Wombwell Wetlands and Doveside Water Vole Surveys

Final Report

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Revision History

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Contract

This report describes work commissioned by Jeff Lunn, on behalf of The Garganey Trust. Catherine Porter, Catherine Jones, Kimberley Jennings and Jennifer Pullen of JBA Consulting carried out this work.

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Purpose

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Executive Summary

JBA Consulting has been commissioned by The Garganey Trust to undertake a Water Vole Survey prior to implementation of the Wombwell Wetlands Project, located at two sites in South Yorkshire (Doveside and Wombwell).

Water Vole surveys were carried out on three dates over the 2017 survey season to identify whether Water Vole are present within the watercourses in and around the two sites.

The survey identified potential burrows along the surveyed reach but other, more definitive field signs such as latrines, feeding remains or footprints were absent.

The invasive non-native plants Himalayan Balsam, Japanese Knotweed and New Zealand Pigmyweed were identified across the sites and appropriate mitigation and biosecurity measures will likely need to be implemented to prevent the spread of these species during any works implemented.

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Abbreviations

CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
MAGIC	Multi-Agency Geographic Information for the Countryside
NGR	National Grid Reference
PEA	Preliminary Ecological Appraisal
RSPB	The Royal Society for the Protection of Birds

1 Introduction

1.1 Brief and Scope

JBA Consulting has been commissioned by The Garganey Trust to undertake a Water Vole *Arvicola amphibius* survey at Doveside and Wombwell prior to implementation of the 'Wings Across the Ings' Project, which involves habitat creation/enhancement.

Doveside is located south of Darfield, South Yorkshire and is centred on National Grid Reference (NGR) SE 41215 03901 as shown in Figure 1-1. The Wombwell wetlands site is located immediately south of Doveside, centred on NGR SE 41594 03457 as shown in Figure 1-1, and Bulling Dike flows along the north and north-easterly site margins.

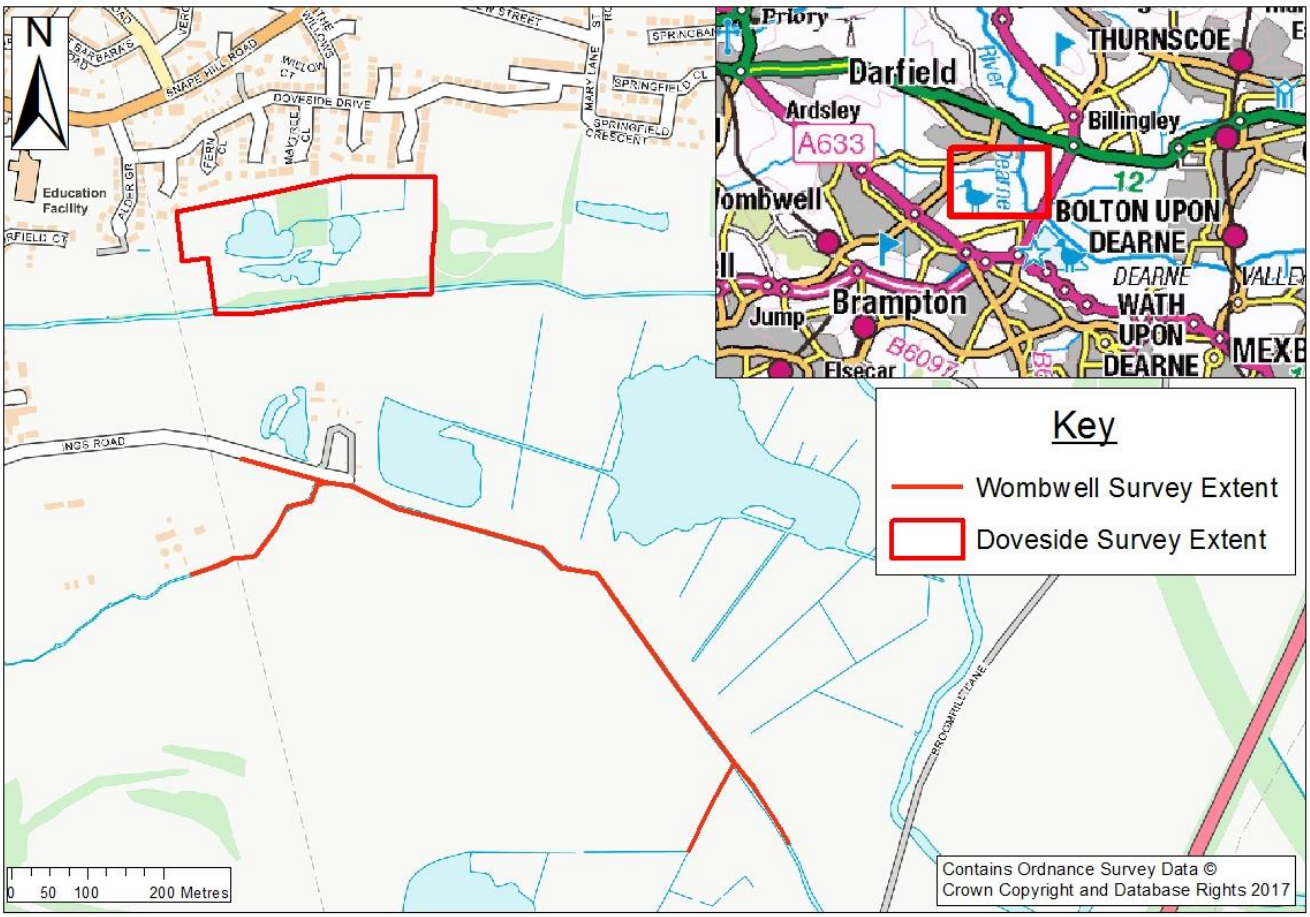


Figure 1-1: Location Map

1.2 Legislation

Water Vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- Intentionally kill, injure or capture a Water Vole.
- Possess or control a Water Vole, living or dead, or any part of a Water Vole.
- Intentionally or recklessly damage, destroy or obstruct access to any place of shelter, or disturb a Water Vole within such a place.
- Sell or offer for sale a Water Vole living or dead, or part of a Water Vole.

1.3 Methodology

1.3.1 Desk-based Assessment

Prior to undertaking the survey, searches of databases containing readily available information on important sites for nature conservation were made. This included:

- MAGIC mapping service (www.magic.gov.uk).

Previous survey data, collected as part of a Preliminary Ecological Assessment (PEA) conducted in November 2016 in relation to the Wombwell site was also reviewed (Hazelwood Conservation, 2016).

1.3.2 Water Vole Survey

The standard Environmental Assessment field survey method outlined in Dean *et al.* (2016) was used. Field signs were searched for along the banks and an assessment made of the suitability of the habitat for Water Vole. The most important diagnostic field signs for Water Voles is the presence of latrine sites. These are locations repeatedly used by Water Vole to deposit their droppings, often in prominent locations along the bank.

Other important field signs include the presence of burrows, feeding sites and footprints. Although these other signs provide indications of presence and are useful supporting evidence to latrines, they are of limited value on their own.

New guidance recently produced by Dean *et al*., (2016) recommends that two Water Vole surveys are now undertaken; one between the period of mid-April – June, and one between July – September (inclusive). It is recommended that a period of two months is left between the two surveys.

1.3.3 Site Survey

Two Water Vole surveys were undertaken at Doveside on the 20th June and 22nd August 2017, and at Wombwell on 4th May and 22nd August by JBA Ecologists (Catherine Porter, Catherine Jones, Kimberley Jennings and Jennifer Pullen) to determine the presence/absence of Water Voles along the length of banks to impacted by the proposed works. Sections of watercourse up and downstream of the areas likely to be affected were also surveyed, where access was possible.

During the walkover survey, any signs or sightings of other notable species were also recorded. In addition, any environmental features that might constrain the works were recorded (e.g. access restrictions).

1.4 Limitations

At Doveside, the first survey was undertaken from within the channel (River Dove), continually examining the toes of both banks for field signs. An in-channel inspection was not possible during the second survey at Doveside, or Wombwell, due water depth, silty substrate conditions and dense vegetation which made access unsafe. Likewise, the southern branches of Bulling Dike (at Wombwell) could not be surveyed due to access restrictions, and dense bankside vegetation may have obscured some signs along the main channel at the time of the second survey. In all other respects, the conditions were optimal for finding field signs of Water Voles.

2 Results

2.1 Desk Based Assessment Results

2.1.1 Statutory Designated Sites

There are no statutory designated sites within 2 km of the two sites.

The previous PEA conducted for the site by Hazelwood Conservation (2016) included a desk study which returned 157 records of Water Vole from within 2.5km of the site, dating from 1976 to 2013. These were mostly of field signs, with occasional sightings. The closest records to the site were on Bulling Dike from 2013. However, the Extended Phase 1 Habitat survey conducted as part of this PEA found no definitive signs of Water Vole presence. Burrows, appearing typical of Water Vole, were observed on Bulling Dike and feeding remains comprising emergent and marginal vegetation were also found, along with runs through bankside vegetation, however, no latrines were found to confirm presence (Hazelwood Conservation, 2016).

Four records on American Mink *Neovison vison* were also returned by the desk study, the closest records being 225m from the Wombwell site (Hazelwood Conservation, 2016).

2.2 Site Survey Results

2.2.1 Habitat

Doveside

The habitat at Doveside comprises several small ponds fringed by reeds and intersected by woodland and scrub. The site is flanked by suburban development to the north and agricultural fields to the south. The wetland is criss-crossed by a number of drains running between and out from the ponds. The majority of these drains were completely dry and densely vegetated. Vegetation within the wetland habitat included Reedmace *Typha latifolia*, Water Mint *Mentha aquatica*, Buttercup sp. *Ranunculus* sp., Rush spp. *Juncus* spp. and Bramble *Rubus fruticosus* agg.

To the south of the site, the River Dove runs parallel. The channel substrate largely comprised of gravel and was flanked by steep sided banks which were densely vegetated with ruderal vegetation typical of riparian zones. Species recorded along the banks included Common Nettle *Urtica dioica*, Himalayan Balsam *Impatiens glandulifera* and Japanese Knotweed *Fallopia japonica*. The channel was partially shaded by a treeline running along the northern bank. The banks were soft with intermittently exposed sediment. At the time of the surveys the water depth varied from 20 cm to ~100cm and was free flowing with several pools and riffles.

The River Dove contained habitat of optimal quality to support Water Vole on account of the suitable bank profile and good vegetation cover. The drains intersecting the wetland to the north were almost entirely unsuitable for Water Vole being largely dry with encroaching scrub and shallow banks (see Figure 3-4 and Figure 3-5).

Wombwell

The aquatic habitat at Wombwell comprises a shallow channel (Bulling Dike) which is flanked by arable farmland to the south and wetland to the north. The water depth was approximately 0.5m deep with a silt substrate and shallow, soft earth banks. The wetland area (Wombwell Ings) is managed by the RSPB, with hides running alongside Bulling Dike. Sections of the channel were choked with vegetation (predominantly Branched Bur-Reed *Sparganium erectum* - see Figure 3-9). The **n**orthern extent of the channel, adjacent to the caravan site was shaded by a treeline. The southern branches of the channel had limited access**,** but from the point at which these short channels branched off, at least one (the southern branch) appeared relatively dry and vegetated. A Hawthorn *Crataegus monogyna* hedge ran along the dike to the south of the surveyed extent on the southern side of the channel. Marginal vegetation was dense and included Nettle *Urtica dioica*, Broad-leaved Dock *Rumex obtusifolius* and Great Willowherb *Epilobium hirsutum*.

Bulling Dike offers suitable habitat for Water Vole, being sheltered, largely free from shade and with a vegetated margin. Encroaching vegetation may lessen the appeal to Water Vole and hence the southern extent was considered more suitable for this species.

2.2.2 Water Vole

Doveside

No Water Vole latrines were recorded during either survey. However, other potential signs of Water Vole were recorded in the optimal habitat areas (the River Dove). Several potential burrows were found towards the east of the surveyed reach (see Figure 2-1 and Figure 3-1), however, no definitive evidence of Water Vole presence was found (i.e. latrines). Furthermore, no other potential signs of Water Vole, such as footprints, feeding remains or runs through vegetation, were found.

No signs of Water Vole were recorded along the drains intersecting the wetland site.

Wombwell

No signs of Water Vole were recorded along the surveyed extent during either survey, although it should be noted that the marginal vegetation restricted visibility of the banks in some places.

2.2.3 Invasive Non-Native Species

Doveside

A number of invasive non-native species were recorded across the surveyed reach. Along the River Dove, both Himalayan Balsam *Impatiens glandulifera* and Japanese Knotweed *Fallopia japonica* were identified. Himalayan Balsam was relatively widespread on both banks of the River Dove (see Figure 3-2), but Japanese Knotweed was more localised in its distribution (see Figure 2-1 and Figure 3-3).

Within the wetland area, a dense blanket of New Zealand Pigmyweed *Crassula helmsii* surrounded the southernmost pond and the westernmost drain (see Figure 2-1, Figure 3-6 and Figure 3-7). Himalayan Balsam was also relatively widespread within the wetland area, particularly along the drains (see Figure 3-8).

Wombwell

Himalayan Balsam was present along Bulling Dike, predominantly concentrated towards the north, particularly under the treeline adjacent to the caravan site where it encroached on the channel (see Figure 2-2 and Figure 3-10).

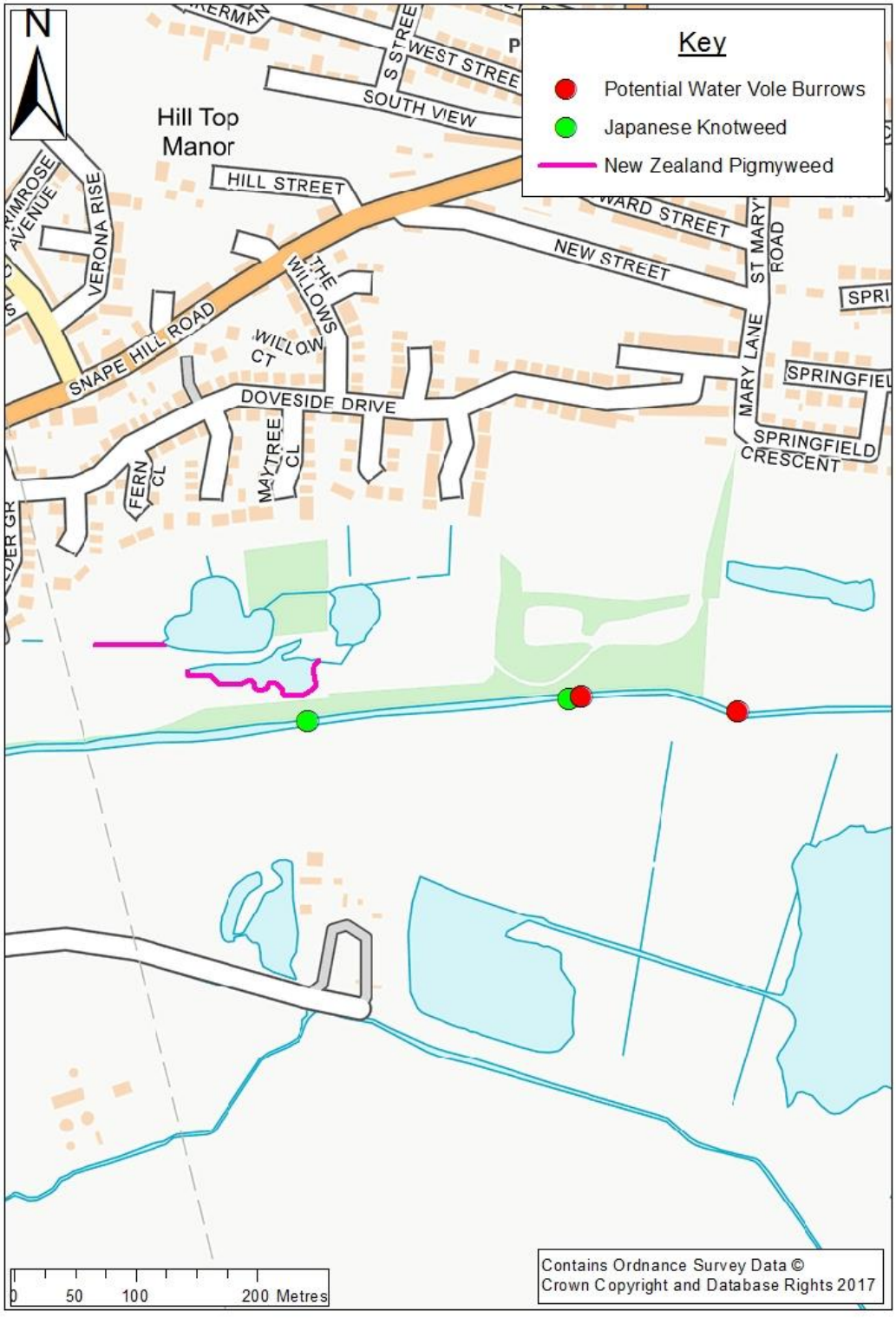


Figure 2-1: Field Signs (Doveside)

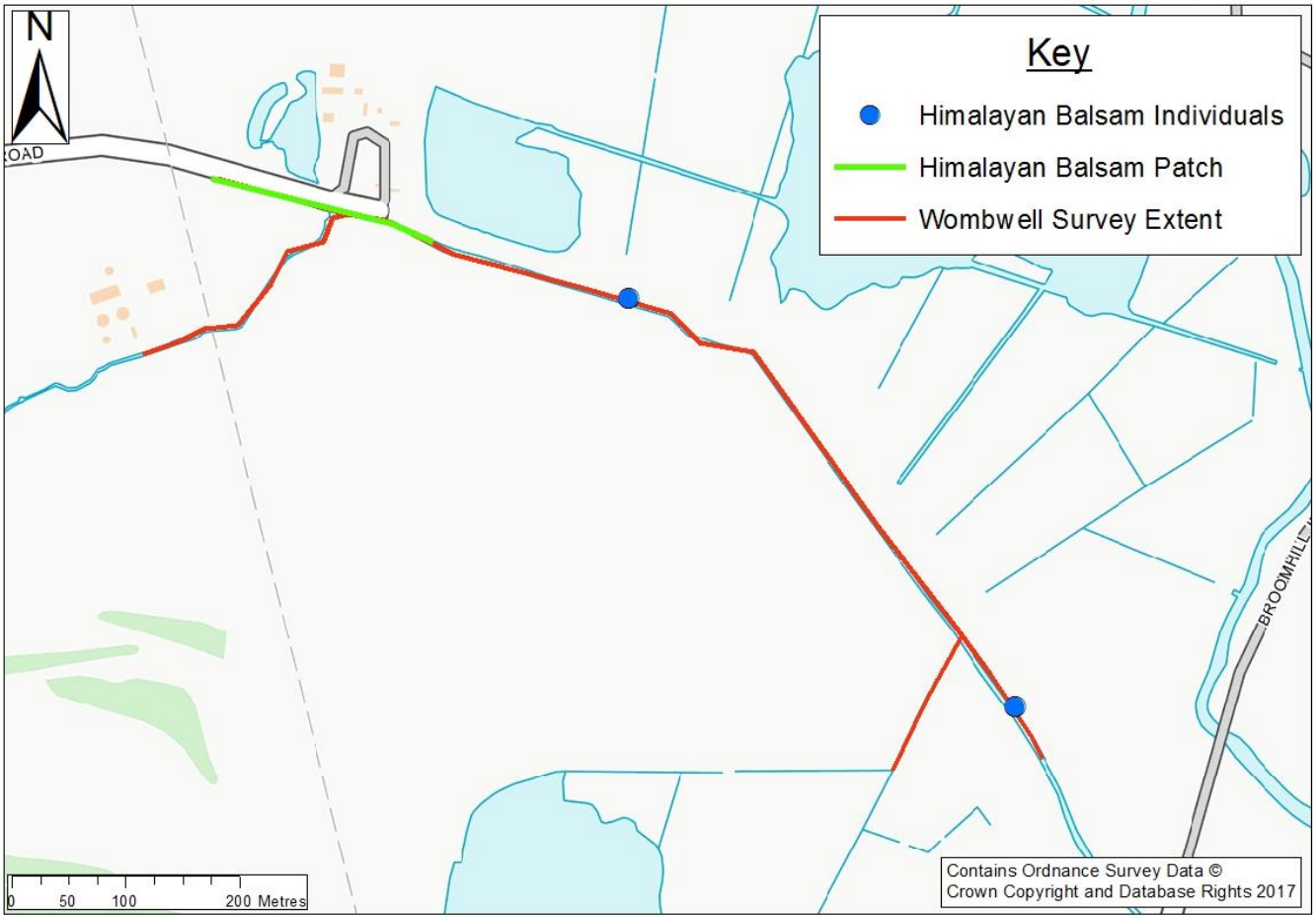


Figure 2-2: Field Signs (Wombwell)

3 Conclusions and Recommendations

3.1 Conclusions

Possible burrows were recorded at Doveside, however, there were no definitive signs of presence despite the suitability of this habitat for Water Vole. The second survey confirmed these initial findings and found no further evidence of current Water Vole activity.

Likewise, neither survey at Wombwell found any evidence to suggest Water Vole are present along Bulling Dike.

Invasive non-native species were recorded on both sites and hence appropriate biosecurity and mitigation measures will need to be included within any works on site to prevent spread of these species.

3.2 Recommendations

3.2.1 Further Survey

No further surveys are recommended at either Doveside or Wombwell. However, should a considerable period elapse between this survey and commencement of works (i.e. > 1 year), it is recommended that a further survey is conducted.

3.2.2 Water Vole Mitigation Measures

No definitive signs of Water Vole were seen at either site, however, on account of the suitability of the habitat, the limitations of the surveys and the potential burrows found at Doveside, the following precautionary measures are advised:

- A toolbox talk on Water Vole should be given to all site staff prior to the commencement of works to make them aware of how to identify this species and the steps to take in the unlikely event that Water Vole are discovered on site during any works.

3.2.3 Himalayan Balsam / Biosecurity

Himalayan Balsam is an invasive non-native plant that was introduced into Britain. It is listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and it is an offence to cause the spread of this species in the wild.

As Himalayan Balsam is present on the site, works should be avoided in infested areas when it is in seed (i.e. June - October) to avoid causing its spread. Alternatively, an appropriate mitigation strategy should be implemented.

Biosecurity measures should be adhered to throughout the course of works to ensure this, and other invasive non-native species, are not spread. Biosecurity measures should include the 'Check, Clean, Dry method'. For more information about this method the GB non-native species secretariat website should be consulted: http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=1810 [site accessed: 02/06/17].

3.2.4 Japanese Knotweed

Japanese Knotweed is an invasive non-native plant that was introduced into Britain. It is listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and it is an offence to cause the spread of this species in the wild.

Japanese Knotweed and soil containing Japanese Knotweed material is classified as controlled waste and would need to be treated and/or disposed of in a lawful manner. If possible, all works should avoid the stand of Japanese Knotweed, and no excavation should be undertaken within 7m of above-ground growth, with a suitable exclusion zone fenced-off. However, given that the proposed works will likely incorporate an area of the site known to contain Japanese Knotweed infestations, options for the disposal and treatment of this species on site should be explored. It is recommended that advice contained within the Environment Agency's publication the Knotweed Code of Practice (3rd Revision) (Environment Agency, 2013) is followed and that a management plan is produced to address eradication and control, including a site hygiene protocol.

3.2.5 New Zealand Pigmyweed

New Zealand Pigmyweed is an invasive non-native plant that was introduced into Britain. It is listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and it is an offence to cause the spread of this species in the wild.

New Zealand Pigmyweed is especially difficult to control and hence to avoid the spread of this species it is recommended that works avoid the areas in which it is present and adhere to strict biosecurity methods elsewhere. An invasive non-native species management plan should be prepared to prevent its spread on site.

3.2.6 Pollution Prevention

Appropriate mitigation measures should be implemented to ensure that aquatic habitats within proximity of the works are not degraded as a result of pollution events during the construction phase. A Pollution Prevention Strategy should be developed bespoke to the site and the activities taking place. For example:

- Abiding by relevant pollution prevention measures e.g. CIRIA Guidance: Control of water pollution from construction sites. Guidance for consultants and contractors (C532D) (Masters-Williams, 2001). Information useful for Toolbox Talks on working near water and pollution prevention can be found at: https://www.ciria.org/Resources/All_toolbox_talks/Env_toolbox_talks/Working_on_or_near_watercourses.aspx [site accessed: 4/1/17].
- Preventing accidental oil and fuel leaks can be achieved by the following actions:
    - Any chemical, fuel and oil stores should be located on impervious bases within a secured bund with a storage capacity 110% of the stored volume.
    - Biodegradable oils and fuels should be used where possible.
    - Drip trays should be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Where practicable, refuelling of vehicles and machinery should be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 10m).
    - Emergency spill kits should be available on site and staff trained in their use.
    - Operators should check their vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately.
    - Daily checks should be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective should be removed from site immediately or positioned in a place of safety until such time that it can be removed.
- Silt run off should be prevented by incorporating the following actions:
    - Silt curtains should be used where appropriate to prevent silt from the construction works entering the watercourse.
    - Exposed bare earth should be covered as soon as possible to prevent soil erosion and silt run-off. This can be achieved by selecting a fast growing and soil binding seed mix such as Boston Seed's EA Special Mixture No.10 for river bank reinstatement: http://www.bostonseeds.com/advice/1/Grass-Seed/96/River-Bank-Reinstatement/ [site accessed 4/1/17]. Alternatively, geotextile coverings can be used to cover any exposed earth and prevent soil erosion.
- Water quality downstream of the works should be monitored regularly to detect any changes in water quality that could indicate a pollution incident. Should monitoring indicate potential pollution from the construction activities, works should be stopped and a solution found to prevent the pollution source entering the watercourse. Monitoring could include:
    - Visual monitoring to see if water colour has changed or if a plume is visible indicating sediment input.
    - Water quality meter measurements for Dissolved Oxygen and pH.
- Environmentally sensitive products should be used where possible. For example, this could include the use of less harmful innovative products such as Cemfree™ http://www.cemfree.co.uk/cemfree-product-information [site accessed 4/1/17] in place of concrete.

Appendices

A Photographs

Table 3-1: Photographic Plates Doveside

Photograph	Caption
	Figure 3-1: Potential Water Vole burrow along the River Dove. Photograph location: 53.529453, -1.374243
	Figure 3-2: River Dove corridor showing Himalayan Balsam on both banks. Photograph location: 53.529491, -1.374463

Photograph	Caption
	Figure 3-3: Japanese Knotweed along the River Dove. Photograph location: 53.529415, -1.379597.
	Figure 3-4: Drain running north of wetland area; dry with encroaching vegetation. Photograph location: 53.530491, -1.379065
	Figure 3-5: Drain running between ponds in wetland area with dry, bare earth/leaf litter substrate. Photograph location: 53.530319, -1.380193.

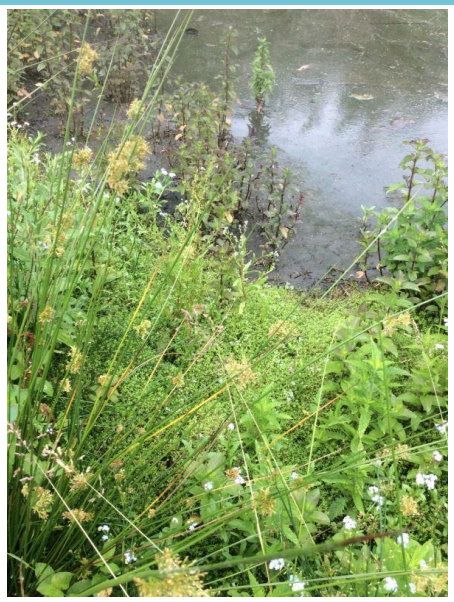
Photograph	Caption
	Figure 3-6: New Zealand Pigmyweed growing by edge of southernmost pond. Photograph location: 53.530025, -1.37908.
	Figure 3-7: New Zealand Pigmyweed growing by edge of southernmost pond. Photograph location: 53.529774, -1.38043.
	Figure 3-8: Extensive Himalayan Balsam along drains. Photograph location: 53.529701, -1.379333

Table 3-2: Photographic Plates Wombwell

Photograph	Caption
	Figure 3-9:Encroaching channel vegetation. Photograph location: 53.524822, -1.372418
	Figure 3-10: Himalayan Balsam encroaching on channel to the north of Bulling Dike. Photograph location: 53.527351, -1.379795

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