



**Persimmon Homes**

**North Littlehampton**

**Water Vole Presence/Likely Absence Survey**

**October 2014**

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## Executive Summary

| Contents                        | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site location</b>            | The site is located at the North Littlehampton Nursery complex, Littlehampton, West Sussex, centred on Ordnance Survey grid reference TQ035039. The majority of the site comprises a nursery complex which is dominated by greenhouses and associated buildings, interspersed with amenity grassland, mature trees, scrub, semi-improved grassland and areas of ornamental planting. An area of floodplain, dominated by unimproved grassland, is present within the northern part of the site.                                                                                                  |
| <b>Previous reports/surveys</b> | The initial extended Phase 1 habitat survey North Littlehampton was completed by WYG in 2006. An update Phase 1 survey was completed in 2008 with a further follow up Phase 1 habitat survey completed in 2014. These surveys indicated the need for water vole surveys to be completed of suitable habitat within the site. A previous water vole survey was undertaken by WYG in 2008, with confirmed water vole presence in the Black Ditch, along the northern boundary of the site.                                                                                                         |
| <b>Results</b>                  | <p>During the 2014 water vole survey, signs of water vole activity were recorded along the extent of the Black Ditch, located along the northern boundary of the site in the form of feeding stations, latrines, runs and burrows.</p> <p>The associated transverse drainage ditches to the south of the Black Ditch supported few signs of water voles; in only one additional ditch (Ditch 5) of the nineteen surveyed were water vole signs found to be present. Many of the transverse ditches were dry or drying, therefore, having negligible to low potential to support water voles.</p> |
| <b>Recommendations</b>          | <p>The development does not directly impact upon the Black Ditch or Ditch 5.</p> <p>The development offers the opportunity to enhance the existing dry ditches to create suitable water vole habitat in conjunction with any drainage plans associated with the development.</p>                                                                                                                                                                                                                                                                                                                 |



## 1.0 Introduction

### 1.1 Background

WYG was commissioned by Persimmon Homes to undertake a water vole (*Arvicola amphibious*) survey at the North Littlehampton development site (hereafter referred to as 'the site'), in order to identify potential ecological constraints to the development that may be imposed by the presence of water voles.

### 1.2 Site Description

The site is located at the North Littlehampton Nursery complex, Littlehampton, West Sussex, centred on Ordnance Survey grid reference TQ035039. The majority of the site comprises a nursery complex which is dominated by greenhouses and associated buildings, interspersed with amenity grassland, mature trees, scrub, semi-improved grassland and areas of ornamental planting. An area of floodplain, dominated by unimproved grassland, is present within the northern part of the site, with the Black Ditch forming the northern boundary of the site, see Appendix B figure 1. Throughout the floodplain are numerous ditches that discharge in to the Black Ditch. The area of unimproved grassland, forming the floodplain and grazing marshland in the north of the site, is considered the most important habitat in terms of conservation importance. This is due to this habitat type being a UK Biodiversity Action Plan priority habitat (WYG 2014).

### 1.3 Proposed Work

The proposed masterplan CB\_60\_012\_PS00 includes:

- » A total of 1,260 dwellings;
- » A local centre which will provide local convenience shopping together with other retail and food and drink uses plus a health club;
- » Commercial uses comprising 10,000 sq m of employment floor space (including an Enterprise Centre) and a hotel;
- » Community facilities including a primary school, a community centre, a youth facility with associated all-weather multi-use games area, sports pitches, a fitness trail, allotments and land for an extension to the household waste recycling centre;



The water vole receives full protection through its inclusion on Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended) Section 9. Legal protection makes it an offence to:

- In addition, the water vole is one of twelve Priority Species of British terrestrial mammals identified by the UK Biodiversity Steering Group (1995) as needing conservation action and, consequently, was covered by the UK Water Vole Species Action Plan in 1997.



## 2.0 Water vole ecology

The water vole is the largest British vole weighing between 200 – 350 grams. It is characterised by a rounded body, blunt muzzle and short ears almost entirely hidden amongst its thick fur.

Water voles, which are active day and night, live in the banks of slow flowing rivers or streams that have steep natural sides and tall, luxuriant bank side vegetation. Vegetation is an important habitat component, as the water vole is herbivorous, mainly feeding on the aerial stems of waterside plants, while they use the sides of the bank to burrow and make nests, which they fill with grass and other waterside vegetation.

Water voles produce up to five litters from April to September with females giving birth to an average of six young after a gestation period of 20-23 days. The young leave their mother after about 22 days, when she has her next litter.



### 3.0 Methods

#### 3.1 Desk Based Study

Site and species specific data has been sourced through direct consultation with the Sussex Biodiversity Information Centre (SxBRC). SxBRC provided information in relation to the presence of water voles recorded as individual records e.g. sightings and evidence as well as records included in descriptions of designated sites and areas of particular regional, national or international importance.

#### 3.2 Field Survey

Water vole surveys were carried out in accordance with the standard guidance described in The Water Vole Conservation Handbook (Strachan, 2006). The guidelines recommend that ditches should be split into 50-100m sections; however, for the purpose of this survey the entire length of the Black Ditch within the red line boundary was surveyed for water vole signs where access was possible. Any waterbodies and any ditch within the site boundary where access allowed were also surveyed for water vole. Table 1 details the date and weather conditions during the survey which are in accordance with survey guidelines.

| Date     | Temperature (°C) | Wind (Beaufort) | Cloud cover (%) | Precipitation |
|----------|------------------|-----------------|-----------------|---------------|
| 23/09/14 | 14               | 1               | 100             | -             |
| 24/09/14 | 18               | 1-2             | 25              | -             |

The breeding season for water voles is between April and September which is when these species are most active. The survey was undertaken during this optimal period.

The survey area was checked for:

- ✧ Evidence of feeding – vegetation cropped low with a 45° stem cut, food piles, feeding platforms, cut tubers and roots of emergent plants with teeth marks. (Note field voles also leave a 45° cut when feeding, so multiple field signs were sought to confirm presence).
- ✧ Burrows – Water vole burrows' entrances are typically wider than high with a diameter of between 4 and 8cm. Burrows may be just above the water level or some may open below the water level. Water vole burrows are characterised by the absence of an earthen spoil heap (such heaps are characteristic of brown rat).

- ### 3.3 Limitations

Access was not possible to Sections Q, R and S of the Black Ditch bank as well as Ditches 20, 21 and 22 as shown in Appendix B figure 1 due to the density of the vegetation and health and safety reasons; however, observations were made along the majority of the length of the Black Ditch so this is not thought to be a limitation.



## 4.0 Survey Results

### 4.1 Desktop Review

SxBRC did not return any records of water vole within 2km of this site.

### 4.2 Field survey

Appendix B Figure 1 shows the plan of the Black Ditch, associated drainage channels and reservoir; this plan also details the breakdown of the Black Ditch in to its smaller sections.

#### 4.2.1 The Black Ditch

The entire stretch of the Black Ditch surveyed is considered to be of suitable habitat for water voles. The wide swathes of riparian vegetation, predominantly reed sweet-grass (*Glyceria maxima*), greater pond sedge (*Carex riparia*), lesser pond sedge (*Carex acutiformis*), hairy sedge (*Carex hirtifolia*), common couch (*Elytrigia repens*), Yorkshire fog (*Holcus lanatus*), annual meadow grass (*Poa annua*) and meadow foxtail (*Alopecurus pratensis*), serve for both their food and cover. The Black Ditch is slow flowing with deep water, another favourable habitat preference for water voles.

Evidence of water vole activity was present along the extent of the Black Ditch in the form of feeding stations, latrines, runs and burrows. However, there were some sections of the ditch where no signs of water voles were observed (Sections Q, R and S). These sections of the ditch are not considered to be unsuitable for water voles, rather that the ditches are heavily overgrown with unstructured banks preventing thorough inspection.

Both fresh and old latrines and feeding stations are present along the Black Ditch. Latrines were recorded at all sixteen sections surveyed and feeding stations were recorded on three sections (J, M and O). Burrows were recorded at four sections (L, N, O and P) and runs recorded at two sections (K and L), suggesting high water vole activity within the Black Ditch. There were no sightings of water voles.

#### 4.2.2 Drainage Channels

Of the nineteen transverse drainage ditches surveyed, water vole signs were found at only one of the ditches (Ditch 5) in the form of feeding stations and latrines.



All but Ditches 5 and 9 were dry at the time of survey thus providing unsuitable conditions for water voles. Ditch 9, however, was deemed unsuitable for water vole use as the banks consisted of a shallow gradient with very little vegetation occurring on the bank side.

The surrounding habitat is grazing marsh and as a result the site floods seasonally. Therefore, these currently dry ditches may be seasonally wet. If this is the case, water voles may migrate to these ditches to forage during wet seasons. However, it should be noted that a number of these dry ditches are now overgrown with trees forming hedgerows dominated by blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and bramble (*Rubus fruticosus agg.*) with no riparian vegetation on which water voles may forage.

#### **4.2.3 Waterbodies 1, 2 and 3**

The waterbodies provide limited foraging potential for water voles as the banks are poorly structured and of an artificial form – lined with plastic sheeting. The vegetation suitable for water voles is patchy around Waterbodies 1 and 2, as large areas are dominated by tree species; therefore there is not a continuous corridor of suitable vegetation in which water voles may forage.

The Waterbodies 1 and 3 could not be inspected closely as the banks are heavily overgrown by reed-sweet grass and common reed, with occasional common reedmace (*Typha latifolia*) and soft rush (*Juncus effusus*), and dominated by tree species in areas including elder, crack willow (*Salix fragilis*), hawthorn, silver birch (*Betula pendula*), rarely alder (*Alnus glutinosa*), dogwood (*Cornus sanguinea*) and ash (*Fraxinus excelsior*). Waterbody 2 is lined and, as such, there is no bank side vegetation. No signs of water voles were noted within waterbodies 1, 2 or 3.



## **5.0 Ecological Constraints, Impacts and Recommendations**

The water vole receives full protection through its inclusion on Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended) Section 9.

The proposed development does not impact the Black Ditch or any of the ditches either dry or wet directly; however the masterplan shows that a path will run approximately 5m to the south of each ditch. Waterbodies 1 and 2 will be removed, however neither waterbody is deemed to offer suitable water vole habitat nor are they directly connected to the Black Ditch or Ditch 5. In addition, no evidence of water vole activity was found in either of these waterbodies. It is therefore predicted that this development will not present any adverse impacts to this species.

### **5.1 Maintain current status of the Black Ditch and ditch 5**

Land south of the Black Ditch falls within a floodplain and it will be expected that the site meets flood defence standards. Through each phase of the development consultation should be undertaken with drainage engineers to ensure that the water levels, water quality and flow in the Black Ditch and any associated ditches is not adversely impacted.

Masterplan CB\_60\_012\_PS00 details the nearest part of the development occurring c.40m from ditch 5, this provides a suitable buffer between the development and current confirmed water vole habitat.

With regards to watercourses, standard good environmental practice in accordance with the Environment Agency's Pollution Prevention Guidelines (including PPG1 General guide to the prevention of pollution, PPG5 Works and maintenance in or near water, and PPG 6 Working at construction and demolition sites: preventing pollution guidance) should be implemented to ensure no significant direct or indirect impacts on water quality during either the construction or operational phases of the proposed development.

### **5.2 Re-create and restore dry drainage ditches**

Many of the transverse drainage ditches were dry or becoming dry at the time of the survey. Restoration would improve the habitat for water voles, and provide additional / alternative habitat for water voles and

many other riparian species, including invertebrates (dragon and damselflies etc). The key requirements for water vole banks include:

- ✧ The watercourse containing water all year round;
- ✧ The bank face being stable and vegetated with tall grasses and herbs;
- ✧ The bank face being stepped to provide refuge when the water level is high;
- ✧ There is some depth of water immediately in front of the burrow to allow any water voles to escape quickly.

The following figures detail best practice for habitat creation:

**Figure 1: ideal water vole ditch.**

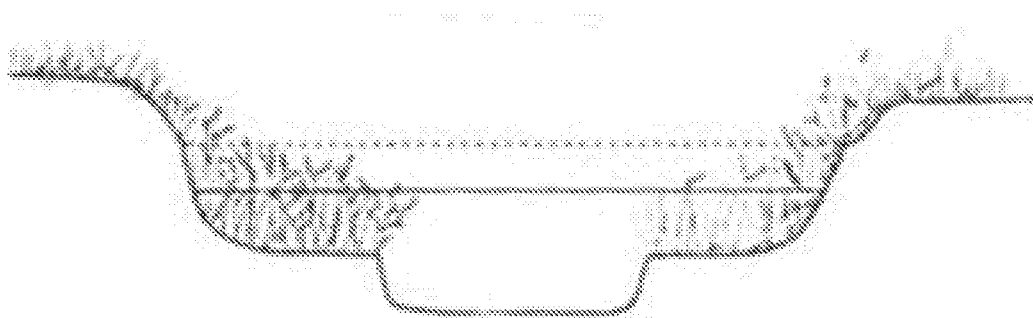
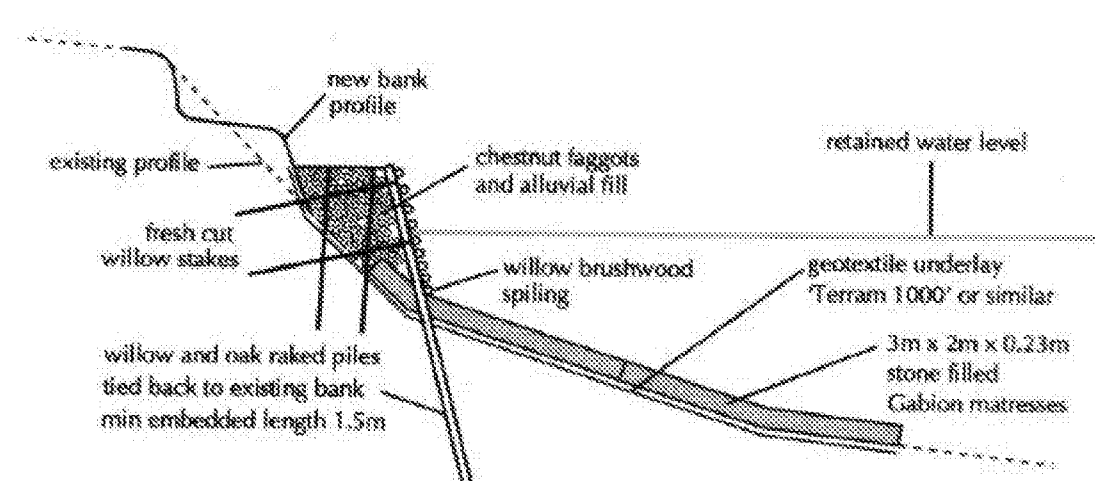


**Figure 2: example of bank creation.**





Ditches 15, 16, 17, 18 and 19, although dry at the time of survey may offer suitable habitat for water voles at times of high water levels. It is therefore recommended that, should the restoration of these ditches be undertaken in periods of wet weather an Ecological Clerk of Works be employed to ensure that no harm comes to any water voles should they utilise these ditches.

## 6.0 Summary

Evidence of water vole activity exists along the entire length of the Black Ditch (where it was accessible), with evidence of activity also recorded in Ditch 5. The remaining accessible ditches were dry at the time of survey apart from Ditch 9 which held no signs of water vole activity. The current masterplan indicates that none of these ditches will be directly impacted upon by this development. There are three waterbodies within the site boundary, two of which will be removed as part of the development, with one being retained. However, no evidence of water vole activity was found within any of the waterbodies during the survey.

The development does not directly impact upon the Black Ditch or Ditch 5; however, there is the potential for the development to alter the water levels of these ditches and so care should be taken when considering the flood management/drainage strategies of this project. A buffer of c.40m exists within the masterplan between the closest confirmed water vole activity and the development. This is considered sufficient to mitigate any recreational pressure upon current water vole populations within the development site.

The development offers the opportunity to enhance the existing dry ditches to create suitable water vole habitat in conjunction with any drainage plans associated with the development.



## 7.0 References

- ♦ Strachan & Moorhouse. (2006) Water Vole Conservation Handbook Second Edition. Wildlife Conservation Research Unit, Oxford
- ♦ WYG (2014) North Littlehampton: Extended Phase 1 Habitat Survey



## APPENDICES



## Appendix A – Report Conditions



**Report Conditions**  
**North Littlehampton – Water Vole Presence/Likely Absence Survey**

This report is produced solely for the benefit Persimmon Homes, and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG Environment. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG Environment by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties. The performance of environmental protection measures, e.g. of buildings and other structures in relation to acoustics, vibration, noise mitigation, and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors



## Appendix B – Plans



**Legend**

-  Confirmed water vole presence
-  Dry ditch
-  Water body with no signs
-  Wet ditch but no signs
-  Inaccessible



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**WYG Planning & Environment**

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**North Littlehampton**

**Figure 1 Water vole survey plan**

|             |                 |      |                   |    |                    |  |
|-------------|-----------------|------|-------------------|----|--------------------|--|
| Project No: | Drawn by: Date: |      | Checked By: Date: |    | Approved By: Date: |  |
|             | Office          | Type | EH                | CM |                    |  |
|             | 45              | 94   | Drawing No.       |    | Revision           |  |