Chesterton Interchange
Ecological Design Strategy
Volker Fitzpatrick

29 April 2015
Notice

This document and its contents have been prepared and are intended solely for Volker Fitzpatrick’s information and use in relation to discharging Planning Conditions relating to Chesterton Interchange.

ATKINS Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 17 pages including the cover.

Document history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Purpose description</th>
<th>Originated</th>
<th>Checked</th>
<th>Reviewed</th>
<th>Authorised</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev 1.0</td>
<td>Draft for Comment</td>
<td>R Tierney</td>
<td>S Price</td>
<td>J Price</td>
<td>-</td>
<td>23/01/15</td>
</tr>
<tr>
<td>Rev 2.0</td>
<td>Draft for Client Review</td>
<td>J Segar</td>
<td>S Price</td>
<td>-</td>
<td>-</td>
<td>17/04/15</td>
</tr>
<tr>
<td>Rev 3.0</td>
<td>Final for submission</td>
<td>S Price</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>29/04/15</td>
</tr>
</tbody>
</table>

Client signoff

<table>
<thead>
<tr>
<th>Client</th>
<th>Volker Fitzpatrick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Chesterton Interchange</td>
</tr>
<tr>
<td>Document title</td>
<td>Ecological Design Strategy</td>
</tr>
<tr>
<td>Job no.</td>
<td>5134609.501</td>
</tr>
<tr>
<td>Copy no.</td>
<td>01</td>
</tr>
<tr>
<td>Document reference</td>
<td>P:\GBGWA\Environment\Assessment\ECOLOGY PROJECTS Jan 2014\5134609.501 Chesterton Interchange\60 - work process documentation\61 - generated documents and reports\EDS Chesterton Interchange, Atkins 290415.docx</td>
</tr>
</tbody>
</table>
# Table of contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Introduction</strong></td>
<td>4</td>
</tr>
<tr>
<td>1.1. Background</td>
<td>4</td>
</tr>
<tr>
<td>1.2. Proposed Development</td>
<td>5</td>
</tr>
<tr>
<td>2. <strong>Baseline and Objectives</strong></td>
<td>6</td>
</tr>
<tr>
<td>2.1. Review of site potential and constraints</td>
<td>6</td>
</tr>
<tr>
<td>2.2. Purpose and objectives</td>
<td>6</td>
</tr>
<tr>
<td>3. <strong>Detailed Design</strong></td>
<td>7</td>
</tr>
<tr>
<td>3.1. Habitat</td>
<td>7</td>
</tr>
<tr>
<td>3.2. Protected Species Strategy</td>
<td>8</td>
</tr>
<tr>
<td>3.3. General Enhancements</td>
<td>10</td>
</tr>
<tr>
<td>3.4. Ecological Clerk of Works</td>
<td>11</td>
</tr>
<tr>
<td>3.5. Timetable</td>
<td>11</td>
</tr>
<tr>
<td>3.6. Aftercare and long-term maintenance</td>
<td>11</td>
</tr>
<tr>
<td>3.7. Monitoring and Remediation Measures</td>
<td>11</td>
</tr>
<tr>
<td>3.8. Waste Management</td>
<td>11</td>
</tr>
</tbody>
</table>

**Appendices**

- **Appendix A. Site Boundary and Landscape and Ecological Mitigation**
  - Pages 13
1. **Introduction**

Atkins was commissioned by VolkerFitzpatrick on behalf of Cambridgeshire County Council to produce an Ecological Design Strategy (EDS) for the proposed Cambridge Station Interchange (CSI). The station interchange development is a joint project with Network Rail (NR) under the Governance for Railway Investment Projects (GRIP) process. This document will discharge condition 9 of the planning consent. Condition 9 states:

9. **Ecological Design Strategy (EDS)**

No development shall commence until an ecological design strategy (EDS) addressing mitigation, compensation, enhancements and restoration for protected species (common reptiles, breeding birds), invertebrates, open mosaic habitat and other habitats (e.g. trees) and eradication of Schedule 9 species (e.g. Japanese Knotweed) has been submitted to and approved in writing by the Local Planning Authority.

The EDS shall include the following.

- a) Purpose and conservation objectives for the proposed works.
- b) Review of site potential and constraints.
- c) Detailed design(s) and/or working method(s) to achieve stated objectives. Consideration should be given to what contribution the green roof on the building could play in biodiversity enhancement. Key notable invertebrate species assemblages identified within the extended invertebrate surveys must be targeted for detailed habitat creation, making use of existing onsite materials as appropriate.
- d) Extent and location/area of proposed works on appropriate scale plans.
- e) Type and source of materials to be used, where appropriate, e.g. native species of local provenance.
- f) Timetable for implementation demonstrating that works are aligned with the proposed phasing of development.
- g) Persons responsible for implementing the works, such as ECoW.
- h) Details of initial aftercare and long-term maintenance.
- i) Details of monitoring and remedial measures.
- j) Details for disposal of any wastes arising from works.

The EDS shall include off-site compensation measures. The EDS shall be implemented in accordance with the approved details and all features shall be retained in the manner thereafter.

1.1. **Background**

Proposals for a new station north of Cambridge were first established in the Cambridgeshire and Peterborough Structure Plan in 2003 which identified a station in this location as being needed to support growth in the Cambridge Sub-Region and to deliver a cohesive and integrated transport network. The existing station at Cambridge suffers from platform and passenger congestion problems.

The Cambridge Science Park Interchange Environmental Statement (ES) May 2013 and the Chesterton Sidings and Bramble Field Local Nature Reserve 2013 describes the effects of the development on the ecology and nature conservation. These documents include baseline and species specific surveys. The Design Environmental Management Plan (DEMP) prepared at design stage informs this document. This EDS sets out the necessary mitigation, compensation, enhancements and restoration for protected species and priority habitats for the proposed development. Figures in Appendix A show the extent of the Chesterton Sidings site referred to as the ‘site’ and details the landscape and ecology mitigation.
1.2. Proposed Development

The site is located in Chesterton off Cowley Road, approximately 1 km south of the A14 ring road in the northern part of Cambridge. The site is located at approximate National Grid Reference 547500, 260900. The site is irregular in shape and covers an area of approximately 15 ha. The site is currently occupied by both disused and operational sidings and the majority of the site is densely vegetated. The proposed Cambridge Station Interchange (CSI) development comprises a new railway station, car park and an interchange facility providing access onto the wider public transport network (bus, cycle and pedestrian links). The Development will consist of a new 450 sq.m Station building (including passenger waiting facilities, toilets, staffed ticket office, shop unit(s), amenity space, staff accommodation and facilities), two main line platforms (270m in length and capable of accommodating a train of 12 cars) and a bay platform, a pedestrian/cycle bridge linking the Station building and platforms over the main line, a landscaped 450 space car park and 1000 space cycle park, new pedestrian and cycle links to surrounding areas, and the extension of the Cambridgeshire Guided Busway (‘the Busway’) into the Site along the alignment of the former St Ives Branch Line.
2. Baseline and Objectives

2.1. Review of site potential and constraints

The site is heavily overgrown with vegetation, comprises dense scrub and large areas of open ground used to stockpile railway ballast. The Chesterton Sidings area is bordered, with the exception of Bramblefields LNR to the south west, by commercial/industrial and suburban residential areas. The combination of the habitats present indicates that the site is of some biodiversity value and of district importance providing open mosaic habitat for breeding and foraging habitat for a range of species and supporting assemblages of invertebrates and plants.

Information obtained from the surveys indicated that during construction and post-construction operation and management the development proposals have the potential to affect the biodiversity value of the site. Adverse effects would be likely to include habitat loss, mainly the dense scrub and open mosaic habitat within the Station/Interchange Area. There is also the potential, without mitigation for the development to have probable negative effects on the Bramlefields LNR, reptiles, breeding birds, invertebrates and a variety of flora present on site. In addition, construction activities could result in displacement, disturbance and direct mortality effects to the local ecology without mitigation. Section 3 details how these constraints will be managed.

2.2. Purpose and objectives

As the site includes various habitats, including open mosaic habitat (a UK BAP priority habitat) together with protected species (reptiles, breeding birds, invertebrates and flora), addressing mitigation, compensation, enhancements and restoration is paramount. This document seeks to outline any ecological impacts likely to occur and to offer suitable mitigation, compensation including enhancement and restoration within site (and Bramblefields Local Nature Reserve (LNR), Highway Access Route and Nuffield Road Allotment access). A number of different species that are afforded protection under European and UK national legislation have been identified as being present or may be encouraged to be present within and immediately adjacent to the site. Species that were found to be present during the surveys include reptiles, breeding birds, invertebrates and plants. Species which may be encouraged amphibians, bats and water Voles. Actions to be taken as a result of the surveys are described in section 3 Detailed Designs.

The conservation objectives for the proposed works are as follows:

- Prevent harm and comply with all relevant legislation in relation to protected species on site during clearance and construction
- Minimise effects on existing populations of protected and noteworthy species on site;
- Retain and protect existing habitat on site where possible;
- Retain habitat connectivity across the site and provide linkages to the wider environment through the retention of corridors around the perimeter of the site;
- Provide habitat enhancements that will provide conditions suitable for existing wildlife;
- Provide conditions suitable for Species of Principal Importance and Local BAP species and habitats;
- Restore existing habitat temporarily lost in working areas on completion of construction;
- Follow relevant British Standards and Codes of Practice; and
- Select plants of known wildlife value within the planting scheme.
3. Detailed Design

There are two phases of the Development that have the potential to affect the ecological value of the Site – the construction and operation/management. The detailed designs and working methods set out below will achieve the necessary outcomes to discharge planning condition 9(c). The construction of the Development will result in the loss of vegetation. It is unlikely that much of the existing vegetation within the Station/Interchange Area would be able to be retained and hence the most significant construction impacts would be losses of vegetation and the fragmentation of existing habitats and connectivity with the wider area. The following measures for the application site and Bramblefield LNR are detailed within the Construction Environmental Plan CEMP and summarised below.

3.1. Habitat

Application Site

Construction activities, without mitigation, are considered to have the potential to give rise to certain negative effects on ecological resources based on loss of habitat, disturbance and direct mortality to species within site. The habitats within these areas include mainly dense scrub, open mosaic habitat, bare ground and buildings. Operational activities, following implementation of mitigation, are unlikely to give rise to negative effects based on fragmentation and direct mortality and have the potential to add beneficial value. Measures are documented within the CEMP and will be implemented to mitigate impacts that may arise during construction activities.

The loss of vegetation and habitat will be offset through landscape planting and creation of new habitats. The species of plants, trees and shrubs considered for planting will be those that best represent the habitat and landscape character of the area as defined in the Landscape Chapter 9 and The Cambridgeshire Landscape Guidelines (1991). Such planting will provide suitable feeding, breeding and hibernating opportunities for various wildlife. It would also provide biodiversity valuable and species-rich features providing ecological enhancement.

Landscaping will include:

- Retention and enhancement of existing woodland and scrub along the south west boundary of the Station/Interchange Area to form a buffer zone. The existing screening will be enhanced and strengthened, where possible
- Scrub clearance or other landscaping will be used to extend the area of open mosaic habitat to the north (priority habitat), to benefit plant species.
- Maintaining linear perimeter features, where possible, within the Site boundary;
- Retaining, where feasible, the small number of mature trees located within the site to provide habitat for invertebrates and birds.
- Boundary planting to assist habitat connectivity across the site and link it to other habitats beyond the Site boundary and provide commuting routes for a range of wildlife including reptiles, birds and bats.
- Translocation of plants of county value (such as wood sage and long-stalked crane’s bill) as appropriate.

New habitat creation will include:

- Creation of new habitat areas for reptiles, invertebrates and birds within the Station/Interchange Area and will include provision of south-facing areas and/or bunds/beetle banks.
- Creation of new wetland/pond area in north-west corner of Station/Interchange Area to increase the biodiversity of the Site.
- Enhancement of the southern end of the Station/Interchange Area by improvement of the poor grassland area through creation of species rich meadow grassland.
- New native hedgerow planting to the perimeter of the car park and across alternate bays to provide habitat connectivity across the Site.
- Creation of green roof on Station/Interchange building and cycle storage areas, where possible, to help offset loss of open mosaic habitat.
- Provision of swales, as part of the sustainable drainage system, planted with native wetland species and designed/profiled to provide habitat for invertebrates, birds and mammals.
- Provision of kingfisher nest boxes in bank alongside existing engineered channel to the north.
Bramblefields LNR
The design and implementation of mitigation and enhancement measures with respect to Bramblefields LNR have been agreed with the LPA and are to be undertaken by Cambridgeshire County Council. Responsibility for any enhancement measures outwith the Site boundary lie with Cambridgeshire County Council and therefore completion of these measures cannot be held accountable to the contractor. The measures are outlined below.

Mitigation:

- Retention and enhancement of existing buffer vegetation to maintain habitat value, reduce disturbance and provide screening from Station/Interchange Area.
- Deterring of high volume pedestrian access across the central east – west route of the public part of Bramblefields LNR to create a ‘disturbance suppressed’ central refuge
- Creation of grass verges, beetle banks and hedgerow planting adjacent to the fencing alongside the allotments to provide screening and buffer zones to Bramblefields LNR. This land to be designated as part of the Bramblefields LNR
- Creation of drainage channels under the access route alongside the allotments to provide safe passage for reptiles and prevent direct mortality
- Provision of additional refugia within the Bramblefields LNR and within Station/Interchange buffer zone.
- Watching brief during construction works in Bramblefields LNR.

Enhancements:

- Increasing the overall biodiversity value through provision of additional under-storey planting and species rich/wildflower grassland, as appropriate, together with selective thinning of existing trees/scrub.
- Establishment of new wetland habitat/ephemeral pond or enlargement of existing pond through re-alignment of existing path to provide additional habitat for reptiles and amphibians.
- Control of invasive weed swamp stonecrop (Crassula helmsii) in existing pond and provision of new aquatic planting to increase habitat value.
- Provision of new interpretation boards and litter bins.
- Contribution to an updated 10 year habitat Management Plan in collaboration with the City Council ecologist as with good management there is the potential to increase the value of the LNR for a greater diversity of species.
- Construction of channels under the new access path alongside the allotments to enable reptiles to cross between the LNR and allotments.
- Creation of new habitat areas for reptiles on the area of land between the Bramblefields LNR and allotments which will enable the Bramblefields LNR to be extended and managed.

3.2. Protected Species Strategy
Construction activities, without mitigation, are considered to have the potential to give rise to certain negative effects on ecological resources based on loss of habitat, disturbance and direct mortality to species within site.

Reptiles & Amphibians
The presence of reptiles and possibly amphibians requires that certain measures are implemented to ensure legal compliance. Best practice measures will be implemented to ensure animal welfare issues are addressed to minimise the risk that reptiles are harmed prior to and during any site inspection and construction works.

The design and implementation of mitigation and enhancement measures for reptiles will be set out in the CEMP.

Mitigation:

- Translocation of reptiles from the proposed Station/Interchange Area to adjacent suitable habitat will be undertaken following a pre-prepared precautionary method of working document. The construction works will be commenced in a phased manner to allow the ECoW to check the development area prior
to construction and to allow the reptiles time to move away of their own accord. If reptiles are found then the ECoW will move these to adjacent suitable habitat.

- Erection and maintenance of a temporary effective reptile barrier fence to prevent reptiles entering the site once any vegetation clearance and ground works commence.
- Retention of existing vegetation along the Station/Interchange and Bramblefields LNR boundary to act as a buffer zone separating the area of most value for reptiles from the construction site. This buffer zone could be used for reptiles found within the Site. Provision of refugia and additional native species planting within the buffer zone between the Station/Interchange Area and Bramblefields LNR. This area will be managed for the benefit of reptiles, birds and other wildlife and act as a feeding, breeding, resting and commuting area linking with other habitats nearby.
- eDNA surveys for great crested newts will be undertaken at one water body to the north east of the site prior to construction to ascertain their presence / absence. Other water bodies have been surveyed and no great crested newts found.

**Enhancement:**

- The creation of a new wetland/pond area within the public part of Bramblefields LNR and/or the extension of the existing pond there will enhance the Bramblefields LNR for reptiles.
- Control of the invasive weed (Crassula helmsii) and provision of new aquatic planting.

**Breeding birds**

The presence of nesting birds and UKBAP species is of material consideration for this development. The design and implementation of mitigation and enhancement measures for nesting birds will be set out in the CEMP.

**Mitigation:**

- Compliance with legislation with the timings of construction activities e.g. vegetation clearance and removal of bird breeding habitat, undertaken outside the breeding season (March to September inclusive). If this is not possible all vegetation and buildings that are cleared during the breeding season checked for nesting birds by an experienced ornithologist acting as an Ecological Clerk Of Works.
- Retention and enhancement of the area of broad-leaved woodland and scattered scrub along the south western boundary of the Station/Interchange.
- Retention of breeding habitat around the perimeter of the Station/Interchange Area.
- Creation of new habitat in the Station/Interchange Area (13% of area will be native hedgerow and trees, 6% species rich grassland) to replace habitat that is lost. These areas will be designed to meet the breeding and foraging needs of birds and other wildlife and act as links with other habitats nearby.

**Enhancement:**

- The incorporation of bird boxes, including swift boxes/bricks on buildings, around the Site.

The loss of habitat is offset through retention and strengthening of boundary features and provision of new habitat areas. These measures have the potential to support wider breeding assemblages and a likely positive effect on breeding birds.

**Invertebrates**

The site contains some habitat suitable for invertebrates, the site was considered overall to be of low local value for invertebrate conservation, as it supports common and widespread species that can be found in a range of the habitats that occur in the Cambridge area. The design and implementation of mitigation and enhancement measures for invertebrates, specific mitigation will be employed for bees, beetles species, will be set out in the CEMP and to be agreed with the LPA.

**Mitigation:**

- retaining as much of the scrub and tall ruderal habitat along the western boundary where possible, in order to preserve a significant scrub edge habitat on site for many of the invertebrates recorded;
- creation of new habitats e.g. hedgerows, species rich grassland, green roofs, beetle banks, log piles;
• provision of boxes of bee tubes to create more nesting opportunities for solitary bees; and,
• planting native flower-rich grassland as close as possible to retained scrub edge on the proposed Station/Interchange Area to provide habitat suitable for many of the larger invertebrates recorded; and
• Undertaking an invertebrate survey prior to construction with results informing the production of the CEMP.

Flora
Two hundred and fourteen (214) species of plant were found during the Phase 1 Habitat Survey. This number of plants is considered to be a low to average number of plants for an area of this size. The majority of the plant species recorded were common and widespread species and no legally protected or BAP species were recorded. The design and implementation of mitigation and enhancement measures for flora will be set out in the CEMP and has been agreed with the LPA.

Mitigation:

• Limiting vegetation clearance to that which is essential for the safe construction of the Development in order to maintain plant biodiversity;
• Creation of new habitat areas containing species rich flora;
• Undertaking a survey prior to construction to locate any plants of county significance e.g. Hoary Mullein, Wood Sage, and Long-stalked Crane’s bill. If these species were in danger of being lost as a result of the construction works, then they will be translocated to designated area, agreed with the LPA, or used on the green roofs. Should Jersey Cudweed re-appear on Site this could also be moved to a safe destination.

Enhancement:

• Contouring of new and existing sustainable drainage features to allow plant recolonisation.

3.3. General Enhancements

Amphibians
The use of standard construction practices outlined in the CEMP will minimise any short term disturbance and certain measures may be necessary e.g. installation of one-way fencing, to ensure legal compliance is maintained during site preparation and construction works to avoid killing amphibians.

Bats
The development will provide opportunities to enhance the area for bats as the area of broad-leaved woodland and scattered scrub along the south western boundary of the Station/Interchange Area will not be affected by any clearance. This area will be enhanced to improve habitat connectivity across the Site linking it to other habitats and thus providing commuting routes for a range of wildlife, including bats. This will include installation of 10 bat boxes of different designs to provide new roosting opportunities. In addition, lighting will comply with guidance provided in the Bat Conservation Trust ‘Bats and Lighting in the UK’ (BCT 2009) (see chapter 10) with excessive light spill from artificial night lighting being kept to a minimum through appropriate design.

Water Vole
Whilst the survey of the water bodies indicated that water voles were currently absent from the Site, they are reportedly known to be present in the vicinity and there is potential to enhance habitat for them along the Highways Access Route through opening up of the vegetation alongside the ditch and through the creation of swales as part of a sustainable drainage system.

Other
In addition the following measures will be implemented and detailed in the CEMP:

• Strict controls on dust and other emissions from construction vehicles
• Implementation of pollution prevention measures & compliance with best practice
• Minimisation of light spill from night lighting
3.4. **Ecological Clerk of Works**

The ECoW will be commissioned by the Contractor and will be in place prior to construction starting. The ECoW will aid the Contractor in their compliance of the relevant legislative and ecological requirements through pre-works checks. To this end, the ECoW shall be involved with the planning of all site operations where environmental mitigation measures are required and will advise the Contractor where these need to be in place prior to commencement of individual exploratory holes. The ECoW will liaise with the project Ecologist with respect to the planning and executing of all mitigation measures for ecological and environmental issues. They will also provide independent reports to the project team with regards to legal compliance. The ECoW will submit weekly reports to the Engineer to summarise the inspections undertaken, mitigation measures utilised and any other relevant information. The ECoW is not responsible for Contractor’s compliance with the EEMP or any other contractual conditions required by the Engineer; this responsibility lies with the Contractor.

3.5. **Timetable**

All measures detailed within this document will be undertaken in accordance with the project programme to ensure completion. Any ecological mitigation and or surveys will be undertaken according to current legislation and during the appropriate survey / mitigation season. A detailed timetable will be provided once the construction programme has been finalised.

3.6. **Aftercare and long-term maintenance**

The monitoring and remediation measures will be documented within the LEMP.

3.7. **Monitoring and Remediation Measures**

The monitoring and remediation measures will be documented within the LEMP.

3.8. **Waste Management**

The waste management measures will be documented within the CEMP.
Appendices
Appendix A. Site Boundary and Landscape and Ecological Mitigation