Chesterton Interchange Station, Cambridgeshire, CB4 0DL
Construction Environmental Management Plan (CEMP: Biodiversity)
Report for Volker Fitzpatrick

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The Ecology Consultancy
Chesterton Interchange Station / CEMP: Biodiversity / Report for Volker Fitzpatrick
2
Contents

1  INTRODUCTION ........................................................................................................4
2  CONSTRUCTION MITIGAT ION PLAN ........................................................................8
3  METHOD STATEMENTS ..........................................................................................15
APPENDIX 1: SITE PLAN AND DEVELOPMENT PROPOSALS ........................................23
APPENDIX 2: REPTILE EXCLUSION FENCING SPECIFICATION .....................................27
APPENDIX 3: LOG PILE AND HIBERNACULA SPECIFICATION ....................................29
APPENDIX 4: LEGISLATION .........................................................................................29
1 Introduction

1.1 The Ecology Consultancy was commissioned by Volker Fitzpatrick in October 2014 to produce a Construction Environmental Management Plan (CEMP: Biodiversity) for a proposed interchange station at Chesterton, Cambridgeshire (‘the site’). The CEMP: Biodiversity is required to discharge Planning Condition 8 from Cambridge County Council.

1.2 Cambridge County Council secured planning permission in 2010 to construct a new railway station and public transport interchange. This includes the construction of a station building, two platforms and a car park. The planning permission had three conditions relating to ecology, this CEMP: Biodiversity is required to discharge Planning Condition 8 (Box 1).

Box 1: Cambridgeshire County Council - Planning Condition 8

No development shall commence (including demolition, groundworks, vegetation clearance) until a construction environmental management plan (CEMP: Biodiversity) has been submitted to and approved in writing by the Local Planning Authority. The CEMP: Biodiversity shall include the following:

a) Risk assessment of potentially damaging construction activities

b) Identification of “biodiversity protection zones”.

c) Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).

d) The location, timing and minimisation of sensitive works to avoid harm to biodiversity features.

e) The times during construction when specialist ecologists need to be present on site to oversee works.
f) Responsible persons and lines of communication.

g) The role and responsibilities on site of an Ecological Clerk of Works (ECoW) or similarly competent person.

h) Use of protective fences, exclusive barriers and warning signs. The approved CEMP: Biodiversity shall be adhered to and implemented in full through the construction period, unless otherwise agreed in writing by the Local Planning Authority.

BACKGROUND

Description of Development

1.3 The proposed development at the site involves the construction of a 450m$^2$ station building, two 280m long platforms and a car park. The development will involve the clearance of existing habitats within the site including scrub and ephemeral / short perennial vegetation. One building will be relocated, one other will be retained and three will be demolished as part of the proposed works. The proposed works are due to start in 2015 for completion by Dec 2016 and cover an area of approximately 9.95ha.

Purpose of Development

1.4 The development of the new station is required in order to provide crowding relief at the existing station and to support current and future development sites.

Previous Ecological Studies

1.5 The following ecological studies were undertaken in support of the planning application:

- Report into the findings of an extended Phase 1 Habitat Survey and Protected Species scoping exercise of land at Chesterton Sidings, Cambridge (Cambridge Ecology, 2012a).
- Supplementary Phase 1 and Botanical Survey: Cambridge Science Park Station within the Proposed Interchange Area (Cambridge Ecology, 2013a).

1.6 An updated scoping survey of the site was also carried out in October 2014 (The Ecology Consultancy, 2014a).

1.7 An Ecological Design Strategy (EDS) was produced for the scheme in July 2015 (Atkins).

1.8 A summary of the ecology baseline, taken from these reports, is included below to provide a context for the CEMP: Biodiversity.

SITE CONTEXT AND STATUS

1.9 The site is situated off of Cowley Road, Chesterton, Cambridge. The residential area of Chesterton is located to the south and west of the site. To the north of the site is Cowley Park industrial / business park. The site is bounded by a railway line to the east, beyond which is a series of caravan parks. The National Grid Reference at the centre of the site is TL 475 607.

1.10 No statutory or non-statutory nature conservation designations apply to the site, however the site is adjacent to Bramblefields Local Nature Reserve, which is designated for its importance for birds, along the south western boundary of the site. No other statutory nature conservation designations apply to any sites within a 1km radius. Five non-statutory sites were located within 1km of the Chesterton Sidings site, the closest of which was the River Cam, 0.3km to the south of the site.

1.11 The site was dominated by areas of scrub, woodland and ephemeral / short perennial vegetation. A large area of hard-standing was present within the centre of the site and semi-improved grassland, broadleaf woodland, bare ground and scattered trees were also present. This constitutes a mosaic of habitats, which is a UK Biodiversity Action Plan (BAP) habitat. A number of rubble and debris piles and five disused buildings were located throughout the site. Four ponds were located within 500m of the site, two to the south-west of the site within Bramblefields Local Nature Reserve (LNR), one to the north of the site within the railway sidings. An engineered ditch was located to the north of the site.

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1 Principally sites receiving protection under the Wildlife and Countryside Act, 1981 (as amended)
1.12 During the latest scoping survey carried out in October 2014 by The Ecology Consultancy, the site was assessed as having negligible potential to support dormice, low potential to support water voles and badgers, medium potential to support great crested newts and high potential to support breeding birds. Reptiles have been confirmed as present within the site. One building, B3 had low potential to support roosting bats, whilst the others (B1, B4 and B5) had negligible potential, building B2 was excluded from the survey as it will not be impacted by the works (The Ecology Consultancy, 2015a). The trees within the site were assessed as having low potential to support roosting, foraging and commuting bats.

1.13 It was identified in the invertebrates survey report 2013 that the site supports invertebrates of both District and County importance though in localised specific area's dominated by open mosaic habitat. Much of the site has been left uncontrolled and has grown up with dense scrub reducing the invertebrate potential. Retention of such habitat will benefit the indigenous population during the construction phase.

LEGISLATION

1.13 This CEMP: Biodiversity has been prepared with due consideration for all relevant legislation, which is included in Appendix 3.
2 Construction Environmental Management Plan: Biodiversity

SPATIAL SCOPE

2.1 This CEMP: Biodiversity applies to the all land within the site boundary (Figure 1, Appendix 1).

ECOLOGICAL CLERK OF WORKS

2.2 A suitably qualified ecologist has been appointed to supervise the implementation of this CEMP: Biodiversity, in an Ecological Clerk of Works (ECoW) role. The ECoW is responsible for the following:

- Ensuring all works on site comply with relevant legislation in relation to protected species and that the CEMP: Biodiversity is adhered to throughout the construction phase of development;
- Providing advice to developers and contractors on how best to minimise impacts on wildlife throughout the construction phase of development;
- Being the main point of contact should any issues relating to ecology arise during construction;
- Making the relevant people aware of any ecological issues that occur during the construction phase;
- Ensuring Toolbox Talks on protected species and sensitive habitats to contractors carrying out work within the site are undertaken
- Ensuring supervision of any construction activities that have the potential to impact on protected species and / or sensitive habitats;
- Deciding on the exact positioning of reptile fencing and mitigation and enhancement measures depending on on-the-ground conditions; and
- Ensuring fence lines are monitored throughout the construction phase of development.

2.3 The ECoW will be provided with updated programme of works to determine watching brief requirements and associated ecological issues.

2.4 The times during construction when the ECoW is responsible for ensuring that the...
CEMP: Biodiversity is followed and when the ECoW or appointed representative needs to be present are shown in Table 1&2. Other persons responsible for ensuring that the CEMP: Biodiversity is adhered to at different times throughout construction are also shown in Table 1&2.

2.5 If the ECoW or appointed representative identifies any issues in relation to ecology or considers that the CEMP: Biodiversity is not being adhered to at any point during construction, the developer will be contacted and measures will be taken to resolve any issues. If the developer identifies any ecology issues, the ECoW will be contacted for advice immediately.

CURRENT SITE CONDITIONS

2.6 This CEMP: Biodiversity has been prepared based on ecological information collected in October 2014. If on visiting the site, nearer the time of construction the ECoW considers that the baseline has changed, he may approve changes to the mitigation measures as appropriate.

RISK ASSESSMENT OF CONSTRUCTION ACTIVITIES

2.7 The following construction activities will be required as part of the works. The ecological risk of each activity is assessed and measures for reducing the impact are detailed below. The time of year during which ecology surveys and ecologically sensitive works will be carried out can be found in Table 1.

Vegetation and Rubble Pile Clearance

Potential Impacts

2.8 Clearance of vegetation from the works site will be required prior to the start of construction. This will include the removal of scrub, tall ruderal vegetation, semi-improved grassland, trees and other habitats present within the site. This work has the potential to impact reptiles, bats, breeding birds and great crested newts, if present.

Measures to Minimise Impacts

2.9 To minimise the risk of killing and injury of protected species during vegetation clearance, the vegetation clearance method statement in Section 3 will be followed.

2.10 The ECoW will ensure toolbox talks are given to all contractors working on the development. These will cover all potential protected species, invasive species and habitats relevant to the site and what to do should any such flora or fauna be
discovered during the works, as detailed in Section 3.

**Ground Clearance**

*Potential Impacts*

2.11 Ground clearance will involve the use of machinery to remove topsoil, rubble and debris piles from the works area. This has the potential to impact disturb, injure or kill reptiles. Ground clearance also has the potential to damage retained habitats and trees.

*Measures to Minimise Impacts*

2.12 A reptile translocation will be carried out prior to ground clearance. This will involve the installation of secure temporary reptile exclusion fencing around the perimeter of the works footprint prior to main vegetation clearance. Reptiles will then be trapped from the fenced area to a designated receptor site. Following the completion of trapping, a destructive search of the works area will be carried out. All works will be carried out during the active period for reptiles (April to September, weather dependent) and will be supervised by the ECoW. The fencing will be retained and monitored throughout the construction period and removed upon completion of works. Detailed method statements for fence installation, reptile trapping, destructive search, fence monitoring and fence removal are provided in Section 3.

2.13 Great crested newt surveys have been carried out on the ponds within 500m of the works area and found to be absent. If great crested newts are found during construction, a European Protected Species Mitigation (EPSM) licence from Natural England will be required. The works area will then need to be trapped of great crested newts as detailed in Section 3.

2.14 A walkover badger survey of the development site has shown badgers to be absent.

2.15 A root protection zone will be set up around any trees that will not be removed as part of the works. This will involve the installation of barrier fencing around trees or areas of woodland to stop works from encroaching into the root protection zone as detailed in BS 5837:2012 (British Standards, 2012).

2.16 The ECoW will ensure that toolbox talks are given to all contractors working on the development. These will cover any potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the
works.

Building Demolition

Potential Impacts

2.17 The demolition of three buildings will be required, whilst another building will be relocated as part of the works. Building B1 is due to be demolished and has been assessed as having a low potential to support roosting bats (Cambridge Ecology, 2012 and The Ecology Consultancy, 2015a). The demolition of this building therefore has the potential to impact roosting bats. Three buildings are located within areas of habitat with the potential to support reptiles and great crested newts. Buildings B3, B4 and B5 also have the potential to support breeding birds.

Measures to Minimise Impacts

2.18 Prior to demolition, one bat presence / likely absence survey of building B1, which was assessed as having a low potential to support roosting bats, will be carried out between May and August.

2.19 If a bat roost is identified, an EPSM licence from Natural England would be required before the building can be demolished.

2.20 If no bat roosts are identified within the building, demolition can proceed without mitigation. The buildings situated within habitat suitable for reptiles will be demolished / moved after the completion of the reptile translocation. The ECoW will check buildings for the presence of breeding birds prior to demolition. If a bird nest is identified, no works will take place on the building until all young have fledged, as confirmed by the ECoW.

2.21 The ECoW will ensure toolbox talks to all contractors working on the development will be given. These will cover any potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the works.

Ditch Works

Potential Impacts

2.22 Any works within 10m of the engineered ditch have the potential to impact water voles, if present. Works and storage of materials in close proximity to the ditch also have potential to pollute the watercourse.
Measures to Minimise Impacts

2.23 An updated water vole survey will be carried out immediately prior to the start of works if works are proposed to be within 10m of the ditch. If any signs of water vole are found an EPSM licence from Natural England may be required.

2.24 No works or storage of materials will take place within a designated protected area around the ditch. The Environment Agency’s Pollution Prevention Guidance (PPG) 5: ‘Works & Maintenance In or Near Water’ (Environment Agency, 2014) will be followed to minimise any risk of pollution entering the watercourse.

2.25 The ECoW will ensure toolbox talks to all contractors carrying out work in close proximity to the ditch will be given. This will cover water voles and any other potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the works.

Ground Works

Potential Impacts

2.26 Excavations created as part of the works may cause animals such as badgers or other mammals to become trapped.

Measures to Minimise Impacts

2.27 Excavations will not be left open over night. Where this is not possible, they will be securely covered or a means of escape for any animals that may become trapped will be provided, such as a wooden board. All excavations will be checked for the presence of animals each morning and immediately prior to backfilling.

2.28 The ECoW will ensure toolbox talks to all contractors working on the development will be given. These will cover any potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the works.

General Construction Works

Potential Impacts

2.29 Construction of the Station / Interchange Area has the potential to cause visual, vibration or noise disturbance to the LNR. Dust, emissions and accidental spillages may negatively impact the habitats and protected species present within and in close proximity to the site. Damage to retained habitats and protected species may occur
from accidental or uncontrolled movement of construction vehicles or personnel.

**Measures to Minimise Impacts**

2.30 The existing buffer of vegetation between the LNR and the Station / Interchange Area will be retained and enhanced to reduce disturbance and provide screening. Contactors will comply with Environment Agency PPG 1: ‘Basic Good Environmental Practices’ (Environment Agency, 2013) in respect of implementation of pollution prevention measures and strict control of dust and other emissions. Fencing and notice signs will be erected around construction areas to contain works and to stop encroachment into areas of retained habitat. Root protection zones will be set up around any retained trees as detailed in Paragraph 2.11 above.

2.31 The ECoW will ensure toolbox talks to all contractors working on the development will be given. These will cover any potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the works.

**Night Works**

**Potential Impacts**

2.32 Night time working may be required as part of the proposed works. This will require the use of lighting which has the potential to impact foraging bats.

**Measures to Minimise Impacts**

2.33 Night time working will be kept to a minimum where possible. Where lighting is required, lights will be kept away from areas of woodland and hedgerows and lighting will be directed to where it is needed with minimal light spillage. Detailed specifications for the use of lighting during night works can be found in Section 3.

2.34 The ECoW will ensure toolbox talks to contractors carrying out night works will be given. These will cover any potential protected species and habitats that they may encounter within the site and what to do should any be discovered during the works.

**Table 1: Timings for ecology surveys and ecologically sensitive works**

<table>
<thead>
<tr>
<th>Task</th>
<th>Timeframe</th>
<th>Duration</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reptile population estimate survey</td>
<td>Between April and September, prior to the start of construction</td>
<td>Site Clearance Stage</td>
<td>ECoW</td>
</tr>
<tr>
<td>Task</td>
<td>Timeframe</td>
<td>Duration</td>
<td>Responsibility</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Botanical survey</td>
<td>Between May and August, prior to the start of construction</td>
<td>During Devegetation</td>
<td>ECoW</td>
</tr>
<tr>
<td>Invertebrate survey</td>
<td>Between April and August, prior to the start of construction</td>
<td>Not Required</td>
<td>ECoW</td>
</tr>
<tr>
<td>Vegetation clearance within works area</td>
<td>Between April and September when reptiles are active, prior to the start of construction</td>
<td>Prior to start of construction</td>
<td>Contractors, supervised by ECoW</td>
</tr>
<tr>
<td>Clearance of bird nesting habitat</td>
<td>Between September and February – no ecological supervision required</td>
<td>As required</td>
<td>Contractors, supervised by ECoW (if required)</td>
</tr>
<tr>
<td></td>
<td>Or Between March and August – ecological supervision required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation of reptile exclusion fencing around donor site</td>
<td>Between April and September, prior to the start of construction</td>
<td>Approximately 3 weeks</td>
<td>Contractors, supervised by ECoW</td>
</tr>
<tr>
<td>Placement of artificial refugia: Carpet Tiles</td>
<td>Any time, prior to the start of construction</td>
<td>During Reptile Fence Construction</td>
<td>ECoW</td>
</tr>
<tr>
<td>Reptile trapping and translocation</td>
<td>Between April and September (weather dependent), prior to the start of construction</td>
<td>As per PMW</td>
<td>ECoW</td>
</tr>
<tr>
<td>Removal of trapping refugia and supervised destructive search</td>
<td>Between April and September</td>
<td>Prior to Construction</td>
<td>Contractors supervised by ECoW</td>
</tr>
<tr>
<td>Monitoring and repair of exclusion fencing</td>
<td>Once a week</td>
<td>Throughout construction</td>
<td>Contractor and ECoW</td>
</tr>
<tr>
<td>Removal of exclusion fencing</td>
<td>Between April and September upon completion of works</td>
<td>Approximately 1 week</td>
<td>Contractors supervised by ECoW</td>
</tr>
</tbody>
</table>

**BIODIVERSTY PROTECTION ZONES**

2.35 The site contains areas of open mosaic habitat. This habitat will be retained within the site wherever possible. The areas of open mosaic habitat that will be retained are shown in Figure 1, Appendix 1. The creation of new areas of habitat within the site will be through the provision of a green roof.
2.36 The Bramblefields Local Nature Reserve to the south-west of the site is a statutory designated site. The woodland and scrub vegetation present along the south-west boundary of the site will be retained and enhanced to provide a buffer between the LNR and Station / Interchange Area.

2.37 Any other areas of habitat to be retained within the site will be protected from construction related impacts through the installation of fencing around retained habitat. Root protection zones for trees and areas of woodland will also be fenced off to avoid encroachment during construction.

**TIMEFRAMES AND RESPONSIBILITY FOR IMPLEMENTATION**

2.38 The CEMP: Biodiversity will be implemented at the outset of development and will be adhered to until completion of all construction works. The persons responsible for ensuring that the CEMP is adhered to at each phase have been allocated.

**Table 2**

: Construction and ecological mitigation timeline

<table>
<thead>
<tr>
<th>Construction / Ecological Mitigation Phase</th>
<th>Start Date (provisional)</th>
<th>Duration</th>
<th>Responsible Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetation clearance and reptile fence installation</td>
<td>July 15</td>
<td>Approximately 2 weeks</td>
<td>ECoW (contractor to carry out work under ECoW supervision)</td>
</tr>
<tr>
<td>Reptile translocation</td>
<td>July 15</td>
<td>3 – 9 weeks (depending on reptile population)</td>
<td>ECoW</td>
</tr>
<tr>
<td>Destructive search</td>
<td>July 15</td>
<td>Approximately 2 weeks</td>
<td>ECoW (contractor to carry out work under ECoW supervision)</td>
</tr>
<tr>
<td>Demolition / site clearance</td>
<td>August 15</td>
<td>August 15</td>
<td>ECoW and developer (contractor to carry out work under ECoW supervision)</td>
</tr>
<tr>
<td>Ground works</td>
<td>August 15</td>
<td>May 16</td>
<td>Developer</td>
</tr>
<tr>
<td>Construction</td>
<td>September 15</td>
<td>December 16</td>
<td>Developer</td>
</tr>
<tr>
<td>Landscaping - habitat enhancement and restoration</td>
<td>July 16</td>
<td>Nov 16</td>
<td>Developer (under ECoW supervision)</td>
</tr>
<tr>
<td>Reptile fence removal</td>
<td>Nov 16</td>
<td>Approximately 1 week</td>
<td>ECoW (contractor to carry out work under ECoW supervision)</td>
</tr>
<tr>
<td>Completion</td>
<td>December 16</td>
<td></td>
<td>Developer</td>
</tr>
</tbody>
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3 Method Statements

SITE CLEARANCE

3.1 All the following works will be undertaken in accordance with the Precautionary Method of Working (Appendix 2) and will be monitored through the quality process of inspection and test plan, working inspection sheets and Works Package Plan.

Vegetation

3.2 Vegetation will be cleared in accordance with Precautionary Method of Working, attached (Appendix 2).

3.3 Vegetation clearance will be carried out outside of the bird nesting period, March to September, inclusive. Where this is not possible, the ECoW will check all bird nesting habitats and verify that no nests are present. If a bird nest is identified, a buffer zone will be established around the nest (buffer distance to be determined based on site conditions). No works will be permitted within this buffer zone until all young have fledged, as confirmed by the ECoW.

3.4 All trees that require felling or pruning as part of the works will be assessed for their potential to support roosting bats through a ground level assessment. If any features with the potential to support roosting bats are identified, further survey would be required to determine the presence/likely absence of roosting bats. If bats are found to be roosting in any tree that requires felling or pruning, an EPSM licence from Natural England would be required.

3.5 If any invasive plant species are discovered during vegetation clearance, works in the area will stop immediately and a specialist qualified to deal with invasive species will be contacted.

Rubble and debris

3.6 Rubble and debris piles will be dismantled in accordance with Precautionary Method of Working as attached (Appendix 2).

3.7 Any animals found during vegetation clearance and rubble pile removal will be captured and relocated to the designated receptor site.
FENCE INSTALLATION

3.8 Temporary reptile exclusion fencing will be installed around the boundary of the works area, in accordance with the Precautionary Method of Working (Appendix 2). The ECoW or appointed representative will supervise the installation of the fencing, which will be carried out during the active period for reptiles (April to September, weather dependent).

3.9 Any animals found during fence installation will be captured and relocated to the designated receptor site.

3.10 A specification for the reptile exclusion fencing is included in Appendix 3. Selection of an appropriate fencing material is left to the discretion of the developer / contractor. However, the fencing must be approved by the ECoW.

REPTILE TRANSLOCATION

3.11 An off-site receptor site has been identified by Cambridge County Council as specified in the Precautionary Method of Working (Appendix 2). Reptile trapping will be carried out in accordance with the Precautionary Method of Working (Appendix 2).

3.12 All animals captured from the site will be caught and then released into the receptor areas, into or near to a hibernaculum. The sex and life stage of all reptiles caught will be recorded and animals will be placed in a secure container with grass bedding and kept in the shade for transport and until release. Grass snakes and common lizards will be kept separately, in marked containers. The translocation procedure implemented will follow guidelines produced by Herpetofauna Groups of Britain and Ireland (1998).

GREAT CRESTED NEWT TRANSLOCATION (if required)

3.13 Great Crested Newt shown to be absent on site following Newt Surveys and eDNA testing.

DESTRUCTIVE SEARCH

3.14 Ground Clearance will be done in accordance with Precautionary Method of Working (Appendix 2).

MONITORING

3.15 During the construction period, the fencing will be inspected and properly maintained.
with advice from an ECoW or appointed person. Fence inspections will be carried out weekly. Should a defect (e.g. a tear in the fence) be identified by the ECoW or appointed person, the contractor will repair the fence within 24 hours.

3.16 Vegetation along the fence will be controlled to prevent the fence becoming overgrown, which may allow animals to climb over the fence. Cutting the vegetation using a strimmer will be undertaken under ecological supervision and care will be exercised to prevent damage to animals or to the fence.

**FENCE REMOVAL**

3.17 Fence Removal in accordance with the Precautionary Method of Working (Appendix 2).

**CREATION OF LOG PILES AND HIBERNACULA**

3.18 Log piles and hibernacula will be integrated into the landscaping design and will be created within areas of retained habitat and receptor areas. A specification sheet showing various designs for creation of log piles and hibernacula are shown in Appendix 4, in accordance with HA DMRB, Volume 10 Section 4 Annex D. These deadwood piles will be made from native hardwood locally cut from around the site. The piles will be stacked approximately 1m in height, either in a pyramidal shape (bound with wire to prevent them breaking apart over time) or against a semi-mature/mature tree trunk. The piles will be placed equidistant from each other and will be oriented as such that their longest side faces to the south.

3.19 Hibernacula will be constructed above or below ground and will comprise native hardwood locally cut from around the site covered with turf or moss from within the site. Hibernacula should be approximately 1m in width and 2m in length. They will be interspersed with log piles within receptor areas and areas of retained and created habitat.

3.20 Log pile and hibernacula will be left untouched as regular disturbance will limit the diversity of invertebrates in log piles and hibernacula. As well as supporting many kinds of invertebrate, deadwood piles also provide good foraging areas for reptiles and birds such as robins and wrens. The piles could also provide hibernation sites for reptiles, amphibians and hedgehogs.
PROCEDURE TO FOLLOW IF ANY PROTECTED SPECIES ARE DISCOVERED

3.21 All contractors working on the site will be given a toolbox talk about protected species and habitats that they may encounter within the site. In the event that any protected species are found during construction works, all works will stop immediately and advice sought from an ECoW immediately on how to proceed.

LIGHTING FOR NIGHT WORKS

1.5 Night working may be required during the construction period. To avoid any disturbance to bats, the following measures should be carried out:

- Only the minimum amount of light needed for safety should be used and turned off when night works are not being carried out;
- Minimise light spill by eliminating any bare bulbs and upward pointing light fixtures. The spread of light should be kept near to or below the horizontal plane, by using as steep a downward angle as possible and/or shield hood;
- Use light sources that emit minimal ultra-violet light (Langevelde and Feta, 2011) and avoid the white and blue wavelengths of the light spectrum, so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging;
- Avoid using reflective surfaces under lights or light reflecting off windows (e.g. onto potential bat flight lines);
- Artificial lighting should not directly illuminate hedge rows and tree lines;
- Artificial lighting should not directly illuminate any known bat roosting features; and
- Uplighters are to be avoided.
References


Cambridge Ecology (2012a). Report into the findings of an extended Phase 1 Habitat Survey and Protected Species scoping exercise of land at Chesterton Sidings, Cambridge

Cambridge Ecology (2012b). Report into the findings of species specific surveys of land at Chesterton Sidings, Cambridge


Cambridge Ecology (2013b). Supplementary Phase 1 and Botanical Survey: Cambridge Science Park Station within the Proposed Interchange Area

Environment Agency (2013). Pollution Prevention Guidance Series (PPGs): Basic Good Environmental Practice PPG1: Prevent Pollution

Environment Agency (2014). Pollution Prevention Guidance Series (PPGs): Works In, Near or Over Watercourses, PPG5: Prevent Pollution


The Ecology Consultancy (2015b). *Chesterton Interchange Station, Ecological Design Strategy* (EDS)
Appendix 1: Site Plan and Development Proposals
Figure 1: Map showing site boundary and retained habitat
Appendix 2: Precautionary Method of Working
Precautionary Method of Working (Initial Site Clearance)

Habitat on Site is suitable for reptiles and nesting birds. This Precautionary Method of Working (PMW) outlines actions which need to be taken to minimise any impact on these species while transplanting of reptiles between the Site and the Receptor Sites.

- **Staff briefing:** The Ecologist for this site will be appointed by Volker Fitzpatrick Limited and will be responsible for ensuring that the measures detailed below are implemented. The Ecologist will be fully briefed on their required tasks by the Ecological Clerk of Works. The Ecological Clerk of Works will be an experienced ecologist employed by Atkins. The Ecologist at Chesterton Interchange Station by Volker Fitzpatrick Limited.

- **The details of this PMW will be presented by the Ecologist through a Toolkit Talk by the Ecologist to all staff working on the Site prior to the commencement of works. Where necessary, the Ecologist will remain on site to ensure the measures set out below are undertaken in accordance with the PMW.

- **Prior to any vegetation clearance on the Site, all suitable habitats within the working area will be surveyed by the Ecologist for the presence of nesting birds. This will be carried out by an experienced ornithologist, using a nest identification procedure where the area of vegetation requiring clearance is observed for at least half an hour to identify active nests through the identification of birds returning to the nest with food or leaving with faecal sacs. Any nests identified during this initial survey will be left undamaged with an appropriate buffer of vegetation of no less than 2.5 m radius. The buffer will be clearly marked with tape and appropriate signage and will remain in place for the entire nesting period.**

- **Following the initial nest bird survey, the working area will be surrounded by HERPETOS/RED reptile fencing or temporary reptile exclusion fencing to DMRB standard (Vol. 10, Dec. 4 Part 7 HA 116.05 Annex B1).** The installation of the fencing will be carried out under an ecological watching brief by the Ecologist including a detailed inspection for breaching birds no more than 24 h prior to any vegetation clearance being undertaken and a hand search. Hand searching will include carefully checking within and under the potentially suitable refuges such as stones, timber, leaf piles, logs, tree trunks, bush stems and general waste. Areas of dense vegetation may need to be removed by a contractor, with the Ecologist on-hand to provide advice, to approximately 150 mm height in order to have the hands unlike the ground be undertaken. Once the relevant habitats have been hand searched, all the materials and cut vegetation comprising these habitats will be removed from the working area.

- **Plants and materials will not be stored within the fenced area. The fence will be checked daily to ensure that it remains intact and continues to act as a barrier to reptiles.**

- **During the fence installation, that traps will be installed along the entire boundary of the fence at 5 - 10 m intervals depending on the ground conditions. A minimum of 100 artificial refugia comprising opaque boxes (min. 0.5 m x 0.5 m) will be interspersed between the bucket traps along the fence boundary and spread out within the fenced area.**

- **Access points will be kept to a minimum and will comprise a gap wide enough for various required to carry out all construction works. The fence will be replaced along the access points during times of low or no vehicle movements. The fence will also be replaced across the access points each night. To negate the need to bury the base of the fence as specified in the DMRB, the fence design across the access points will use sand bags along the base of the plastic overlap along the surface of the ground to prevent reptiles from entering the working area.**

- **Following the completion of the fence, blanket traps and the distribution of artificial refugia, reptiles will be carried out over an initial period of 8 days. Every morning the traps and selected areas of trapping will be inspected.** Any reptiles caught will be kept in a cotton bag and returned to the Receptor Site(s). If more than 100 common lizards or slow worms or more than 20 grass snakes are captured during the 8 days trapping, the trapping period will be extended to 10 days. If, following the initial 8 days trapping, 8 consecutive days occur without any reptiles being trapped, the trapping will cease.**

- **During the trapping period, areas of suitable reptile hibernacula (e.g. green lizards, common lizards, slow worms and general waste) will be identified by the Ecologist within the working area and the location will be noted. The site will be kept to the minimum possible to allow clearance and will be carried out under an ecological watching brief as described above. Any reptiles used or being built during the watching brief will be left undamaged, with an appropriate buffer of surrounding vegetation of no less than 2.5 m radius, for the entire nesting period.**

- **Any reptiles hibernating within the working area will be disturbed by hand as far as possible and immediately removed from the working area, with the Ecologist on-hand to provide advice.** Following an initial hand clearance, the remains will be removed using a 300 mm excavator. **Timber sleepers will be retained on the Site, where practicable, for use within the landscape.**

- **If the reptile is found, it will be caught, if possible, and kept in a cotton bag to be transported to the Receptor Site(s).**

- **In mid-July to August, following the completion of the reptile trapping, the scrub across the working area will be cut by a contractor, with the Ecologist on-hand to provide advice and carry out an ecological watching brief as described above.** All stumps arising from the removal of vegetation and other litter present will be immediately removed from the working area to prevent uses, protected species. This will take place in one direction to maximise the chance of capturing any reptiles remaining in the working area. A further vegetation cut will be carried out following the initial cut to reduce the vegetation to ground level and litter removed as above. Vegetation will be maintained at a height of less than 50 mm throughout the course of the works. Leaf blowers and a vacuum cleaner will be used to effectively clear out vegetation and can minimise the risk of injury to great crested newts or reptiles.

- **The reptile Receptor Site(s) will be discussed with the South Cambridgeshire District Council Ecology Consultancy Officer. There are a number of potential Receptor Sites along the Cambridge Guided Busway (NC861) including Landside and Ecological Mitigation (LEM) area 3-7 and LEM Bb which have been identified as the most suitable reptile Receptor Sites. However, these sites will be subject to a full inspection and provision of additional hibernacula if it is considered appropriate.**

- **The reptile Receptor Site(s) will be selected with the South Cambridgeshire District Council Ecology Consultancy Officer. There are a number of potential Receptor Sites along the Cambridge Guided Busway (NC861) including Landside and Ecological Mitigation (LEM) area 3-7 and LEM Bb which have been identified as the most suitable reptile Receptor Sites. However, these sites will be subject to a full inspection and provision of additional hibernacula if it is considered appropriate.**

- **The reptile Receptor Site(s) will be subject to monitoring in April - June 2018.**

- **The methods highlighted within this PMW will be carried out with appropriate quality assurance and quality control measures which will be checked by the Ecologist and will be audited by the Ecologist.**
Appendix 3: Reptile Exclusion Fencing Specification
Fence installation specification (taken from HA DMRB Volume 10 Section 4 Annex B)
Appendix 4: Log Pile and Hibernacula

Specification
Example of an above ground log pile

STABILIZATION PEG DETAIL

LOG PILE DETAIL
Example of a small, log pile. Additional stability can be provided if needed by hammering posts into the ground at each end of the pile.

Example of a stag beetle loggery using timbers of 10-50cm diameter with bark attached and buried to depth of 60cm. Chipped wood can be included in the base or centre if the pile is large enough. Oak and beech are the best timbers but stag beetle will use timber from a variety of trees. Note these structures are stable and not easily moved.
Example of above and below ground hibernacula using branches or logs covered with turf or moss (taken from HA DMRB Volume 10 Section 4 Annex D)
Appendix 5: Legislation
BADGERS

Badgers receive protection under The Protection of Badgers Act 1992 which consolidates the previous Badger Acts of 1973 and 1991. The Act makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger;
- Cruelly ill-treat a badger, including use of tongs and digging;
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett1 or any part thereof;
- Intentionally or recklessly disturb a badger when it is occupying a badger sett; or,
- Intentionally or recklessly cause a dog to enter a badger sett.

How is the legislation pertaining to badgers liable to affect development works?

A badger sett is defined in the legislation as "any structure or place which displays signs indicating current use by a badger". A Development Licence2 will be required from Natural England for any development works liable to affect an active badger sett, or to disturb badgers whilst in the sett. Depending on the nature of the works and the specifics of the sett and its environs, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. Natural England has issued guidelines on what constitutes a licensable activity. There is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

Natural England published an interim guidance document entitled ‘Badgers and Development, A Guide to Best Practice and Licencing’ (2007), which provides guidance on how development can be carried out within the law and in a way that minimises the detrimental impact on this species. Of note, Natural England advises that foraging areas should be maintained or new foraging areas created, and that access between setts and foraging/watering areas should be maintained or new ones provided (Natural England 2007).

BATS

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or taking (capture) of Schedule 2 species (e.g. bats)
• Deliberate disturbance of bat species as:
  o a) to impair their ability:
    ▪ (i) to survive, breed, or reproduce, or to rear or nurture young;
    ▪ (ii) to hibernate or migrate
  o b) to affect significantly the local distribution or abundance of the species

• Damage or destruction of a breeding site or resting place
• Keeping, transporting, selling, exchanging or offering for sale whether live or
dead or of any part thereof.

Bats are also currently protected under the Wildlife and Countryside Act 1981 (as
amended) through their inclusion on Schedule 5. Under this Act, they are
additionally protected from:

• Intentional or reckless disturbance whilst occupying a place of shelter or
protection; and
• Intentional or reckless obstruction of access to any place of shelter or protection.

How is the legislation pertaining to bats liable to affect development works?

A European Protected Species Mitigation (EPSM) Licence issued by the relevant
countryside agency (e.g. Natural England) will be required for works liable to affect
a bat roost or for operations likely to result in a level of disturbance which might
impair their ability to undertake those activities mentioned above (e.g. survive,
breed, rear young and hibernate). The licence is to allow derogation from the
relevant legislation but also to enable appropriate mitigation measures to be put in
place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such
that, in certain circumstances, important foraging areas and/or commuting routes
can be regarded as being afforded de facto protection, for example, where it can be
proven that the continued usage of such areas is crucial to maintaining the integrity
and long-term viability of a bat roost.

**BIRDS**

With certain exceptions, all birds, their nests and eggs are protected under
Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other
things, this makes it an offence to:

• Intentionally kill, injure or take any wild bird
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, black redstart, hobby, bittern and kingfisher receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird.

**How is the legislation pertaining to birds liable to affect development works?**

To avoid contravention of the Wildlife and Countryside Act 1981 (as amended), works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Those species of bird listed on Schedule 1 are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

**GREAT CRESTED NEWTS**

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2 It should be noted that this is the main breeding period. Breeding activity may occur outwith this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.
The great crested newt *Triturus cristatus* receives full protection under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of species listed on Schedule 2
- Deliberate disturbance of any Schedule 2 species as:
  - a) to impair their ability:
    - (i) to survive, breed, or reproduce, or to rear or nurture young;
    - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate
  - b) to affect significantly the local distribution or abundance of the species
- Deliberate taking or destroying of the eggs of a Schedule 2 species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

The great crested newt is also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

**How is the legislation pertaining to herpetofauna liable to affect development works?**

A European Protected Species Mitigation (EPSM) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect the breeding sites or resting places of great crested newts, protected under The Conservation Habitats and Species Regulations 2010 (as amended). A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.
All reptiles native to the UK are listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). The four most commonly encountered species of reptile; the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* are protected under Section 9(1) and 9(5) of the Act which makes it an offence to:

- Intentionally kill, injure or take a reptile,
- Sell, offer for sale, possess or transport a reptile for the purpose of sale.

An offence under the Wildlife and Countryside Act 1981 with regard to reptiles can lead to fines of up to £5000, confiscation of machinery, and/or six months imprisonment for each offence. Harm to more than one animal may be taken as separate offences. Both individuals and companies may be liable for offences.

There are no licensing provisions within the Act for development activities affecting these species. However, developers are expected to take adequate precautions to avoid breaches of the legislation, including undertaking adequate surveys and mitigation to avoid or minimise the risk of killing or injuring reptiles.