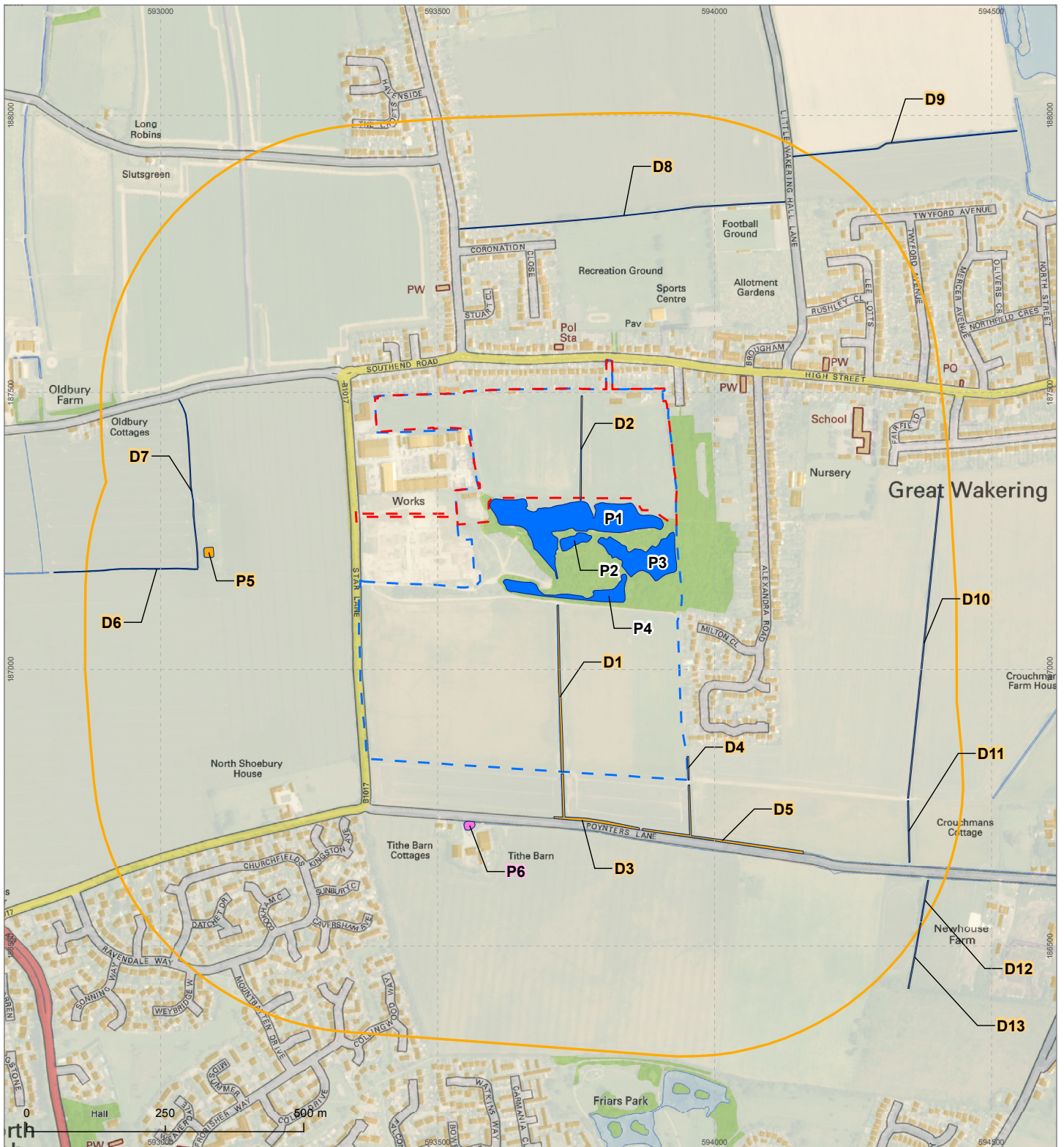
6. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

- R1** As drainage from the residential development to the north of the LWS will run into ponds within the LWS, an updated water vole survey visit of the drainage area within the LWS will be required once the drainage plans for the site have been finalised.
- R2** As water voles have been recorded on site in the past and may colonise the site in future, if feasible, consideration should be given to the potential for positive enhancement measures for water voles within any waterbodies created within the development area.
- R3** If development works have not commenced within 24 months, this survey should be updated as water vole usage of the ponds within the site may change.

7. DRAWINGS

Drawing C119852-03-01 Rev A Water Vole Survey



Legend

- Waterbody surveyed for water vole: no evidence found
- Waterbody unsuitable for water vole: waterbody dry
- Waterbody unsuitable for water vole: duck pond
- 500 m radius from site boundary
- Application boundary
- Study area

Project
Land South of High Street, Great Waking

Drawing
Water Vole Survey

Client
Taylor Wimpey

Drawing Number C119852-03-01-RevA	Revision Rev A
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Scale @ A4 1:10,000	Date June 2016
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Approved By HT	Drawn By RP
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8. PHOTOGRAPHS



Plate 1: Pond P1



Plate 2: Pond P2



Plate 3: Pond P3



Plate 4: Pond P4

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APPENDIX 1

Legislation

Water voles receive protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:

- Intentionally kill, injure or take (capture) a water vole;
- Possess or control live or dead water voles or any derivatives;
- Intentionally or recklessly* damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection;
- Intentionally or recklessly* disturb water voles whilst occupying a structure or place used for that purpose; or
- Sell, offer for sale or advertise for live or dead water voles.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

Water voles are listed as Species of Principal Importance on the UK Post-2010 Biodiversity Framework (2012), and as such are capable of becoming material considerations in the planning process. Water vole are listed on the Essex Biodiversity Action Plan.

The reader should refer to the original legislation for the definitive interpretation.

Ecology

Water vole are closely associated with fresh water habitats, generally slow-flowing, less than 3 m wide and approximately 1 m deep, including rivers, ditches, lakes and canals. They favour well vegetated steep banks, which need to be suitable for burrowing. Their diet is almost exclusively vegetarian, including grasses, reeds and other herbaceous vegetation. Strachan *et al.* (2011) states that depending on the overall population density, season and habitat quality the length of territory can vary from 30 m to 150 m for females and 60 m to 300 m for males, with larger territories in areas with low population density and poor habitat.