



ECOLOGICAL APPRAISAL AND MANAGEMENT PLAN

SELLY OAK PARK BIRMINGHAM

Version	Prepared by	Date	Checked by	Date	Approved by	Date
R1	Dan Wales	02/07/2015	Sarah Emerson	03/07/2015	Graeme Skinner	03/07/2015
R2	Dan Wales		03/07/2015		Graeme Skinner	03/07/2015
R3	Dan Wales		13/07/2015		Graeme Skinner	13/07/2015
R4	Dan Wales					21/08/2015

ECOLOGICAL APPRAISAL AND MANAGEMENT PLAN

**SELLY OAK PARK
GIBBINS ROAD
BIRMINGHAM
WEST MIDLANDS
B29 6PQ**

**GRID REFERENCE:
SP 037 829**

**FOR
LAPAL CANAL TRUST**



Naturally Wild Consultants Limited
Unit 1 Stephenson Court
Skippers Lane Ind. Est.
Middlesbrough
TS6 6UT

Email: ecology@naturallywild.co.uk

Contents

Page

1	INTRODUCTION	4
2	RELEVANT LEGISLATION	5
3	ECOLOGICAL SURVEY	5
3.1	Objective of Survey	5
3.2	Survey Area	6
3.3	Survey Constraints	6
4	METHODOLOGY	7
4.1	Ecological Appraisal Survey	7
4.2	Protected Species Risk Assessment	7
5	RESULTS	8
5.1	Desktop Study	8
5.1.1	NBN Search	8
5.1.2	Statutory Protected Sites	8
5.2	Site Assessment	9
5.2.1	On Site Ecological Features	9
5.2.2	Off Site Ecological Features	12
5.3	Protected Species	12
6	RECOMMENDATIONS	14
7	CONSTRUCTION ECOLOGICAL MANAGEMENT PLAN	17
8	SITE IMAGES & FIGURES	26
9	APPENDIX	30
9.1	Additional Information for the Legislation of Other Protected Species	30

ECOLOGICAL APPRAISAL AND MANAGEMENT PLAN, SELLY OAK PARK, BIRMINGHAM

1 INTRODUCTION

Naturally Wild were instructed to undertake an ecological assessment, including a protected species risk assessment, on an area of Selly Oak Park in Birmingham. The focal objective of the survey is to determine the value of the surveyed site for protected species and to determine the potential risks as a result of the proposed developments. The stretch of linear area which was surveyed is approximately 500 m long; the proposed development will result in a canal being constructed along the banks of the defunct ditch which currently occupies the land.

The site is located along the northern extent of Selly Oak Park, Birmingham, accessed from Gibbins Road. The surveyed area is located at National Grid Reference Point SP 037 829, with the site boundaries shown in Figure 1.

An ecological survey was conducted to determine if any European, BAP or important Protected Species and Habitats are likely to be affected by the proposed works, and to show how any negative ecological impacts would be mitigated and compensated. In addition, a management plan for the site has been created to avoid long-term disruption to such species, and to provide information on preventing the spread of invasive species which were recorded on site.



Figure 1. Surveyed site shown by the red line.

(© Crown Copyright and MAGIC database rights 2015. Ordnance Survey 100022861).

2 RELEVANT LEGISLATION

British wildlife is protected by a range of legislation, the most important being the Wildlife and Countryside Act 1981, the Conservation (Natural Habitats &c) Regulations 1994 and the Countryside Rights of Way Act 2000. The Wildlife and Countryside Act as amended mainly by the Countryside Rights of Way Act protects species listed in Schedules 5 and 8 of the Act (animals and plants respectively) from being killed, injured, and used for trade. For some species, such as Great Crested Newts and all bat species, the provisions of this act go further to protect animals from being disturbed or taken from the wild and protects aspects of their habitats. The act also stipulates that offences occur regardless of whether they were committed intentionally or recklessly. The parts of this legislation that apply to most reptile species are in regard to killing, injury and trade only and do not protect their habitat, nor are they protected from disturbance or from being taken from their habitat.

The Conservation (Natural Habitats &c) Regulations is the English enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. A recent change in this legislation means that the provisions of this act now complement those of the Wildlife and Countryside Act more. Species to which these provisions apply are the European Protected Species. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

Birds receive protection under the Wildlife and Countryside Act also. It is an offence to intentionally or recklessly kill, injure or take any wild bird; take, damage or destroy a nest of a wild bird whilst it is in use or being built; or to take, damage or destroy an egg of a wild bird. The bird-nesting season is defined as being from 1st March until 31st August with exceptions and alterations for some species.

3 ECOLOGICAL SURVEY

3.1 Objective of Survey

The objective of the survey was to ascertain if any protected species may be using the site, document the habitats present and determine any potential ecological risks posed by the development during and post construction. The survey would include a desktop assessment using a range of available resources. The site survey would be completed under suitable weather conditions and by an experienced ecologist. Further to this, the survey would assess the details of the survey findings and the ecological risks posed by the work, and how such impacts should be mitigated and compensated for.

Survey work has been conducted by senior ecologist Graeme Skinner, who is experienced in protected species survey work and risk assessments. This report has been prepared and authored by Dan Wales *BSc (Hons) MSc GradCIEEM*, who is also experienced in protected species survey work and risk assessments. The report will detail the results of the field and desk surveys and note the potential risk associated with the development. The requirement for further survey work will be detailed within the report, as will any recommendations for ecological mitigation and compensation input as part of the development.

3.2 Survey Area

The application site is located at Grid Reference SP 037 829. The application site can be accessed via a walk through Selly Oak Park, which in turn is accessed from the south by Gibbins Road. The assessment focused on the application site, including all habitats on site and in the immediate surrounding area. The full National Grid Reference Point for the centre of the site is 403742, 282940. The bordering habitats and surrounding area were also assessed during the site visit.



*Figure 2. Location of the surveyed site shown by red line (satellite image)
(Image taken from Google Earth Pro: ©2015 Getmapping plc).*

3.3 Survey Constraints

There were no constraints with regards to site access or completion of the survey objectives.

4 METHODOLOGY

4.1 Ecological appraisal

The ecological appraisal comprised two parts: a desktop study and a site visit. The desktop search collates all available public information regarding the biodiversity of the area, the habitat structure of the surrounding area and statutory designations. A records search would be completed for the presence of protected species in the area using desktop resources such as the National Biodiversity Network (NBN) Gateway¹ and the Multi-Agency Geographic Information for the Countryside (MAGIC)² resource.

The field survey consisted initially of an assessment of the habitats on site in June 2015. The dominant vegetation structure was identified, allowing the habitats on site to be classified. Following this, the site was searched using visual encounter survey techniques; checking under any refugia present for sheltering animals. Any thick vegetation bordering the site was assessed in detail for commuting tracks used by species such as badger and fox. All bird species of interest were recorded. A detailed examination was undertaken to ascertain if the field was suitable for ground nesting birds. The vegetation on site was assessed for presence of invasive species. Any trees of habitat importance would be noted. These activities were not limited solely to the site and the surrounding area was also investigated. Any wet soil would identify animal prints on site.

An initial assessment of any trees was completed. The assessment confirmed species, age, size, ecological importance and the requirement for any protection measures during the construction phase. An initial assessment for invasive plant species was also completed.

All survey and assessment work was completed in line with official assessment guidelines produced by Natural England and the Chartered Institute for Ecology and Environmental Management (CIEEM) and British Standard document BS 42020: 2013 '*Biodiversity – Code of practice for planning and development.*'

4.2 Protected Species Risk Assessment

The habitats on site were assessed for the following species:

- Great crested newts: Terrestrial and aquatic habitat assessment, on site and in surrounding area.
- Bats: identify potential roosting points, foraging habitat and commuting pathways.
- Badgers: identify any setts or evidence of foraging or presence on site or in the surrounding area.
- Reptiles: habitat assessment. Check potential refugia on site and in the surrounding area.
- Birds: evidence of roosting and nesting. Assessment of potential bird habitat on site.
- Other mammal species identified during the desktop assessment.

¹ <https://data.nbn.org.uk/>

² <http://magic.defra.gov.uk/>

5 RESULTS

5.1 Desktop Search

5.1.1 NBN Search

The desktop study looked at current publically available data relating to protected species within the area and to local knowledge from past surveys undertaken. Naturally Wild Consultants have completed an electronic desktop search using resources such as the NBN Gateway (Grid Square SP08) and other biological databases. Species that are relevant to this survey, are noted as UK BAP species, and have been previously recorded within the local area are listed below:

Amphibian Species

Common Toad	<i>Bufo bufo</i>
Great Crested Newt	<i>Triturus cristatus</i>

Bat Species

Brown Long-eared Bat	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Daubenton's Bat	<i>Myotis daubentonii</i>
Natterer's Bat	<i>Myotis nattereri</i>
Noctule Bat	<i>Nyctalus noctula</i>
Serotine	<i>Eptesicus serotinus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>

Reptile Species

Adder	<i>Vipera berus</i>
Common Lizard	<i>Zootoca vivipara</i>
Grass Snake	<i>Natrix natrix</i>
Slow-worm	<i>Anguis fragilis</i>

Terrestrial Mammal Species

Brown Hare	<i>Lepus europaeus</i>
European Otter	<i>Lutra lutra</i>
European Water Vole	<i>Arvicola amphibius</i>
Polecat	<i>Mustela putorius</i>
West European Hedgehog	<i>Erinaceus europaeus</i>

5.1.2 Statutory Protected Sites

The application site is not located on or adjacent to any known statutory protected site, with Edgbaston Pool Site of Special Scientific Interest (SSSI) as the closest statutory protected site, located 1.85 km to the northeast of the proposed development. No other SSSIs were located within 5 km of the site. Two further statutory protected sites can be found in Table 1, both of which were Local Nature Reserves (LNR).

Due to the distance of the application site to surrounding protected statutory sites, there is no direct impact envisaged and also due to this factor, disturbance impacts; for example noise, light and vibration; are not considered to be significant.

Table 1. Statutory protected sites within 5 km of the development site.

Designation	Reference	Name	Area (ha)	Distance
Site of Special Scientific Interest	1002153	Edgbaston Pool	15.92	1.85 km Northeast
Local Nature Reserve	1451142	King's Norton	18.70	3.60 km South
	1008809	Bromwich Wood	3.56	4.19 km Southwest



Figure 3. Location of the surveyed site shown in red, in relation to the wider area.

(Image taken from Google Earth Pro: ©2015 Getmapping plc).

5.2 Site Assessment

Naturally Wild staff whom have been fully trained in ecological surveying, assessment and mitigation techniques completed day-time site assessments in June 2015, following the desktop survey which used satellite images and data resources. The assessment determined the overall characteristics of the site and its potential value of all habitats for protected species.

5.2.1 On Site Ecological Features

The surveyed area has been split into three areas, as each area held relatively similar habitat throughout their respective sections. Each area was approximately one third of the total surveyed area. The areas have been named Areas A, B & C, as shown by Figure 4, below.

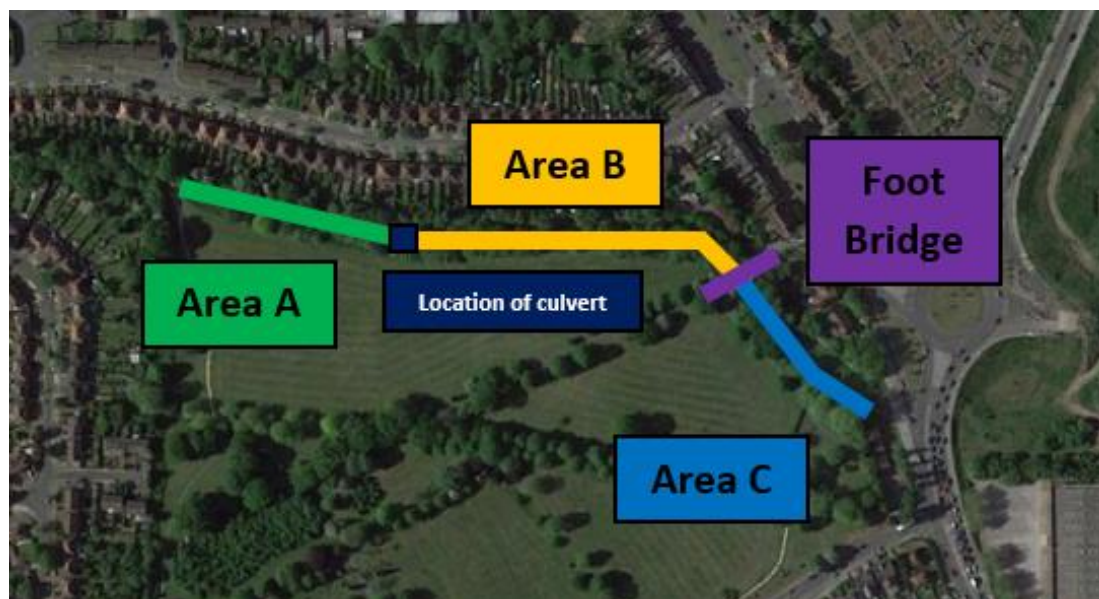


Figure 4. Location of Areas A, B & C with the location of the footbridge going over the development site.

Area A

This area runs from the western extent of the surveyed site to an existing culvert (the culvert was used as a reference point to separate this area from Area B for ease, and it was the point where the general habitat type is slightly different. This stretch of the surveyed site was very dry, with no visible standing or flowing water throughout the area at the time of survey. Semi-mature to mature self-seeded trees were located within the proposed canal route – species present were ash (*Fraxinus excelsior*), oak (*Quercus* sp.) and sycamore (*Acer pseudoplatanus*); these trees will be removed during the construction of the canal. Further mature trees of the same species were located on either side of the banks of the proposed route, with mature trees extending west of the survey site; it is unlikely that these trees will be removed during the construction phase of the proposed development, however they may be affected by removal of some root area if close enough to the development area. Several mature trees were identified to be of significant risk for bats due to the presence of features which would be suitable for roosting.

Giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (*Fallopia japonica*) were located within Area A in significant amounts. Giant hogweed was located close to the culvert which separates Areas A and B, with a highly significant and dense stand of Japanese knotweed located at the most western point of Area A. These two species are listed under Schedule 9 of the Wildlife and Countryside Act 1981; species listed under this Schedule are non-native to the British Isles, and are generally highly invasive – the term invasive refers to their ability to spread across habitats at a fast rate, potentially out-competing native plant species. *Although it is not an offence to have a Schedule 9 species growing on your land, it is a criminal offence to allow the spreading of, or the release of any Schedule 9 species outside of your land in England.* Strategies for tackling giant hogweed and Japanese knotweed are discussed within the management plan.

Area B

Area B occupies the middle third of the surveyed site, running from the existing culvert through to the footbridge which runs over the proposed development. A very thin, small channel was present within this section of the route which was completely dry at the time of survey. It is probable that this channel only contains water after significantly heavy rainfall. Damp/boggy patches were located sporadically through this section of the proposed canal route, with very shallow water; these areas of wetland were considered to be of negligible ecological value due to the poor water quality, which was generally oily and is therefore likely to have a low oxygen content.

Area B was relatively densely vegetated throughout (where the channel and damp patches were not present), with tall ruderal herbs such as common nettle (*Urtica dioica*), cow parsley (*Anthriscus sylvestris*) and hogweed (*Heracleum sphondylium*) dominant. Other species included bramble (*Rubus fruticosus*), creeping buttercup (*Ranunculus repens*), ivy (*Hedera helix*) and young, self-seeding hazel (*Corylus avellana*). Areas of the proposed canal route in Area B were considered to be of good potential for ground-nesting birds. Mature oak trees were located on both sides of the banks, with some trees exhibiting features which would be suitable for roosting bats.

Footbridge

The footbridge runs over the proposed canal between Areas B and C. The footbridge will not be removed as part of the development, but it likely to undergo repairs. Crevices in the footbridge structure would provide bats with ideal roosting locations. Underneath the bridge is areas of bare earth with puddles and damp patches; these wet areas are of negligible ecological value. Young, self-seeding mixed deciduous trees are located underneath the bridge. It should be noted that the ecologist for Birmingham City Council has highlighted that a *Myotis* species bat was found to be roosting within a crevice of the bridge structure in an incidental survey conducted earlier in 2015 – this was not identified within a bat activity survey; implications are discussed within the appropriate recommendations and management plan sections.

Area C

This area runs from the footbridge in the southeast direction to the further eastern extent of the surveyed area. Area C terminates at the eastern extent of the park, next to a road bridge. This area was the only section of the proposed canal route which exhibited an area of standing water. A stretch of shallow standing water was present in an area of approximately 50 to 75 m long; water was of poor water quality, visibly polluted and dominated by green algae (and therefore had a low oxygen content). The remaining stretch of Area C not associated with standing water appears to have been filled in, so that the ground is flush with the level of the banks. Typical ruderal species dominate the area, such as common nettle, hogweed, with some ivy present. A small area of common reed (*Phragmites australis*) is located at the easternmost point of Area C. Significant amounts of horsetail (*Equisetum arvense*) were located along the concrete banks adjacent to Area C; horsetail (also known as mare's tail) is a deep-rooted, invasive perennial weed which can quickly expand across large areas of land. However, it should be noted that horsetail is not a Schedule 9 species, and it is therefore not an offence to allow the spread of the species (although control is recommended).

5.2.2 Off Site Ecological Features

The proposed development site occupies the northern boundary of Selly Oak Park, with the remaining park area to the south. The park is of moderate size, and widely encompasses large areas of amenity grassland. Hedgerows and tree corridors transect the park throughout, offering moderate quality habitat for nesting birds, and foraging/commuting bat species. The wider area around the park is largely residential, with densely packed residential developments located in all directions. However, from satellite imagery, it appears that the locality has a good connectivity of habitat through the retention of grassland areas, tree corridors and hedgerows.

5.3 Protected Species

Water vole: No evidence of water vole were observed during the site assessment. In addition, the structure of the entire survey site and lack of flowing water would discourage water voles from utilising the area. The only area of water observed (located in Area C) was deemed to be insufficient for water vole use. The habitat around the surveyed area are also sub-optimal for the species. It is considered that the development will have a negligible impact upon water voles.

Otter: No evidence of otter were observed during the site assessment. In addition, the structure of the defunct stream/ditch and lack of flowing water would discourage otter from utilising the area. The habitat around the surveyed area are also sub-optimal for the species. The only area of water observed (located in Area C) was deemed to be insufficient for otter use. It is considered that the development will have a negligible impact upon otter.

Great crested newts: No ponds were located within the proposed development, and the watercourse surveyed was insignificant (did not hold any water for the majority of the stretch of land with the exception of 50 – 75 m stretch of Area C). No ponds are located within Selly Oak Park or within the surrounding area; urban habitats beyond the park are sub-optimal for great crested newts, with the area significantly cut off from suitable habitat due to the presence of multiple busy roads. The proposed development is of negligible risk to great crested newts.

Badgers: Assessment of the site boundaries and the wooded edges indicated that there were no badger setts within close proximity. A thorough search of the habitat on-site also concluded a lack of badger activity. It is considered that the urban habitat surrounding the development site is largely unsuitable for badgers. There were no signs of badger presence recorded on site during the surveys; including prints, latrines, snuffle holes, feeding scrapes or guard hairs.

It should be noted that the ecologist for Birmingham City Council has previously seen badger tracks along the northern bank of the proposed canal route. It is believed that badgers are utilising the northern bank and approximate gardens on Reservoir Road; whilst badgers may be able to access the site for foraging, it is not believed that the proposed development holds any risk to a badger sett. It is recommended that a pre-start check for badger activity is conducted prior to any development works occurring, to determine badger activity within the local area (including habitat on the northern bank of the proposed canal route, and the wider Selly Oak Park area to the south).

Bats: There are no structures within the boundaries of the application site with the exception of the footbridge that goes over the proposed canal route. Bats would be able to roost within the crevices of the footbridge structure; the ecologist for Birmingham City Council has highlighted that a *Myotis* species bat was found roosting within a crevice of the footbridge structure in an incidental survey earlier in 2015. Presence of bats should be checked prior to the proposed development. Although the footbridge will not be removed under the development plan, repairs to the structure are likely to occur. If repairs will significantly alter the structure of the bridge, or point up crevices, full bat activity surveys will be required to identify the current status of bat roosting within the footbridge.

There are a number of self-seeded semi-mature to mature deciduous trees present on the application site with potential for roosting bats, with additional trees along the banks of the development site also considered to be of value for roosting bats. The proposed canal route in its existing state is considered to be of good quality foraging and commuting habitat for bats, due to the presence of a shaded vegetated linear feature which would attract high levels of invertebrates. Further survey effort for bats is recommended along the tree line of the proposed route to determine the presence of roosting bats which could utilise mature trees within and adjacent to the route. The grassland and hedgerows bordering the site throughout Selly Oak Park are likely to attract moderate levels of invertebrates, and therefore would be of value to foraging bats. The development has the potential to have a negative impact upon bats; mitigation strategies and further actions are discussed within the management plan and recommendations section of this report.

Birds: No active or inactive bird nests were found along the proposed development site. The habitat along the surveyed area was of moderate quality for breeding birds, due to the presence of tussocky grassland and tall ruderal herb species which would be of value for ground-nesting birds. The hedgerows and tree corridors close to the development site (on the banks of the proposed route and in the further Selly Oak Park area) would be of high value for nesting passerine species. It is recommended that de-vegetation works across the proposed route should be conducted outside of the breeding bird season (generally running from late February to late August) to avoid harm to local populations of nesting birds.

Reptiles: There are no suitable habitats on the development site or adjacent to the site which are suitable for reptilian species; the urban environment surrounding Selly Oak Park is also unsuitable for reptiles.

6 RECOMMENDATIONS

Summaries of risk to relevant protected species are discussed below, with recommendations given in terms of further survey effort required, where applicable. Compensatory measures are also discussed within the long-term management strategy.

6.1 Otters and water voles

It is considered that it is highly unlikely that either otters or water voles are present on the development site. The habitat across the proposed canal route is unsuitable for either species, due to the lack of an adequate flowing watercourse, and a lack of suitable earthen banks on either side of the depression. No further action is required in terms of mitigation for otters or water voles.

6.2 Badgers

It is considered that it is unlikely that badgers are utilising the development site on a regular basis, or are present within the wider Selly Oak Park area. However, it is possible that badgers may access the site for commuting or minor foraging effort, however the area surrounding the park is highly urbanised and unsuitable for badgers.

Due to the presence of badger tracks seen by the city ecologist, it is recommended that a pre-start check for badger activity and setts is conducted prior to any development works beginning. A pre-start check will enable further recommendations being made immediately prior to the construction phase, in order to avoid harm to the local badger population.

6.3 Bats

Crevices and cracks with the footbridge were identified to be potential roosting locations for bats – this footbridge is due to undergo repair work under the proposed development, but will not be removed. The ecologist for Birmingham City Council has highlighted that a *Myotis* species bat has previously been found roosting within the bridge structure earlier in 2015; full bat activity surveys were not completed. Furthermore, trees were located within the proposed canal route which exhibited roosting potential for bats.

Works should not be undertaken to the footbridge, and removal of semi-mature to mature trees within the proposed canal route should not be removed until the following actions are completed: i) full bat surveys have been conducted; ii) Natural England have been consulted if bat roosts are located. Significant works to the footbridge which will disturb or destroy the bat roosts will require a European Protection Species Licence prior to any repair or maintenance works occurring. It is recommended that will the loss of foraging and potentially roosting opportunities within the canal route, bat boxes are provided within the local area.

6.4 Breeding birds

Sections of Areas A and B were determined to be of good potential for ground-nesting birds, due to the presence of tall ruderal herbs and grasses which would provide shelter for such species. In addition, the canopies of mature trees within the proposed canal route and on the banks of the route would provide

further nesting opportunities. It is recommended that all vegetation clearance is conducted outside of the breeding bird season, which generally runs from late February to late August – this is to avoid harm to nests which may be present within this timeframe.

If de-vegetation is to occur within the breeding bird season, an ecologist must check all vegetation prior to clearance to check for active nests; upon discovery of active nests, buffer zones of approximately 5 m must be established around bird nests to comply with legislation.

It is suggested that bird boxes are provided along the route of the proposed canal to compensate for the loss of semi-mature to mature trees and tall ruderal vegetation. Bird boxes should be attached to mature trees which will not be impacted upon by the proposed development.

6.5 Invasive species

Two invasive species were located within Area A of the proposed canal route. The invasive species present are Giant Hogweed (*Heracleum mantegazzianum*) and Japanese Knotweed (*Fallopia japonica*). A management strategy for eradicating and controlling these invasive species has been included within the management plan.

6.6 Long-term management strategies

The following points have been identified which require long-term management attention throughout the construction and operational phases of the proposed canal. Providing that the long-term management strategies are followed, Naturally Wild are confident that no significant long-term effects to local ecological features will be incurred:

- **Badgers:**
 - Monitoring of badger activity should be conducted prior to the construction phase of the development, and throughout the construction period. This is to ensure that the proposed canal will not have any significant impacts upon the local badger population.
 - Although unlikely, the discovery of any newly made badger setts within 30 m of the canal route, prior to or during the construction phase of the development, will require works to be stopped until a licensed ecologist has consulted with Natural England to determine whether a European Protected Species Licence (EPSL) will be required.
 - Any construction-related man-made cavities should be covered or fenced off overnight or during periods of construction downtime to avoid badgers (or other small mammals) becoming trapped in such cavities.
- **Bats:**
 - Maintenance works to the footbridge and removal of trees within the route must not occur until full bat surveys have been completed, and until a licensed ecologist has consulted with Natural England to determine whether a European Protected Species Licence (EPSL) will be required, if works will disturb or destroy known bat roosts.
 - Bat boxes should be provided within close proximity of the proposed development, to compensate for the potential loss of roosting sites within the mature trees located

within or adjacent to the proposed canal route. Bat boxes should be actively maintained to ensure that compensatory roosting sites are of good state of maintenance.

- **Breeding birds:**

- Any removal of vegetation around the proposed canal, both in the construction and operational phases of the development, must occur outside of the breeding bird season (generally running from late February to late August). Alternatively, an ecologist must perform a pre-start check of vegetation to be removed to determine whether any active bird nests are present.
- Bird boxes should be provided within close proximity of the proposed development, to compensate for the loss of vegetation and tree canopy area which currently provide good quality habitat for nesting birds. Bird boxes should be actively maintained to ensure that these compensatory nesting sites are upheld.

- **Invasive species:**

- It is thoroughly recommended that both areas of Schedule 9 invasive species identified across the development site are managed and removed by a suitably competent contractor, utilising the provided management strategy. Giant hogweed and Japanese knotweed were located within the development site, with a very large stand of Japanese knotweed quickly spreading towards the west of the surveyed site.
- The areas where the invasive species were noted should be monitored for at least 3 years by a suitably competent person after full removal of all plant matter has been completed. Any newly identified plant matter must be dealt with accordingly, utilising the provided invasive species management strategy.

Providing that all recommendations are adhered to, and the following Construction Ecological Management Plan is utilised during the construction of the proposed canal, Naturally Wild would conclude that no long-term biodiversity losses are likely to occur as a result of the development.

7 CONSTRUCTION ECOLOGICAL MANAGEMENT PLAN

The following Construction Ecological Management Plan has been produced to identify areas of the proposed development which could have a negative impact upon biodiversity, during the construction phase. Potential mitigation and compensatory measures are discussed, where issues relating to ecology are highlighted. In addition, the following points will be discussed within this management plan: i) ecology related toolbox talks for on-site contractors and/or volunteers; ii) emergency procedures relating to ecology; iii) treatment of invasive species.

7.1 Biodiversity issues

The proposed development is likely to occur over a course of years, rather than months. The construction phase will also be mainly supported by volunteers, some of which may only conduct work on the canal over several weeks or months as teams of volunteers change over time. It is possible that construction work will start and stop throughout the development due to funding patterns. Therefore, a single survey conducted by an ecologist is unsuitable when works will occur over a long period of time, as mobile protected species such as badgers, bats or nesting birds could colonise the area over the construction period.

A document detailing the proposed construction-related activities across the development site was provided by the Lapal Canal Trust. From this document, the following points of the construction phase have been identified as a risk to protected species which may enter the area:

- Digging into and clearing of soil in bare areas along the proposed canal route to make the bank sides suitable for a canal due to occur from August 2015 onwards – *negligible to low risk to water voles*;
- Removal of soil and debris from the proposed canal route due to occur from August 2015 onwards – *low risk to sheltering small mammals; negligible to low risk to amphibians*;
- Removal of scrub, tall ruderal herb and hedgerows (if present) within the canal route due to occur from August 2015 onwards – *medium risk to nesting birds if conducted within the breeding bird season*;
- Removal of trees within the proposed route, or along the adjacent bank sides due to occur during clearance, or upon completion of clearance of soil and debris – *medium risk to roosting bats and nesting birds*;
- Repair and maintenance of bridge crossing over the canal route – *medium risk to roosting bats*;
- Introduction of water into completed canal due to occur in 2017/2018 – *low risk to small mammals and badger*.

7.2 Management plan

i) Digging into and clearing of soil in bare areas along the proposed canal route to form banks

This aspect of the development has been identified as a low risk to water voles (potentially of negligible risk due to their perceived absence) due to the possibility that bank side habitat for the species will be destroyed. Water voles use the bank sides of watercourses such as streams or rivers for burrowing, with burrow entrance/exit holes located on earthen banks.

- This activity will include the use of tools such as shovels/spades to dig into vegetation and earth currently present within the canal route. The use of such tools has the potential to harm small mammals and amphibians which may be present within the area during chopping.
 - Volunteers and contractors undertaking this task should check soil which has been dug into and/or removed after each chop is made to ensure that no small mammal or amphibian species are being harmed by the activity.
 - Any such individual encountered during the creation of banks should be relocated to the wider park area to the south, to avoid any harm to the animal.
 - This activity will not require ecological supervision, unless evidence of protected species are found (e.g. great crested newt, water vole).
- Although unlikely, newly created water vole burrows may be located throughout the area during this phase of the development.
 - Any evidence of water vole burrowing (typically identified by a hole of 4 – 8 cm in the bank and an additional hole at the top of the bank present with short, cropped grass around each hole) should be investigated by an ecologist prior to earthworks to these areas.

ii) Removal of soil and debris from proposed canal route

This aspect of the construction phase has been identified as a low risk to small mammals, such as water voles, other vole species and shrew species, as such animals could be using earthen mounds and debris as areas of sheltering. Amphibians such as common toads, common frogs, great crested newts and other newt species could also be using debris as sheltering locations, however this is less likely across the development site due to the lack of suitable wetland or watercourse/waterbody habitat for the taxa.

- This activity will include the use of tools such as shovels/spades, as well as the possibility for large plant equipment such as diggers to be used for moving large areas of earth.
 - Volunteers and contractors undertaking this task should check soil which has been dug into and/or removed after each chop is made to ensure that no small mammal or amphibian species are being harmed by the activity.
 - All earth should be searched for such species prior to a digger gathering earth, or prior to earth being entered into a skip or disposal heap.
- All debris which could be utilised as refugia by sheltering herpetile and small mammal species should be hand-searched by to removal. It is considered unlikely that any protected species (such as great crested newts or reptiles) will be present on the development site, however any protected species found must be reported to an ecologist for further investigation.
- These activities will not require ecological supervision, unless evidence of protected species are found (e.g. great crested newt, reptiles, water vole).

iii) Removal of scrub, tall ruderal herb and hedgerows (if present) within the canal route and on the bank sides of the route

Removal of significant areas of vegetation presents a risk for harm to the nesting bird population, due to the potential disturbance to active nests within tall and/or dense vegetation (as seen in the form of tall ruderal and scrub vegetation within Areas A and B).

- All actively breeding birds and bird nests are protected under legislation. Therefore, removal of vegetation must occur outside of the breeding bird season (late February to late August) to avoid harm to any actively nesting birds within the proposed canal route.
 - Vegetation clearance does not require ecological supervision if undertaken outside of the breeding bird season.
- If vegetation is to occur within the nesting season, an ecologist must undertake a breeding bird assessment to determine whether any active nests are present within the development site. Any active nests must be protected by a 5 m buffer zone, in which no vegetation clearance can occur in any direction of the nest.

iv) Removal of trees within the proposed route, or along the adjacent bank sides

Removal of trees within the proposed canal route presents a risk for disturbance to bats which may be roosting within these trees, as some mature trees within the proposed route have been identified as of good quality roosting potential for crevice-dwelling bat species. In addition, the removal of trees within the breeding bird season could potentially pose harm to actively nesting birds.

- **It has been recommended that bat surveys are undertaken on mature trees within the proposed canal route which have exhibited potential for roosting.** Development works should not occur until these surveys have been completed, in order to establish the roosting status of each tree.
 - **If bat surveys conclude that bats are utilising the trees for roosting, a European Protected Species Licence (EPSL) will be required prior to removal of the trees.**
 - If the trees are not being actively used by bats, trees may be removed under a method statement, after any gaps which have been identified as a risk for roosting bats have been checked by an ecologist.
- Removal of trees should occur outside of the breeding bird season (late February to late August) to avoid harm to breeding birds which may be nesting in the canopy of mature trees.

v) Repair and maintenance of bridge crossing over the canal route

The footbridge which crosses over the proposed canal route between Areas B and C exhibits potential for roosting bats to use crevices and cracks in brickwork. Any repairs to these aspects could harm crevice-dwelling species of bat such as *Myotis* species or *Pipistrellus* species, if present within the bridge structure. The ecologist for Birmingham City Council has highlighted that during a previous survey of the structure in 2015, a roosting *Myotis* species bat was found within the structure. Therefore, full bat activity surveys will be required focussing on the structure, to establish the current status of the footbridge in terms of roosting bats.

- **It has been recommended that bat surveys are undertaken on the footbridge due to the presence of potential roosting features for bats.** Development works should not occur until these surveys have been completed, in order to establish the roosting status of the bridge.
 - **If bat surveys conclude that bats are utilising the footbridge for roosting purposes, a European Protected Species Licence (EPSL) will be required prior to repair or maintenance of the bridge.**
 - If the trees are not being actively used by bats, maintenance may occur under a method statement **with ecological supervision**. A licensed ecologist should check any crevices and gaps with an endoscope prior to works commencing, to confirm the absence of roosting bats. This should focus on the area where a previous *Myotis* species bat was located. Any newly discovered bats during this process will require an ecologist review; with an EPSL in place before works may occur.

vi) Introduction of water into completed canal

This phase of the development poses a potential low risk to small mammal species (such as voles, shrews, rabbits, etc.) and badgers. Such species could become trapped within the canal construction, and could drown during the introduction of water into the completed canal, with no potential for escape.

- A full check of the completed canal should be made prior to water being introduced. This should involve a slow walk of the full stretch of the canal, undertaken by several people to make sure no mammal species will be drowned by the addition of water. All mammals found within the canal should be relocated to the wider park area to the south, prior to the introduction of water.
- This aspect of mitigation does not require ecological supervision, however an ecologist should be contacted if evidence of any protected species is encountered along the canal route (e.g. badger, otter, great crested newt).

7.3 Toolbox talks and emergency procedures

A toolbox talk should be given to all contractors on site, and all volunteer leaders prior to any development works occurring. The toolbox talk will provide information on working in areas where a risk for protected species have been identified. Specific species covered should include: *badgers; bats; breeding birds (if works are within the breeding bird season)*. A separate toolbox talk document can be supplied prior to the development works occurring, with safe methods of work relating to these protected species described, and Naturally Wild contact details provided for further on-going consultation and advice.

Should any evidence of protected species discussed within this report be found during the entire scope of the construction works, a licenced ecologist should be contacted to establish the risk for these species, whom will then advise the client on how to proceed. Any newly found evidence of badger (e.g. faeces/latrines; snuffle holes; guard hairs; setts), bat (e.g. droppings; urine staining; roosting) or nesting bird usage of the development site or within a 50 m buffer zone should be included within this, and should be reported to a suitably competent ecologist.

7.4 Invasive species

This section of the management plan has been produced to aid landowners to control and remove two species of plant that are classed as invasive under the Wildlife and Countryside Act 1981 (WCA), which were located within Area A of the proposed canal route. The invasive species present are: Giant Hogweed (*Heracleum mantegazzianum*); Japanese Knotweed (*Fallopia japonica*). These two species are listed under Schedule 9 of the Act; species listed under this Schedule are non-native to the British Isles, and are generally highly invasive – the term invasive refers to their ability to spread across habitats at a fast rate, potentially out-competing native plant species.

7.4.1 Legislation

Under Section 14(1) of the WCA, it is an offence to plant, allow the spreading of, or the release of all Schedule 9 species outside of your land in England, Wales or Northern Ireland. If a Schedule 9 plant species escapes from a landowner's land on to somebody else's land ownership boundary, they would be eligible to bring a private nuisance case against the offending landowner.³

Offences under Section 14(1) carry a maximum penalty of a £5,000 fine and/or 6 months imprisonment on summary conviction (i.e. at Magistrates' Court), and an unlimited fine (i.e. whatever the court feels to be commensurate with the offence) and/or 2 years imprisonment on indictment (i.e. at a Crown Court).⁴

7.4.2 Management strategy

i) Avoid contamination around the site

Prior to works commencing on a development site, an updated investigation should be undertaken to map out the locations of all individual occurrences and dominant areas of any Schedule 9 plant species that occur across the site. This should be completed by a competently qualified person whom can identify such plants to a species level, in order to avoid missing areas of invasive species. Site visitors and contractors should be advised to avoid entering areas where Giant Hogweed and Japanese Knotweed are known or suspected to be growing, in order to prevent spreading invasive species by picking up plant matter on clothing/equipment.

ii) Control of Giant Hogweed

Giant Hogweed was introduced into Britain in 1893 as an ornamental plant. The species escaped from domestic gardens and has now colonised many areas of wasteland, river banks and around water bodies. Giant Hogweed is easier identified, as it grows up to 5 metres high, has large distinctive leaves and a large umbel of white flowers. Plants from this species can produce up to 50,000 viable seeds per year, and can spread across a site, or escape from a site extremely quickly, especially if seeds are able to fall into a watercourse and are transported downstream. This treatment strategy has been adapted from information supplied by the Centre for Ecology & Hydrology.⁵

³ GOV.UK: <https://www.gov.uk/prevent-the-spread-of-harmful-invasive-and-non-native-plants>

⁴ GB Non-Native Species Secretariat: <http://www.nonnativespecies.org/index.cfm?pageid=67>

⁵ Centre for Ecology & Hydrology: http://www.ceh.ac.uk/sci_programmes/documents/gianthogweed.pdf

Health & public safety warning

The sap from Giant Hogweed contains a toxic chemical which causes skin to become highly sensitised; contact with Giant Hogweed can lead to severe blistering of the skin, especially when further exposed to sunlight. Blistering can re-occur for many years. *Direct contact with live or dead plant matter of Giant Hogweed is not advised* – protective clothing is recommended to avoid contamination of the skin with sap.

Mechanical control

Generally, cutting of plant matter will produce only temporary control of Giant Hogweed. Cutting through the stem can be done beneath the ground level to ensure damage to the roots, and prevent immediate regrowth of Giant Hogweed. However, regrowth may still occur if any part of the plant remains. Cutting the plant in any area after flowering will provide no benefit, and may cause Giant Hogweed to spread further, as this action will cause seeds to disperse and spread. Small infestations (i.e. young individual plants, group of small plants) may be treatable by digging out the whole plant, and earth around the plant.

Chemical control

Herbicide control is the recommended manner of treating infestations of Giant Hogweed. Plants may be sprayed with *glyphosate*, which is the only herbicide known to effectively control the species, and is approved for use in or near to water. Giant Hogweed is most effectively sprayed with glyphosate when it is actively growing, but is less than 1 metre high, usually in April and May.

Spot treatment for individual Giant Hogweed plants is most effective, but large-range sprays can be most useful when dealing with a large infestation of the species, or when it is growing in areas which are difficult to access. Glyphosate will also damage or kill other weed and grass species growing in the proximity of spraying; establishment of a good sward of grasses soon after treatment is recommended, as this will reduce the recolonisation rate by seeds of Giant Hogweed. The area should be monitored even after confirmation that Giant Hogweed is no longer growing in the area, as seeds remain viable for between 7 to 15 years – any newly established plants should be spot or spray treated.

Biological and environmental control

No biological control agents of Giant Hogweed are known, as the compounds within the toxic sap act as deterrents for insects to feed from the species. No environmental control of Giant Hogweed is known.

iii) Control of Japanese Knotweed

Japanese Knotweed was introduced into Britain in 1825 as an ornamental plant. Since escaping from residential gardens, this weed has shown relentless spread and rapid annual growth, which can out-compete and overwhelm native plant species, and completely alter habitat structures and ecosystems. This species does not produce seeds, but instead sprouts from the rhizome system – this is a nutrient-seeking system of the roots which has a very complex and widespread structure when the plant is established. Japanese Knotweed can grow up to 3 metres in height, and is identified by its distinctive zigzag red stems in the spring, turning green, stiff and bamboo-like in summer. The plant produces

many small white flowers in the summer. This treatment strategy has been adapted from information supplied by the Centre for Ecology & Hydrology.⁶

Mechanical control

Most means of mechanical control of Japanese Knotweed are not recommended. Cutting of Japanese Knotweed can be detrimental to a treatment plan, as cutting the shoots often has no long-term benefit and can encourage the spread of the species (unless the shoots are collected and immediately burned). Even if shoots of Japanese Knotweeds are cut regularly, the rhizomes within the root system beneath the earth can survive for many years, causing re-growth of the visible section of the plant. Digging, ploughing and dredging have no long-term benefit in control of Japanese Knotweed, due to the extensive nature of the rhizome system, and because of the ability of small fragments to regrow. Never flail mow Japanese Knotweed, as the small fragments produced will cause very severe spread of the species. If plant matter from Japanese Knotweed must be cut, a simple, sharp blade should be used to ensure a clean cut is made in order to prevent fragments of plant matter re-entering the earth or a watercourse.

Chemical control

Extensive and thorough herbicide control is the recommended manner of treating infestations of Japanese Knotweed. *Glyphosate* is regularly used to control Japanese Knotweed when the plant is growing close to a watercourse or waterbody. The herbicides *picloram*, *imazapyr* and *triclopyr* are also effective in controlling Japanese Knotweed, but cannot be used close to water.

Glyphosate should be sprayed at a density of 6 liters to 1 hectare of affected land for maximum effect on Japanese Knotweed infestations. Spraying of herbicides should occur from late summer onwards; control is optimal when herbicide is sprayed extensively during the flowering period. Control of Japanese Knotweed can also be improved by spraying the topside and underside of leaves. Regrowth of Japanese Knotweed can be easier to treat each year, and should be sprayed for at least 3 years before the plant will become dormant. Regular inspections of previously infested areas should be conducted between May and August; herbicidal spot treatment of surviving plants should be undertaken for at least two years.

Biological and environmental control

No known biological control agents of Japanese Knotweed has been identified, although research effort is being undertaken to identify suitable control agents, focussing on Japanese fungal agents. Once the plant has become established (even the smallest infestation), there are no known environmental control methods. Further spreading of Japanese Knotweed can be prevented by not moving infested soil, and not allowing cut or broken stems to leave the site (e.g. via a watercourse from a river bank).

⁶ Centre for Ecology & Hydrology: http://www.ceh.ac.uk/sci_programmes/documents/japaneseknotweed.pdf

7.4.3 Preventing spread and re-colonisation

i) Good site hygiene

Best practice in relation to site hygiene will reduce the likelihood of spreading invasive plants around the development site, furthering the problem, or transferring the species off site. The following advice is adapted from the GB Non-Native Species Secretariat's '*Biosecurity in the Field*' document,⁷ and should be followed to ensure that invasive species are not spread further across a site, or away from the site, in compliance with law:

1. Staff, contractors and visitors are to arrive at the site with clean footwear and vehicle.
2. All persons to ensure footwear is clean (visually from soil and debris) before leaving the site.
3. All vehicles are to be kept clean – particularly to remove any accumulated mud before leaving site.
4. Land manager to ensure facilities are provided on the site to clean footwear/equipment.
5. Keep site access to a minimum. If practical, do not take vehicles onto premises; keep to established tracks and park vehicles on hard standing.

ii) Avoiding new contamination to the site

There are three common ways that a site becomes colonised:

1. *Infested topsoil*: Any imported topsoil should be carefully checked for the presence of any invasive species plant material.
2. *Contamination on vehicles*: Vehicles to be used on site should be inspected prior to use, with careful attention paid to caterpillar tracks and locations where trucks and dumpers are stored.
3. *Fly-tipping*: Any fly-tipping should be reported to the Environment Agency (24-hour phone number: 0800 80 70 60), and treated as if it contains plant matter of an invasive plant species until examined to prove otherwise.

iii) Disposal of plant matter after treatment

Plant matter from an invasive, non-native plant species, soil contaminated by such plants, and soil that has been sprayed with persistent herbicides are all categorised as 'controlled', or 'hazardous' waste under the law. It is an offence to keep, treat or incorrectly/recklessly dispose of hazardous waste, as it would be likely to cause environmental damage, damage to ecosystems and could harm human health. Due to the invasive nature of Giant Hogweed and Japanese Knotweed, it is recommended that waste from these plants are burned on site – this method of waste disposal will ensure that there is a greatly decreased chance of them escaping from the site, and therefore causing a breach of legislation. Plant waste should only be dug up and burned after a course of herbicide treatment is completed. However, a licenced waste carrier can also remove hazardous invasive plant waste for disposal off-site.

iv) Burning of waste

Waste from Giant Hogweed and Japanese Knotweed can be burned at the site of growth in order to destroy the plant material. This should only be conducted after a suitably long course of herbicide treatment has occurred to all areas of plant growth. It is recommended that soil should be removed to a depth of 2 metres, and also burned – this is to eliminate any leftover roots from any invasive plants.

⁷ GB Non-Native Species Secretariat: <http://www.nonnativespecies.org/index.cfm?pageid=174>

v) Safe off-site waste disposal

Specialised waste carriers can take invasive species plant matter away from a site for safe disposal, if burning of waste is not possible or desired. In order to comply with legislation, it is a requirement that a licenced waste carrier is used to correctly dispose of hazardous waste from Schedule 9 plant species. Information on finding a carrier can be found at the GOV.UK website: <https://www.gov.uk/find-registered-waste-carrier> or by contacting Natural England's customer services at 03000 601 112. In addition, the landowner or waste carrier must use an authorised landfill site, which is suitable for accepting controlled and hazardous waste. An authorised landfill site can be found by calling the Environment Agency's customer services telephone number: 03708 506 506.

8 SITE FIGURES AND IMAGES



Image 1. Significant stand of Japanese knotweed at the westernmost point of Area A



Image 2. Mature woodland located west of Area A.



Image 3. Typical area of habitat located within Area A.



Image 4. Culvert separating Areas A and B in the bottom of the image.



Image 5. Typical habitat within Area B, showing slightly boggy areas with tall ruderal herbs.



Image 6. Footbridge crossing over the proposed canal route between Areas B and C.



Image 7. Crevices and cracks underneath the footbridge.



Image 8. Stretch of poor quality standing water located in Area C.

9 APPENDIX

9.1 Additional Information for the Legislation of Other Protected Species

Badger

The badger, *Meles meles*, is geographically widespread across the UK (NE, 2007); however, they are still vulnerable to baiting, hunting and detrimental impacts of development to their habitat.

Both the badger and its habitat are protected under The Protection of Badgers Act (1992), Schedule Six of the Wildlife and Countryside Act (1981) an Appendix Three of the Bern Convention. Therefore badgers have legal protection against deliberate harm or injury and it is an offence to:

- Interfere with a badger sett by damaging or destroying it
- Kill, injure, take or possess a badger
- Cruelly ill-treat a badger
- Obstruct access to a badger sett
- Disturb a badger whilst it is in a badger sett

Bats

All British bat species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. In addition, all bat species are listed in Schedule 2 of The Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994 No. 2716) (as amended) (known as the Habitats Regulations) and are therefore protected under Regulation 39 of the Regulations. These Regulations make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, under which bats are included on Annex IV. The Act and Regulations makes it an offence, *inter alia*, to:

- Intentionally kill, injure, take (handle) or capture a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not) - under the Habitats Regulations it is an offence to damage or destroy a breeding site or resting place of any bat; or
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection - under the Habitats Regulations it is an offence to deliberately disturb a bat (this applies anywhere, not just at its roost) in such a way as to be likely to affect its ability to survive, breed, reproduce, rear or nurture their young or hibernate

Further details of the above legislation, and of the roles and responsibilities of developers and planners in relation to bats, can be found in Natural England's Bat Mitigation Guidelines, which can be downloaded from the NE website:

<http://naturalengland.communities.com/naturalenglandshop/docs/IN13.6.pdf>

Great Crested Newt

Great crested newts are a European Protected Species, listed on Annex II and IV of the EEC Directive on the Conservation of Natural Habitats and Wild Fauna and Flora, receiving protection under The Conservation of Habitats and Species Regulations 2010. This species is also afforded full protection under the Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981) and Schedule 2 of the Conservation (Natural Habitats etc.) Regulations 1994 (Regulation 38). Under such legislation it is an offence to:

- Intentionally or recklessly kill, injure or capture a great crested newt;
- Possess or control any live or dead specimen or anything derived from a great crested newt;
- Intentionally or recklessly* damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt; and
- Intentionally or recklessly* disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.
- *Damage or destroy a breeding site or resting place.*
- *Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.*

**Reckless offences were added by the Countryside and Rights of Way Act 2000, which applies only to England and Wales.*

To undertake surveys for great crested newt it is necessary to hold an appropriate licence issued by Natural England.

Reptiles

All native British species of reptile (of which there are 6) are listed in Schedule Five of the Wildlife and Countryside Act (1981) and as such are protected from deliberate killing, injury or trade. Therefore, where development is permitted and there will be a significant change in land use, a reasonable effort must be undertaken to remove reptiles off site to avoid committing an offence. The same act makes the trading of native reptile species a criminal offence without an appropriate licence.