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Evaluation of the Biodiversity Offsetting Pilot Phase -
Indicative Costs of Current Compensation
Arrangements for Biodiversity Loss:
Illustrative Case Studies

Report on Task 4

November 2013

Collingwood Environmental Planning Limited
in partnership with
The Institute for European Environmental Policy (IEEP)
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### Project title:
**WC1051: Evaluation of the Biodiversity Offsetting pilot phase**

**Indicative Costs of Current Compensation Arrangements for Biodiversity Loss: Illustrative Case Studies**

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### Report details:
#### Report title:
**Report on Task 4**

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**Purpose:** To provide a summary of the results of the Indicative Costs of Current Compensation Arrangements for Biodiversity Loss: Illustrative Case Studies

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0. Executive Summary

Introduction

0.1 This research seeks to inform emerging biodiversity offsetting policy by providing baseline evidence regarding the costs of current compensation, for non-protected biodiversity, that has occurred within the planning system.

0.2 The concepts of mitigation and compensation are key components of the mitigation hierarchy, which provides a system for ensuring that development activities do not have an unnecessarily negative impact on biodiversity and other components of the natural environment (and potentially non-environmental issues although this report only considers the biodiversity aspects).

0.3 The following definition of compensation was developed as part of the research:

Compensation includes:
Measures to offset or make up for losses caused as a result of development or other change, including residual adverse effects, which cannot, or may not be entirely mitigated; for biodiversity, these measures can be on or off-site.

0.4 Mitigation was also defined:

Mitigation includes:
Measures undertaken to limit or reduce adverse effects resulting from development or other change taking place including modifications, deletions or additions to the design of the development, adaptation of methods or timing or adjustments in the nature, scale or location of the project; for biodiversity, these measures aim to minimise adverse effects on the ecological conditions, habitats and species affected by the development.

0.5 The following objectives were set for this task:

- Estimate the existing costs of compensation for residual biodiversity loss
- Reveal the existing costs of compensation for residual biodiversity loss, including delays caused by negotiations/surveys, and issues around any land undeveloped because of on-site compensation.
- Establish the relative frequency of occurrence for these costs and provide information in a way useable in a government policy impact assessment, noting the risks and sensitivities imposed by the research methodology.

0.6 An exploratory case study approach was adopted in this research. This required the identification and exploration of 12 case studies supported by other research to contextualise the information collected. For a number of reasons, most notably the short two month timetable for this study, a pragmatic approach had to be taken. This research focussed on identifying and selecting a range of case studies to illustrate the type, scale and frequency of compensation costs.

0.7 These cases were explored via review of planning documentation and a number of semi-structured interviews with contacts involved in the cases. The results of these cases were written up and are presented as an appendix to this document.

Conclusions

Application of the mitigation hierarchy

0.8 The literature review and exploration of the case studies indicates that there is a lack of clarity in the application of the mitigation hierarchy. In practice processes relating to mitigation and compensation are rarely distinct and frequently considered to be the same thing. As such, the costs presented will often include mitigation and
compensation despite the researcher’s best efforts to distinguish these. That is not to
say that the case study contacts do not understand the two concepts, but that in
reality the mitigation hierarchy is ‘fuzzy’ with actions and costs often contributing to
multiple parts of the mitigation hierarchy.

**Net developable area**

0.9 The results show that planning applicants seek to avoid and retain biodiversity where
possible, particularly for high value features. The case studies have indicated that
retaining natural areas on-site has a number of benefits to the applicant:

- **Demonstrates commitment to the mitigation hierarchy and planning policy** –
  avoiding areas of high value is considered to reduce likely objections;
- **Space for non-biodiversity mitigation measures** - for example water storage or
  management in ponds and reducing visual or noise impacts;
- **Space for biodiversity mitigation measures** - such as bat boxes and bird feeding
  stations;
- **Space for biodiversity compensation measures** – as on-site compensation, which
  applicants and LPAs appear to prioritise within the cases examined.;
- **Scope for future developments or variation in the development** - in some
  instances;
- **Increased amenity value** – which is noted to be important for increasing the value
  of residential schemes.

0.10 From the cases examined, it appears that the current application of planning policy
and other considerations means that un-developed land within a development has
value to the developer in remaining undeveloped and that at the least its retention
does not seem to be considered a cost.

**Frequency of costs**

0.11 In terms of the frequency with which compensation for non-protected biodiversity is
required this research suggests that compensation for non-protected biodiversity
habitats is rare across the planning system as a whole, in the range of 0.04 – 5% of all
planning cases. The evidence sources suggest that the lower part of that range is most
likely. This large range of two orders of magnitude reflects the range of evidence
collected through the research as well as the variation of application within LPAs and
sectors.

0.12 Terms such as ‘rare’ or ‘very rare’ as descriptors of frequency for biodiversity
compensation arrangements were most common among interviewees, with the
quantitative data supporting this. On the basis of this research, it is possible to conclude
that **non-protected biodiversity compensation is required in less than 0.1% (less than 1
in a 1,000) of all planning applications.**

0.13 Based on the results, compensation for non-protected biodiversity is more likely to be
required where the following characteristics are present:

- Major planning applications;
- Developments with large footprints;
- A high degree of local controversy;
- An EIA is required;
- An LPA ecologist is involved;
- Where there are significant biodiversity features. In particular the presence of
  protected species or habitats will drive biodiversity compensation, even
  compensation for non-protected species or habitats. Applications where SSSIs
  and CWS are present appear more likely to require biodiversity compensation
  than non-designated sites.
**Types of costs**

0.14 There are various different cost elements associated with agreeing biodiversity compensation, but only a small proportion of these costs can be attributed to biodiversity compensation as distinct from other parts of the planning process.

0.15 Most of the identified process costs are not unique to biodiversity compensation. For example costs associated with ecological information, surveys, EIAs and developing and agreeing a management plan are significant, but are usually required regardless of the need for any biodiversity compensation. Generally, where it is required, biodiversity compensation might increase the scale of these existing costs by adding more complexity.

0.16 Beyond these existing costs the cases illustrate certain unique cost elements associated with managing and monitoring on and off-site compensation. These costs relate to:

- Developing and agreeing the compensation aspects of any management plan;
- Putting in place agreements to secure the delivery of any management plan;
- The specific monies provided for the management and monitoring of compensation.

**Scale of costs**

0.17 The scale of these costs varies depending upon the impact of the development, with larger biodiversity impacts (in terms of the extent of the habitats and their importance according to local policy) requiring higher costs. This can be seen in the range of total management costs which vary from £30,000 to £2,000,000 (including all non-biodiversity mitigation costs, where such mitigation costs may be greater than the biodiversity compensation costs).

0.18 The other substantive determinant of the costs is the ease with which compensation measures are identified and agreed, with complex or very specific compensation requirements potentially, but not typically, taking years to agree. As a result across some cases there is clearly a substantial amount of time and effort spent developing management plans, legal agreements and negotiating final financial agreements for biodiversity compensation.

0.19 From the case studies examined, these costs do not appear to be a high proportion of the overall development value nor a particularly high proportion relative to total time spent by applicants and authorities. **As with all the costs presented it is not clear from the evidence how they split between compensation, mitigation and protected biodiversity.** In some instances the time taken to agree these aspects is significant and in a smaller number of instances it is causing delay and uncertainty around the application – often when the potential impacts on biodiversity are significant and include protected biodiversity features.

0.20 In those instances where delay and/or uncertainty was observed it was rarely due to non-protected biodiversity compensation. The main planning reasons for delay or uncertainty were protected or designated biodiversity and/or non-biodiversity matters. Within these cases, non-protected biodiversity might have been an issue, but in only one case was it a priority in planning terms.

0.21 In conclusion, the number of lost days for construction due to non-protected biodiversity compensation and the associated opportunity costs is very small across the planning system as a whole. In cases with high biodiversity impact, this number if higher and in a very small number of specific instances there are significant delays and associated costs.
1. Introduction

Context and purpose

1.1 Biodiversity offsetting is an emerging Defra policy aiming to improve the current system of identifying and accounting for biodiversity loss in the planning process, within England.

1.2 This research seeks to inform this emerging policy by providing baseline evidence regarding the costs of current compensation, for non-protected biodiversity, occurring within the planning system. The following definition of compensation was developed as part of the research:

**Compensation includes:**

*Measures to offset or make up for losses caused as a result of development or other change, including residual adverse effects which cannot or may not be entirely mitigated; for biodiversity, these measures can be on or off-site.*

The interpretation and implications of this definition are set out in Section 3.

1.3 The research covered by this report is a separate task as part of the on-going evaluation of the biodiversity offsetting pilots. It is a related, but distinct piece of research and although there are clear complementarities and synergies the task has been treated as largely separate from the pilot evaluation.

Objectives of the research

1.4 The following objectives were set for this task:

1. Estimate the existing costs of compensation for residual biodiversity loss
2. Reveal the existing costs of compensation for residual biodiversity loss, including delays caused by negotiations/surveys, and issues around any land undeveloped because of on-site compensation.
3. Establish the relative frequency of occurrence for these costs and provide information in a way useable in an impact assessment, noting the risks and sensitivities imposed by the research methodology.

1.5 The results of this research are relevant to a broad policy area – i.e. biodiversity within the English planning context.

1.6 **This research was:**

1. Focused on the direct costs of agreeing and delivering biodiversity compensation within the English planning context.
2. Interested in the distinction between mitigation (which would still be required under any biodiversity offsetting regime) and on-site or off-site compensation. Therefore, it was agreed that a robust definition and understanding of these terms would need to be developed in the context of understanding costs associated with current compensation arrangements. This meant understanding when something is compensation and when it is mitigation.
3. Intended to develop a generic overview of the processes and outputs involved in determining the scale, type and management of compensation. This was to provide an understanding of where and when in the planning process costs associated with compensation emerge and to whom

1.7 **This research was not:**

1. Considering the effectiveness of biodiversity compensation.
2. Reviewing the application of planning policy.
3. Considering the costs of mitigation measures.
4. Assessing the validity of the mitigation hierarchy.
5. Considering the need to undertake surveys for UK and EU protected species and habitats. This is recognized as a frequent source of planning delay, but is not considered here. Other studies in relation to this are underway by Defra and DCLG and are outside the scope of this research.


Summary of the research approach

1.8 An exploratory case study approach was adopted in this research. This required the identification and exploration of 12 case studies supported by other research to contextualise the information collected. For a number of reasons outlined below, most notably the short two month timetable for this study, a pragmatic approach had to be taken, which focused on identifying and selecting a range of case studies to illustrate the type, scale and frequency of compensation costs.

1.9 An alternative approach would have been to obtain a random, representative and large sample of planning applications, while also potentially segmenting these samples into different types of cases (based on the relevant planning regime (Town and Country Planning or Highways Act), size or sector. This was considered not to be possible for a number of important reasons:

- It had already been recognised by the David Tyldesley Associates (DTA) Phase II and III research for Defra that compensation under the current planning regime for biodiversity loss is a relatively rare occurrence. The sample number therefore would inevitably be small, making it difficult to find planning applications where biodiversity compensation had occurred;

- Whether or not biodiversity compensation is required is not a feature of planning applications stored in various databases, such as COMPASS, and therefore the use of appropriate search terms via existing databases would not have identified any relevant cases. Defra had undertaken a scoping review of COMPASS to test this and their results supported this;

- The difficulty of identifying appropriate applications via database searches meant that the only way to know if a planning application required biodiversity compensation would be to look at the decision notice and related online materials (and/or talk to relevant persons). Doing this in a systematic manner was clearly not possible within the limitations of this research.

1.10 Given the nature of the information available and relatively low frequency of compensation for residual biodiversity loss, a qualitative, exploratory case study approach was felt to be the most realistic and appropriate research strategy to adopt.

Research caveats

1.11 There are a number of caveats that need to be made in the interpretation of the findings from this research, particularly where any scaling up of costs is concerned in relation to future government policy impact assessment work. These caveats (Table 1) reflect certain limitations in the nature of the data available, in the data collected and the timescale over which the research was required to be conducted. This does not

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detract from the value of the findings, but provides an important context in which they should be viewed.

Table 1: Research caveats and limitations

<table>
<thead>
<tr>
<th>Research caveats and limitation</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case studies are not necessarily representative</strong></td>
<td>The selection of case studies was made according to a number of criteria described below, and a significant degree of pragmatism was necessary because of the nature of the data available and the timescale over which data could be collected. The potential for selection bias is fully recognised in the findings discussed below, and needs to be recognised as an important caveat in any scaling up of possible costs identified. The research presents numerous evidence strands to indicate the frequency with which biodiversity compensation is required in current planning practice to contextualise the findings. No one piece of evidence is viewed as wholly authoritative, but in combination it is possible to provide an overall assessment of frequency.</td>
</tr>
<tr>
<td><strong>Difficulties in extracting costs from case study contacts</strong></td>
<td>Case study contacts were often reticent or unable to provide detailed cost information. The reasons given were commercial sensitivity or because they did not record the sort of costs the research was interested in. The majority of the cost information presented here was taken from publicly available planning documentation.</td>
</tr>
<tr>
<td><strong>Differentiating between costs associated with compensation for non-protected biodiversity</strong></td>
<td>The planning documents and those involved in the cases rarely differentiated between different types of cost associated with biodiversity, or with other planning issues. As a result, the costs provided often include biodiversity compensation / mitigation / protected species or habitats / non-protected species or habitats and non-biodiversity costs. Consequently it is not possible, on the basis of available data, to obtain accurate costs for compensation for non-protected biodiversity. Within the report the source of costs is indicated.</td>
</tr>
<tr>
<td><strong>Challenge of gaining a balanced view of any costs</strong></td>
<td>It was necessary to talk to multiple case study contacts to try to ensure that the research received as balanced a view of any costs or other findings as possible. Interviewee costs were also compared against publicly available documentation wherever possible.</td>
</tr>
<tr>
<td><strong>Scale of costs relative to development size and nature</strong></td>
<td>The scale of costs inevitably depends upon the size of the development, the nature of the development and the nature of the receiving environment. The greater the impact the greater the mitigation and compensation costs are likely to be.</td>
</tr>
</tbody>
</table>

1.12 Despite these caveats, the research provides an opportunity to identify and explore costs associated with specific planning applications and through these illustrative examples to better understand how and at what cost biodiversity compensation has been agreed to date. This approach was discussed and agreed with Defra as both a practical response and one that is able to provide a richer level of detail from the individual cases than would be possible from database searching.

1.13 The research had three main elements:
1.14 These research elements and their contribution to the Objectives of the research are described in more detail below.

**Literature review**

1.15 A focused literature review was undertaken. The purpose of this was three-fold:

1) To define in planning and legal terms, biodiversity mitigation and compensation within the English context. The distinction between mitigation, enhancement and compensation is not always clear or the terminology can often be used inconsistently and interchangeably by different stakeholders. Understanding and clarifying this was necessary to ensure a consistent interpretation of the evidence in the case studies. It also provided an opportunity to use the case studies to help further differentiate mitigation and compensation in previously determined planning cases;

2) To identify possible sources of case studies;

3) To provide a generic understanding of the processes and outputs involved in determining the scale, type and management of compensation. This provided an understanding of where and when in the planning process costs associated with compensation might emerge and to whom.

1.16 An internal working document was produced and based on discussions within the team, and lessons emerging from the case studies, this was further refined to provide a set of practical working definitions for mitigation and compensation provided in Section 3.

**Case study identification**

1.17 Finding sufficient, appropriate, case studies meant firstly developing a long list and then applying various criteria to create a short list of case studies. Details of this process are set out in this section.

**Long list**

1.18 Considering the challenges to identifying case studies, it was necessary to use a number of different routes to identify case studies, these included the following:

- Reviewing DTA Phase III Research;
- Identifying and contacting relevant contacts who may be aware of cases;
- Reviewing the results of a Freedom of Information (FoI) request made by Policy Exchange for their Nurturing Nature publication;
- Pursuing recorded cases emerging from the documents examined during the literature review.

**Review of DTA Phase III**

1.19 The case studies explored in the DTA Phase III research were reviewed to see if the
cases included instances where biodiversity compensation was required. Possible cases were looked at in more detail as part of the case study identification process. DTA were asked to provide information on the methodology with which the DTA Phase III cases were chosen so that the representativeness of any cases was understood and could be used to contextualise any findings.

**Contact identification**

1.20 Over 60 contacts and organisations were approached. These included developers, professional bodies and government departments and agencies. Each contact was asked if they were aware of cases where biodiversity compensation had been required and if they could provide information and or contacts for these cases.

**Freedom of Information request**

1.21 Policy Exchange (an educational charity and Think Tank) had undertaken a Freedom of Information (FoI) request in 2012. The details of this can be found in the publication Nurturing Nature (p.58). Broadly the FoI asked England’s 354 Local Planning Authorities (LPA) to provide details of any planning permissions that required off-site biodiversity compensation. 94% of LPAs responded to this request.

1.22 At the request of the research team the raw results from the Policy Exchange FoI research, were provided for use in this task.

**Literature review**

1.23 As part of the literature review, documents with potential sources of case studies were noted and explored with the intention of identifying appropriate case studies.

**Short list**

1.24 Having developed a long list of cases using the routes above, it was necessary to apply project specific criteria to identify a short list of around 12 case studies for detailed exploration. Appropriate cases studies were those that met the three main criteria:

1. **Involve compensation as defined within the project;**

2. **Have sufficient documentation available;**

   Ideally this would include: planning conditions and/or obligations (e.g. s.106 agreements); any habitat management plans; ecological impact assessment; environmental impact assessment; survey data; any other planning documentation including information around negotiations and appeals where appropriate;

3. **Have identified stakeholders.**

   For example applicants, statutory consultees, planning officers or ecologists.

1.25 This interim selection of cases was further reviewed to ensure that the short list:

- **Covered a range of different spatial and planning characteristics**

  To ensure that the final set of case studies were not all from one sector or consent regime;

- **Covered a broad geographical spread**

  The application of planning policy varies between LPAs, so there was a need to avoid focussing on specific LPA policy and ensure that the final set of cases was distributed across the UK.

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http://www.policyexchange.org.uk/publications/category/item/nurturing-nature

3 Section 106 of the Town and Country Planning Act 1990 (as amended)
1.26 These criteria were applied and identified 23 cases to explore in more detail. This number included some redundancy as it was expected that challenges would emerge, particularly in terms of contacting stakeholders and getting sufficient information, and that not all of these 23 case studies would yield sufficient information.

Case study exploration

1.27 A template was created that each of the case study leads would be responsible for populating for their case studies. These templates were designed so that each case study provided information in relation to:

- Compensation costs (separated into on-site, off-site or financial where relevant) relative to mitigation costs;
- The area required for on-site compensation and any impacts on the net developable area of the site;
- The time and costs of ecological surveys undertaken as part of the environmental impact assessment process (with costs separated out for protected species/habitats) and in order to propose mitigation and compensation measures; and impacts on development time;
- Time and costs of negotiating mitigation and compensation measures with local authorities, statutory consultees and other stakeholders;
- Costs involved with any on-going monitoring and management of the compensation areas;
- Any other identified costs as they emerge;
- To whom the costs are relevant;
- Relative scale of these costs within the wider context of the development, and the development sector;
- Relative frequency of such cases.

1.28 The templates were populated by information collected by the two main research methods for the case studies:

- **Document review** – the online planning documents were reviewed and a detailed understanding of the case and the related biodiversity compensation arrangements was developed. The on-line planning documents were supplemented where necessary with other documents provided by contacts;
- **Semi-structured interviews** – these were conducted with a number of stakeholders involved in each case. These stakeholders were identified to ensure that the most relevant perspectives on the case were provided. Where possible, it was important to talk to more than one stakeholder to get some corroboration of any costs. A consistent interview protocol was developed and used by the whole research team. In total 32 interviews were held across the case studies as well as various email communications (Table 2).

**Table 2: Summary of interviewee category and number**

<table>
<thead>
<tr>
<th>Interviewee Type</th>
<th>Number of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPA Case Officer or equivalent</td>
<td>9</td>
</tr>
<tr>
<td>Environmental NGO or stakeholders</td>
<td>7</td>
</tr>
<tr>
<td>Statutory Consultee</td>
<td>1</td>
</tr>
<tr>
<td>Applicant consultants</td>
<td>3</td>
</tr>
<tr>
<td>Applicant (or representative)</td>
<td>5</td>
</tr>
<tr>
<td>LPA Ecologist</td>
<td>7</td>
</tr>
</tbody>
</table>

1.29 All of the cases were written up to be anonymous, respecting the confidentiality given to interviewees and which was essential to securing the agreement of individuals to participate in this research. These cases can be found in the Appendix to this summary report.
1.30 It was difficult to get responses from contacts even with the commitment to confidentiality. Contacts were often reticent to provide detailed cost information, either due to the time it would take to find or because costs were was viewed as being commercially sensitive. Despite these challenges, 12 case studies have been written up and analysed.

1.31 Summary detail of these cases is presented in Table 3 below.

<table>
<thead>
<tr>
<th>Case Study Number</th>
<th>Type of development</th>
<th>Broad geographical location</th>
</tr>
</thead>
<tbody>
<tr>
<td>002</td>
<td>Airport</td>
<td>Central</td>
</tr>
<tr>
<td>003</td>
<td>Energy from waste plant</td>
<td>South</td>
</tr>
<tr>
<td>004</td>
<td>Residential and commercial</td>
<td>North</td>
</tr>
<tr>
<td>005</td>
<td>Residential</td>
<td>North</td>
</tr>
<tr>
<td>006</td>
<td>Road</td>
<td>South</td>
</tr>
<tr>
<td>007</td>
<td>Energy from waste plant</td>
<td>East</td>
</tr>
<tr>
<td>008</td>
<td>Residential</td>
<td>North</td>
</tr>
<tr>
<td>009</td>
<td>Residential and commercial</td>
<td>Central</td>
</tr>
<tr>
<td>010</td>
<td>Road</td>
<td>West</td>
</tr>
<tr>
<td>020</td>
<td>Utility works</td>
<td>North</td>
</tr>
<tr>
<td>021</td>
<td>Residential and commercial</td>
<td>Central</td>
</tr>
<tr>
<td>022</td>
<td>Road</td>
<td>East</td>
</tr>
</tbody>
</table>

**Analysis and write up**

1.32 The completed templates were collated and reviewed by the team in a group exercise. The results from the case studies were aggregated and synthesised, and then summarised in tabular form in a way that was most useable by Defra as potential input to further impact assessment analysis (Section 4). The case studies themselves are written up as individual (anonymous) case study reports in Appendix A. For each case study the question was also posed “How would the compensation in this case be affected by an offsetting regime?” as a way of interrogating the data further, in a qualitative way, in order to understand how, if at all, compensation arrangements would differ under an offsetting regime. This is further discussed in Section 5.
2. Mitigation and compensation – understanding fuzzy boundaries

Overview of literature sources reviewed

2.1 National statutory planning policy and guidance documents relating to biodiversity were searched for definitions of the terms mitigation / mitigate and compensation / compensate. Defra offsetting guidelines and documents produced by the Business and Biodiversity Offsets Programme were also reviewed for these terms.

2.2 The context for the use of mitigation and compensation and examples of their application were also reviewed in order to provide a sound understanding of the distinction between forms of mitigation and compensation, in theory and in practice. The case studies explored in this research further illustrated these distinctions.

Issues and challenges around defining mitigation and compensation

Background

2.3 The concepts of mitigation and compensation are key components of the mitigation hierarchy, which provides a system for ensuring that development activities do not have an unnecessarily negative impact on biodiversity and other components of the natural environment (and potentially non-environmental issues although this report only considers the biodiversity aspects). The mitigation hierarchy is embedded in national planning policy4,5 as well as briefings to parliamentarians and is a core principle to be applied in determining biodiversity impact within the English planning system6.

2.4 Various forms of the mitigation hierarchy exist7,8,9 and may consist of three or more steps. At its simplest the hierarchy is: avoid, reduce and compensate; all forms feature avoidance followed by minimisation, followed by compensation, as sequential measures for dealing with potential impacts on biodiversity. Some versions of the hierarchy (e.g. UNEP/BBOP10) include ‘rescue’ (e.g. through translocation/relocation/restoration) as an additional step, but views differ as to whether this is a form of mitigation or compensation.

2.5 According to the widely adopted mitigation hierarchy defined by BBOP11, where appropriate, actions should be taken in the following order:

- **Avoidance**: measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.

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5 Post Note 429
6 For example: Defra (2012) Biodiversity Offsetting Pilots: Guidance for developers
- **Minimisation**: measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.

- **Rehabilitation/restoration**: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimised.

- **Offset**: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and/or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

### The EIA Directive

2.6 The mitigation hierarchy is recognised in the EIA Directive (2011/92/EU) Article 5 (3) (b):

> “A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects;”

In this case “remedy” includes compensation, but could also include restoration/rehabilitation.

A dictionary definition of remedy (Oxford Dictionary online) is:

- **noun**: “A means of counteracting or eliminating something undesirable”
- **verb**: “Set right (an undesirable situation)”

The phrase is transposed into the Town and Country Planning EIA Regulations (2011) SI 1824 Schedule 4, Part 1, Para. 5 as:-

> “A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment” (emphasis added)

2.7 The distinction between the T&CP Regulations in England and the EIA Directive is interesting – offset in this context does not necessarily mean offset in the way that biodiversity offsetting is understood, and clearly needs to be interpreted more broadly in light of the EIA Directive use of the term “remedy”. Offset is defined (Oxford Dictionary online):

- **noun**: “A consideration or amount that diminishes or balances the effect of an opposite one”
- **verb**: “Counteract (something) by having an equal and opposite force or effect”

### Official definitions in spatial planning

2.8 The document *Planning for Biodiversity and Geological Conservation – A Guide to Good Practice*¹² provides definitions for mitigation and compensation that apply to any impacts and not just those on biodiversity. These existing, all-encompassing definitions, which are in current use, have been taken as the basis for the definitions of mitigation and compensation relating to biodiversity. In the definitions, specific considerations for biodiversity have been added to the existing definitions following the semi-colon.

2.9 **Definition of mitigation:**

> Measures undertaken to limit or reduce adverse effects resulting from development or other change taking place including modifications, deletions or additions to the design of the development, adaptation of methods or timing or adjustments in the nature,

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¹² ODPM and EN (2006), Ibid.
scale or location of the project; for biodiversity, these measures aim to minimise adverse effects on the ecological conditions, habitats and species affected by the development.

2.10 Definition of compensation:

Measures to offset or make up for losses caused as a result of development or other change, including residual adverse effects which cannot or may not be entirely mitigated; for biodiversity, these measures can be on or off-site.

2.11 This hierarchical approach is supported by Natural England\textsuperscript{13}, for example, who advises that the process for assessing mitigation should be hierarchical, that avoidance measures should be considered first, followed by measures which seek to ameliorate or reduce the severity of the impact only if it is not possible to entirely avoid an impact. Compensation measures should only be considered if impacts cannot be entirely avoided or ameliorated.

2.12 It is important to note that actions within the mitigation hierarchy must be appropriate, and therefore in some cases it may be justifiable – from a biodiversity point of view - to undertake compensation rather than carry out feasible avoidance or mitigation actions if this results in a better and more reliable biodiversity outcome. However, biodiversity mitigation and compensation often occurs in association with other mitigation/compensation measures, e.g. for water management, landscape, visual impacts and so the relationship with these other measures should also be considered i.e. in the provision of wider ecosystem services. Consequently, the mitigation hierarchy in practice needs to be applied with careful thought.

Defining mitigation, restoration, compensation and enhancement for this research

2.13 Detailed definitions for these terms are provided in several of the documents already referred to and can also be derived from good practice. Figure 1 seeks to represent this hierarchy, developing the basic mitigation hierarchy further than just avoid, reduce, compensate in order to illustrate the existence of overlap between certain forms of mitigation and compensation.

Mitigation

2.14 Mitigation definitions take account of the need to put in place measures to reduce negative impacts arising from the development and generally include approaches for doing this. Measures include changes to the design of the development, adjusting methods or timing, or changes to the nature, scale or location of the project. These measures may be within the development site or outside it and may involve reducing impacts on the development site itself or on other land that may be affected\textsuperscript{14}. Some definitions include examples for reducing negative impacts such as ‘locating the development and its working areas and access routes away from areas of high ecological interest, fencing off sensitive areas during the construction period, or timing works to avoid sensitive periods’\textsuperscript{15}. Natural England for example use the term mitigation to refer to the combination of avoidance measures (such as careful timing to remove the impacts), and measures to reduce or minimise impacts (which some others refer to as mitigation measures)\textsuperscript{16}.


\textsuperscript{15} IEEM (2006) Guidelines for Ecological Impact Assessment in the United Kingdom IEEM

2.15 The defining characteristic of mitigation is the reduction of impact (in scale or likelihood) from occurring in the first place, rather than replacement for something lost.

2.16 **Definition of mitigation as used in this research:**

Measures undertaken to limit or reduce adverse effects resulting from development or other change taking place including modifications, deletions or additions to the design of the development, adaptation of methods or timing or adjustments in the nature, scale or location of the project; for biodiversity, these measures aim to minimise adverse effects on the ecological conditions, habitats and species affected by the development.

**Restoration/rehabilitation**

2.17 Restoration (repair) and rehabilitation are specific forms of mitigation though in some cases they may also be considered to be forms of compensation. However, rehabilitating a site after use, for example the temporary clearance of part of a site for development, is conceptually different from creating new habitat as compensation. In some cases specific relocation/translocation (rescue) of habitat may be required. Restoration of land after a development has been decommissioned, e.g. landscaping after 30 years of quarrying may often be termed mitigation, but may also be considered to be a form of compensation over time, even if in the same space.

2.18 This category represents a particularly fuzzy boundary between mitigation and compensation, but nevertheless is important to recognise it exists.

**Compensation**

2.19 Compensation is considered when all possibilities of mitigation have been exhausted.\(^{18}\)

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but there is still a need for measures to counteract biodiversity losses (including permanent damage) and adverse effects.\textsuperscript{19, 20}

2.20 The defining characteristic of forms of compensation is the replacement or substitution for something lost, likely to be lost or permanently damaged, rather than the reduction of impact.

2.21 **Definition of biodiversity compensation as used in this research:**

Measures to make up for losses caused as a result of development or other change, including residual adverse effects which cannot or may not be entirely mitigated; these measures can be on or off-site.

**Enhancement**

2.22 The opportunity to include enhancement in scheme design is increasingly recognised as a means of going beyond the bare minimum required. It may be a means for a developer also to add value to a site, e.g. by creating an ecological park, rather than simply a green space. Enhancement can occur throughout the mitigation hierarchy (see Figure 1) not just as a result of compensation. Enhancement should be seen as integral to all forms of mitigation, restoration or compensation\textsuperscript{21, 22}.

**Implications for the research**

**Difference between mitigation and compensation**

2.23 The defining characteristic of mitigation is the reduction of impact (in scale or likelihood) from occurring in the first place. If despite all mitigation efforts there is still expected to be residual loss, this loss should be understood and compensation put in place - see Figure 2 below.

![Figure 2: Schematic differentiating between mitigation and compensation](image)

**Fuzzy boundaries**

2.24 While the definitions for mitigation and compensation can appear straightforward, in practice issues arise with differentiating between what constitutes mitigation and compensation within individual cases.

2.25 Challenges include the recognition that biodiversity benefits may be derived from


\textsuperscript{20} This study has NOT covered compensatory measures as required under the Habitats Directive, which have their own specific legal meaning and interpretation.


other mitigation measures, e.g. for landscaping or water management. Examples might include the planting of hedgerows or shelter belts for visual screening of the site (on or off-site) which may deliver biodiversity benefits, and indeed could be designed in such a way (e.g. in terms of species mix for planting) to deliver just such enhancements for biodiversity as well as the landscape for which they were originally required. These are still mitigation measures within the hierarchy but are often labelled as compensation or enhancement by LPAs and applicants. Other concepts such as repair and rescue, translocation, no net loss and rehabilitation complicate matters further. In reality the picture is more akin to Figure 3 below.

Figure 3: Mitigation hierarchy in practice fuzzy boundaries

2.26 In practice, mitigation measures are those which reduce impacts and compensation measures seek to make up for losses, and that has been the approach adopted in this study. It is difficult to differentiate between costs on-site, (since these can include mitigation) and compensation measures. More often than not, no distinction is made by the planners or developers as to which measures are specifically for mitigation or compensation, e.g. a lump sum for some integrated activities may be agreed. The terms are sufficiently confused in day to day usage so it is difficult to unpick associated costs in documentation and practical usage by LPAs.

2.27 The normative definition of the mitigation hierarchy, where on-site compensation is prioritised above off-site, is not formalised in policy or practice guidance, even though it may be a pragmatic solution. Understanding in practice how compensation is determined and the preferred or feasible balance of on and off-site is important, as there are potentially significant different cost patterns to these two options.
3. Summary of results

3.1 This section includes the results of the information collection. The results are structured to introduce and summarise the main types of costs. The scale of these costs is illustrated in the case studies. This information is contextualised by summarising, on the basis of the research, the frequency of these costs.

**Types of Costs**

3.2 A generic logic model for the process of agreeing biodiversity compensation within planning applications was developed. This was done initially from literature and expert input but was developed and tested through the exploration of the case studies. An updated model is presented in Table 4.

3.3 A simple process for agreeing biodiversity compensation was identified (Figure 4):

![Figure 4: Process model for agreeing biodiversity compensation in planning](image)

3.4 As expected, in reality this process is rarely linear or simple. Each stage involves a range of different information inputs and there is a substantial degree of back and forth, negotiation and iteration.

3.5 The model shown in Table 4 provides an indication of the main inputs, processes and outputs relevant to biodiversity compensation within the main stages of a planning application. As the research discovered, each planning application is different for a range of reasons, but the model provides a common framework to understand how biodiversity compensation is agreed in the English planning context.

3.6 It should be noted that planning applications will have many more non-biodiversity inputs, processes and outputs. These will relate to transport, noise, emissions and landscape, for example. For simplicity, these are not included in Table 4. It is recognised that these aspects of the application entail time and costs in addition to, and likely greater than, any arrangements for biodiversity compensation.
### Table 4: Generic logic model for agreeing compensation for biodiversity loss under current planning policy

<table>
<thead>
<tr>
<th>Pre-Application</th>
<th>Application</th>
<th>Decision</th>
<th>Appeal (where relevant)</th>
<th>Permission</th>
<th>Implementation/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Environmental Statements (as part of EIA)</td>
<td>• Environmental Impact Assessment (EIA) and or other assessments.</td>
<td>• Application and Pre-Application outputs</td>
<td>• Amended inputs from previous stages</td>
<td>• Committee Reports Planning Inspectorate reports</td>
<td>• preparation of s.106 / Planning Conditions Management plans</td>
</tr>
<tr>
<td>• Ecological Surveys</td>
<td>• Delegated powers of Committee Decision</td>
<td>• Public Inquiries</td>
<td></td>
<td>• Decision by Planning officer, Planning Committees, Planning Inspectorate, Secretary of State or others.</td>
<td>• Agreement of Management Plans</td>
</tr>
<tr>
<td>• Mitigation and / or compensation proposals</td>
<td>• Final Application Environmental Statements</td>
<td>• Permission or Refusal with reasons</td>
<td></td>
<td>• Agreement of s106 agreements securing resources, writing conditions to secure works</td>
<td>• On-going monitoring</td>
</tr>
<tr>
<td>• Statutory consultee advice</td>
<td>• Final development design</td>
<td></td>
<td></td>
<td>• On-going site management</td>
<td>• Delivery of compensation</td>
</tr>
<tr>
<td>• LPA ecologist advice</td>
<td>• Final mitigation /compensation package</td>
<td></td>
<td></td>
<td>• Annual monitoring reports</td>
<td></td>
</tr>
<tr>
<td>• Planning policies (national and local)</td>
<td>• Land acquisition including site management and planning permissions where required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Scoping opinions</td>
<td>• Application and Pre-Application outputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Designations</td>
<td>• Committee Reports Planning Inspectorate reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Process** | • Discussion | • Environmental Impact Assessment (EIA) and or other assessments. | • Public Inquiries | • Decision by Planning officer, Planning Committees, Planning Inspectorate, Secretary of State or others. | • Agreement of Management Plans |
|             | • Environmental Impact Assessment (EIA) and or other assessments. | |                          | | |
| **Outputs** | • Changes or not to development design | • Final Application Environmental Statements | • Permission or Refusal with reasons | • Decision Notice Final management Plan including final compensation package | • Agreement of s106 agreements securing resources, writing conditions to secure works |
|             | • Understanding of biodiversity features and value | • Agreed compensation package |                          | • Planning Conditions S.106 agreements | • On-going monitoring |
|             | • Indication of likely decision |                          |                          | | |
|             | |                          |                          | | |
3.7 Based on this understanding of the process and the results of the case studies it has been possible to identify the most significant parts of this process, within the scope of this research. These are:

Ecological surveys

3.8 Ecological surveys are undertaken to understand what biodiversity features are on-site. A number of the cases indicated that the survey windows (i.e., the time within which a survey can be conducted) for certain species means that planning processes must stop until the survey has been completed. Surveys are most commonly undertaken for protected species, which were not a priority consideration of this study, focused as it was primarily on the costs of compensation for non-protected biodiversity. Ecological surveys were identified in a number of the cases (002, 005, and 009) as the most significant cause of delay associated with biodiversity.

Environmental Impact Assessments (EIA)

3.9 Within the case studies EIAs are the main information input into the process for agreeing biodiversity compensation. It is within the Environmental Statement (ES) that the need for biodiversity compensation is generally established. The consultant fees for undertaking the EIA and related information inputs (notably surveys) are felt to be significant, but do not relate exclusively to biodiversity compensation. In applications outside the scope of EIA alternative evidence sources would be required; all but two of the case studies include EIAs, the exceptions being cases 005 and 020. In these two cases other forms of less formal assessment (based on surveys and expert opinion) were the main information inputs.

Developing Mitigation and Compensation Management Plans

3.10 The main process and output for agreeing biodiversity compensation in the case studies is the management plan. The title, content and status of these may vary but all the cases, except for case 005, include some form of management plan being developed. In addition to detailing the form and nature of any mitigation and compensation these plans also include details of non-biodiversity aspects such as green space, flood risk and amenity. Table 6 summarises the timescales associated with the cases discussed below.

Time taken to agree baseline condition

3.11 Developing and designing the management plans involves a number of different cost elements. The first of these is establishing the ecological baseline (including surveys and EIA as above). The condition and status of the biodiversity on-site can be the subject of significant discussion as seen in case 009 where a statutory consultee and applicant disputed the designation of habitats on-site and hence what compensation would be required.

Time taken to agree mitigation actions

3.12 Having determined the nature of the biodiversity on-site, the next cost element is the time and resources required to agree mitigation for avoiding and reducing any adverse impacts as much as possible. This tends to be done via the EIA, where one is required (as was the case with 10 of the 12 case studies). Costs related to mitigation measures are outside the scope of this research, but it is presented here as a significant cost element within the broader process. It should be noted that it has been a challenge and often not possible to differentiate between mitigation and compensation costs in many instances as they tend to be considered as part of an integrated package.

Time taken to agree form of compensation

3.13 Across the cases the LPA and applicant (occasionally involving others such as local nature NGOs or statutory consultees) worked up, based on the application design and
proposed mitigation, an understanding of what residual biodiversity was going to be lost. In some instances this was done in a quantified manner, others via negotiation.

3.14 Having formed this understanding about residual biodiversity loss, those involved in the process must, using local and national planning policies, establish the need for compensation and the different options available. Across the cases three types of biodiversity compensation were found (Table 5):

- **On-site biodiversity compensation** – where within the boundary existing habitats are improved or restored.
- **Off-site biodiversity compensation** – where management of a specific area of land outside the boundary of the development is altered to deliver improved biodiversity.
- **Financial only compensation** – when a payment is made to secure some form of biodiversity improvement, but it is not linked to a specific area of land.

**Table 5: Type of compensation covered by cases analysed**

<table>
<thead>
<tr>
<th>Case reference</th>
<th>On-site compensation</th>
<th>Off-site compensation</th>
<th>Financial compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>002</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>003</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>004</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>005</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>006</td>
<td>✓</td>
<td>✓</td>
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<td>007</td>
<td>✓</td>
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<td>008</td>
<td>✓</td>
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<td>009</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>010</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>020</td>
<td>✓</td>
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<tr>
<td>021</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>022</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

3.15 The choice of which of these three types of compensation is deemed appropriate is subject to a number of case specific factors. These include the scope for on-site compensation (a function of the size and nature of the site and the size and nature of the development), the availability of suitable off-site land and the positions and priorities of those involved.

3.16 On-site compensation appears to have been prioritised with off-site compensation being used when there was insufficient scope for compensation on-site. The reason for this appears to be partly due to simplicity and partly due to objectors and LPAs preferring compensation to be located as close to the impact or loss as possible.

3.17 In eight of the nine cases where off-site compensation was required, there was no need for land acquisition. In these eight cases the applicant provided monies to land owners to improve the management of their land. These land owners tended to be nature NGOs or local authorities who have sites within the local area. In a number of the instances where the applicant was a local authority the off-site compensation was undertaken on their land, again with a preference for this land to be close. In cases 010 and 022 private land owners, rather than nature NGOs or local authorities were asked to change land management to support a certain species. These land managers or farmers were identified partly on the basis of their being close to the development and partly as they had previously engaged in agri-environment schemes.

3.18 In case 009 the applicant was required to find, acquire land, and develop an appropriate management plan and obtain planning permission for a compensation site in the same area. This was because the application-site was of high biodiversity value (a County Wildlife Site) and the LPA ecologist, statutory consultee and local
nature NGO were keen to ensure no net loss of the biodiversity features. It appears that in this instance the applicant was aware of the possibility of providing a commuted sum (via s.106) but they decided to pursue land acquisition instead. The LPA ecologist involved in this case indicated that there were problems with s.106 payments where there was no clear project upon which to spend the money and that they preferred applicants providing management of specific land. In this case the LPA indicated that the financial compensation or payment was the least preferred compensation option, hence the applicant acquiring the land for the off-site compensation.

3.19 The financial compensation shown in cases 002 and 007 were payments to local nature NGOs to spend on general biodiversity improvements as they saw fit. In these cases the monies were not linked to improvements on specific sites and they were not linked to specific loss of biodiversity. The decision making and negotiations behind this form of compensation is less transparent than on or off-site compensation. The fact that the payment is not clearly linked to a specific biodiversity loss or improvement means that these payments can be considered to compensate for indirect or general impacts from an application. During the research, other examples of financial compensation disproportionate or unattached to biodiversity loss were identified (but not followed up as they were not appropriate case studies). In these instances large financial compensation was provided to local nature NGOs even though the direct loss of biodiversity was small. The rationale or driver for these payments is not clear although the compensation was negotiated by and provided to stakeholders who had previously objected to the applications.

Uncertainty associated with planning permission being granted

3.20 In a number of instances (cases 002, 005, 006, 007, 008, 009) there was a feeling from the case study contacts that if an agreed and effective compensation package had not been agreed between the main parties it was not certain that planning permission would have been granted.

3.21 In these instances the scale of residual biodiversity loss meant that without effective compensation there would have been justifiable reasons - mostly related to protected species, designations or landscape impact - to refuse planning permission.

3.22 In case 009, it was accepted that without the compensation package as finally agreed, the loss of a significant part of a CWS due to the application was not appropriate. The LPA and statutory consultee contacts indicated that they would have refused a speculative application on that site, but as the area was a ‘strategic site’ in planning policy (i.e. the local planning documentation had previously indicated it was a site appropriate for development) the LPA was willing to find a solution that allowed the site to be developed as long as the biodiversity was adequately compensated for. This process therefore inevitably took time. This was therefore an unusual case.

Delay attributed to the process for agreeing the final management plan

3.23 The process of agreeing biodiversity compensation was felt to have caused delay in the progress of the planning application by at least one contact in five of the 12 cases. Within two of these five cases contacts disagreed on whether agreeing biodiversity had actually caused delay. In only one case (009) was agreeing biodiversity compensation felt to be the only cause of delay. It should be noted that across all of these cases it is not possible to differentiate between delays associated with protected or non-protected species and habitats as these tend to be combined in the considerations of the contacts.

3.24 The reasons for delay in four of the five cases were the time taken to agree and finalise the management plan and related Conditions or s.106 agreements. In one of the

23 Cases 002, 003, 006, 009 and 020
cases (009) the reason for delay was the need to find and acquire an appropriate receptor site.

3.25 Generally other issues such as highways, access, social housing, compulsory purchase orders and local opposition were felt to have more significant impacts on delay than biodiversity generally or biodiversity compensation specifically. And that even where agreeing biodiversity compensation took a significant amount of time, i.e. in most of the cases, these and other non-biodiversity issues were also taking a significant amount of time.

3.26 In effect, instances where biodiversity is the primary determinant of the speed of the planning process are limited. Case 009 and 003 appear to be instances where this was felt to be the case. It should be noted that in case 003 the LPA ecologist feels that non-protected biodiversity caused no delay – i.e. protected species and habitats were the main causes of delay as the compensation for non-protected biodiversity had been agreed.

Changes to developable area

3.27 Within each of the cases the impact of the biodiversity compensation on the footprint and form of the development was explored. It was found that the presence of biodiversity features does, to some extent, determine the arrangement of the development. Those case contacts responsible for master planning their cases referred to the mitigation hierarchy and its proper role in helping shape the development. In particular access points and transport routes were designed to avoid high value biodiversity features. This was done primarily to support the application and to reduce potential objections.

3.28 Alternatively, other cases identified the value of the applicant retaining biodiversity features on-site as it provided various benefits (such as providing space for mitigation measures and future development) and added value, particularly in residential developments.

3.29 It does appear that the arrangement and value of biodiversity features on-site does determine the form and scale of development, but that for a range of planning and related reasons - application of the mitigation hierarchy, reducing impact on high value features, improved landscaping, flood management and amenity value - this is not viewed by applicants or others as a cost.

Compensation allowing development

3.30 The design and objectives of this research were not focused on whether biodiversity compensation as a planning mechanism allows more applications to be permitted. Nevertheless two of the cases indicate that compensation does provide a pathway to permission in some instances.

3.31 There is one exception where the negotiation of a compensation package created more developable area (from 0 to 5 plots). In case 005 potential developable plots were located adjacent to and slightly overlapping with a local wildlife site that had deteriorated to the point of de-designation due to unauthorised use and a lack of funds for clean-up. The LPA and local nature NGO suggested to the owner that they would support limited development on-site if compensation was provided to a level sufficient to allow the rest of the site to be restored. In effect the up-front agreement on biodiversity compensation released the land for development as without the compensation planning permission would have been unlikely to have been granted. The atypical nature of this case must be recognised as the LPA and local nature NGO raised the possibility of the application and compensation rather than it being brought forward by an applicant, as a means of releasing funds to also allowed restoration of a deteriorated wildlife site.

3.32 Case 009 is another instance where the absence of biodiversity compensation would
have meant refusal of the application. Again this is an atypical case, given the fact that the development area was both a county wildlife site and a site earmarked for development over decades in the local development plan.

**Delivering Mitigation and Compensation Management Plans**

3.33 Having agreed the content of the management plans, the form of any legal agreements needs to be set (s.106 or Conditions)\(^\text{24}\) as does the amount of money required to deliver the compensation and any on-going management and monitoring requirements. Negotiations on this may take some time, in some instances they are underpinned by previous compensation / land management work (cases 002, 004 and 008), but more often it is the result of bilateral discussions and negotiations between the applicant and the off-site compensation provider.

**Scale of Costs**

3.34 The specific cost information gathered through the cases provides useful insights into the scale and nature of costs associated with current compensation arrangements. The results presented are subject to some caveats due to:

- Reticence from case study contacts to release certain cost information for reasons of commercial sensitivity;
- Cost (especially time) information is not recorded;
- Where costs associated with biodiversity are recorded, they do not tend to be differentiated for mitigation / compensation or protected species and habitats / non-protected species and habitats.

3.35 Noting these caveats it is possible to report on the range of costs illustrated by these case studies and the factors that drive the scale of these costs. See Table 6.

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\(^{24}\) Conditions appropriate for on-site compensation. S.106 for off-site measures and financial contributions including for monitoring
Table 6: Summary costs associated with biodiversity compensation in the selected case studies

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Type of cost</th>
<th>Cost to Whom</th>
<th>Range of the scale of costs (relevant case)</th>
<th>Cases cost is relevant to</th>
<th>Important factors and caveats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological surveys</td>
<td>Financial</td>
<td>Applicant and LPA in some instances</td>
<td>Limited information provided as commercially sensitive £100 to pay for an LPA ecologist to undertake a site survey (022) £200,000 for ecological consultants - not clear exactly what for (003)</td>
<td>All</td>
<td>Number and type of biodiversity features increases this cost.</td>
</tr>
<tr>
<td>Time</td>
<td>Applicant</td>
<td>No specific time figures provided, felt to be significant due to survey windows</td>
<td>Pre-application was felt to be important here as it could identify in advance the need to account for survey windows in scheduling.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Impact Assessments</td>
<td>Financial and Time</td>
<td>Applicant</td>
<td>Limited information provided. Previous research indicated costs of 0.01% - 2.5% of development costs.25</td>
<td>All</td>
<td>Type and likely impact of the development increases the cost. Addendum to ESs may be required if baseline information is not deemed sufficient (006).</td>
</tr>
</tbody>
</table>

Developing Mitigation and Compensation Management Plans

| Time taken to agree compensation actions. | Time | All | From approx. 2 calendar months (020) to almost 36 calendar months (009, 003). 6 calendar months appears to be most common period. Estimates of the time cost (in person days) from various stakeholders involved in this process include: - Nature NGO 45 days over 36 calendar months (002). - LPA estimated costs of £250,000 for officers (002) - Nature NGO 30 days of | All | This cost element is the most significant related to non-protected biodiversity. All of the cases involved detailed discussions on the general principle of compensation being required and on the specific compensation actions that could be designed and funded. The complexity of the compensation was determined by the number and scale of the habitats impacted, the designations, the power (in planning terms) of the arguments made by those seeking compensation and the ease with which compensation actions were identified. There is no clear difference between the time taken to agree on and off-site compensation. Rather the two are agreed as part of a single package of compensation that is designed to ensure no net loss (in some cases this is quantified in others it is the result of negotiation alone). |

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<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Type of cost</th>
<th>Cost to Whom</th>
<th>Range of the scale of costs (relevant case)</th>
<th>Cases cost is relevant to</th>
<th>Important factors and caveats</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>senior time over approx. 24 calendar months years (008). - LPA planner 34-51 days for all aspects not just biodiversity (009) - LPA ecologist 15 days (009) - Stakeholder 20 days (009) - Stakeholder 5 days (009) - LPA ecologist 15 days for off-site compensation only (010) - Local nature NGO 10 days for off-site compensation only (010)</td>
<td></td>
<td>In addition to the technical details of compensation (specifics relating to management) putting in place the legal agreements take time and have costs attached such as solicitor fees (no figures available).</td>
</tr>
<tr>
<td>Time and financial costs associated with acquiring land for off-site compensation.</td>
<td>Applicant</td>
<td>Approx. 12 calendar months (009)</td>
<td>1</td>
<td>Finding land that was available, in the right location, of the right size and that had the right topography and biodiversity value (i.e. low) took a substantial amount of time.</td>
<td></td>
</tr>
<tr>
<td>Delay attributed to the process for agreeing the final management plan.</td>
<td>Time and Cost</td>
<td>Applicant</td>
<td>6 – 8 calendar weeks (002) 2 calendar months (006) 4 - 5 calendar months (020) 24 calendar months (009) 36 calendar months (003)</td>
<td>5</td>
<td>Of these cases only in 009 and 003 was biodiversity felt to be the only factor causing delay. In effect these are the only cases where there was any actual delay due to biodiversity. In the other the potential delay due to biodiversity was exceeded by other causes of delay.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Noting the issues in the rightmost column the number of lost days for construction in cases 009 and 003 are felt to be significant between 504 and 756 (assuming 252 working days per annum).</td>
<td></td>
<td>As above it was not always possible to differentiate between delay attributable to biodiversity compensation for non-protected species and habitats alone.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>The results of this is that there are limited relevant opportunity costs to the delay for cases 002, 006 and 020 as the application was not being held up by the non-protected biodiversity compensation.</td>
</tr>
</tbody>
</table>

Delivering Mitigation and Compensation Management Plans

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Type of cost</th>
<th>Cost to Whom</th>
<th>Range of the scale of costs (relevant case)</th>
<th>Cases cost is relevant to</th>
<th>Important factors and caveats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial costs associated with on-site</td>
<td>Applicant</td>
<td>No cost information provided.</td>
<td>All</td>
<td>Limited information provided on the costs of on-site compensation. As in all instances there is no specific Condition or legal agreement setting out monies required for the</td>
<td></td>
</tr>
<tr>
<td>Cost Element</td>
<td>Type of cost</td>
<td>Cost to Whom</td>
<td>Range of the scale of costs (relevant case)</td>
<td>Cases cost is relevant to</td>
<td>Important factors and caveats</td>
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<tr>
<td>compensation management and monitoring.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>compensation. Rather the Condition or s.106 will require certain processes or outcomes. Some costs available for monitoring but these are rarely differentiated for biodiversity, let alone for compensation.</td>
</tr>
<tr>
<td>Financial costs associated with off-site compensation management and monitoring.</td>
<td>Applicant</td>
<td>Range is £1,400 per hectare to £77,000 per hectare (excluding outlier). Note that these costs include mitigation and non-biodiversity related costs in some instances. See Appendix B – ‘identified costs’.</td>
<td></td>
<td>The nature of the habitats required affects the cost of restoration and recreation.</td>
<td></td>
</tr>
<tr>
<td>Financial compensation.</td>
<td>Applicant</td>
<td>£40,000 (002)</td>
<td>£125,000 (007)</td>
<td>2</td>
<td>As above the reasons that financial compensation is chosen over off-site compensation is not clear. It is presumed to be down to the preference of the group receiving the contribution and their view on the most effective use of the monies.</td>
</tr>
</tbody>
</table>
Frequency of Costs

3.36 It is necessary to contextualise the previous results with an understanding of the frequency with which compensation for non-protected biodiversity is required across the planning system as a whole. Considering the nature of the available evidence a ‘triangulation’ approach was used where the results from various evidence sources were compared to form a more robust understanding of this issue. These evidence sources include:

- A review of the results of the Policy Exchange FoI;
- A review of DTA Phase II and III;
- A database search of COMPASS (by Defra);
- Review of other research as appropriate;
- Discussions with experts;
- Discussions and evidence from case study contacts.

What sorts of applications require biodiversity compensation?

3.37 Based on the results compensation for non-protected biodiversity is more likely to be required where the following characteristics are present:

- Major planning applications;
- A high degree of local controversy;
- An EIA is required;
- An LPA ecologist is involved;
- Where there are significant biodiversity features. In particular the presence of protected species or habitats will drive biodiversity compensation, even compensation for non-protected species or habitats. Applications where SSSIs and CWS are present appear more likely to require biodiversity compensation than non-designated sites.

3.38 In effect applications likely to cause a high degree of damage to biodiversity are more likely to require compensation for non-protected biodiversity.

What number of planning applications required biodiversity compensation?

3.39 Across all the evidence sources used, it is possible to say that biodiversity compensation for non-protected species and habitats is rare, of an order of magnitude of between 0.04 – 5% of all planning cases. The evidence sources suggest that the lower part of that range is most likely. For example:

- A review of DTA Phase II for this research suggested a figure of 15-20 cases out of 570 major applications (2.6 - 3.5%) required any biodiversity compensation.26 ‘Major applications’ is a sub-set of total applications and is defined in the Town and Country Planning (Development Management Procedure) (England) Order 2010 and set out on page 44 of the DTA Phase III research.27 DCLG figures indicate that in 2012 major applications were 2.99% of all planning applications. Hence 2.6 – 3.5% of major applications becomes

26 DTA Phase II found that 24% of all major applications identified biodiversity as a ‘material’ consideration. It is noted that the Phase II research was not designed to identify instances of biodiversity compensation.

0.08 – 0.10% of all applications.

- Defra’s internal search on planning databases found biodiversity related key words attached to only 161 of 172,850 decisions (0.093%);
- Policy Exchange’s FoI of all England’s LPAs identified approx. 200 cases where off-site compensation had been required in recent years (no specific time range was specified). On average there are at least 400,000 planning applications per annum in England; 28, 29
- Most of the experts approached for this study (see Section 2) were not aware of any cases of compensation being required for non-protected biodiversity;
- The majority of case study contacts felt that non-protected species compensation was uncommon with responses including ‘rare’, ‘atypical’, ‘very, very, rare’ and ‘exceptional’. Percentage estimates supported this with 5% being the most regularly cited figure. 30 The only quantified evidence emerging from the case study contacts showed that in one LPA biodiversity compensation was required in 0.12% (in 2013 to date) and 0.04% (in 2012) of all planning applications.
- 10 of the cases identified through this research required EIA. Most recent research suggests that between 2005 and 2008 approx. 500 EIAs were undertaken per annum (in the UK not just England). 31 Using DCLG data that suggest at least 400,000 planning applications are received every year, 32 it can be assumed that a maximum figure of 0.1% of all planning applications in England require EIA.

3.40 Due to the nature of the information available, no single evidence source in isolation is felt to be authoritative. In combination, the results suggest that compensation for non-protected biodiversity is seen as a very rare occurrence across all planning applications. Terms such as ‘rare’ or ‘very rare’ as descriptors of frequency for biodiversity compensation arrangements were most common among interviewees, with the quantitative data supporting this. This research therefore concludes on the basis of the evidence that non-protected biodiversity compensation is required in less than 0.1% (i.e. less than 1 in a 1,000) of all planning applications.

3.41 The results of this study build on previous research (in particular Phases I, II and III of Defra’s planning policy and biodiversity offsets research) 34 which suggest that no

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30 Note due to the relatively small sample size it is not appropriate to undertake any quantitative analysis of the contacts’ estimates of frequency.


34 Phases II and III of which were undertaken by DTA, Phase I was undertaken by Defra.
net loss as a policy (previously set out in PPS9) is applied in practice.

3.42 From discussions with some of the case study contacts, there is a view that in the absence of damage to designated or protected biodiversity features, there are limited options in planning terms to require compensation. It appears that currently the loss of these features is rarely compensated for.

3.43 Within this broad finding it is clear that different LPAs have different policies or approaches to implementing these policies, which mean that biodiversity compensation is required more often in some LPAs than others. In keeping with the findings of the Policy Exchange research, it appears that the presence of an LPA ecologist increases the likelihood of biodiversity compensation being required. This finding reinforces the findings from the Biodiversity Offsetting Pilot Evaluation Project Interim Report (June 2013) which indicated the importance of LPA ecologists (currently present in approx. 41% of LPAs) in protecting biodiversity and pushing for no net loss.
4. Discussion and conclusions

Discussion

4.1 This section provides a discussion of existing biodiversity compensation practice, sensitivities of the research and possible future research to address remaining evidence gaps.

Existing biodiversity compensation practice

4.2 The cases illustrate a number of different practices for compensating for residual biodiversity loss under the present planning regime. For example at least 4 of the cases use impact/compensation ratios for habitat loss (usually 2 for 1). Other aspects of existing practice include like for like compensation (see case 009); although this was subject to review after the application was accepted. Other cases use net gain calculations where the impact is quantified and explicitly set against the proposals for compensation to ensure consistency with no net loss policy. In a number of the cases, the costs for off-site compensation were based on previous or standard costs of habitat management or restoration.

4.3 A number of other cases did not relate the compensation to the specific habitats being lost. The fact that biodiversity will be lost was established and there was a process of negotiation for agreeing some form of compensation either on-site or off-site. What is achieved is that which can be negotiated. The clearest examples of this are the two cases where the financial compensation provided appears disproportionately large to the direct biodiversity impact. The applicants presumably deem this to be worthwhile given the value of the development as a whole and the apparent benefits that agreeing compensation brings.

4.4 This variation in form and the low frequency with which biodiversity compensation is required appears to be primarily due to a lack of implementation of no net loss policy – in line with the results of the Phases I, II and III of Defra’s planning policy and biodiversity offsets research. This means that the delivery of biodiversity compensation relies on finding various hooks such as non-biodiversity planning reasons, presence of protected species or designated areas or likely objectors to biodiversity loss being in strong positions. Without these supporting circumstances, LPAs appear reticent or are unable (due to capacity and other priorities, or insufficient basis in planning policy and law\(^{35}\)) to require compensation for non-protected biodiversity.

4.5 Those receiving compensation funding noted the importance of ensuring that any compensation is required via s.106 agreements. A number of these groups noted previous bad experience with Conditions not being enforced. In the absence of a legal agreement such as s.106 it was not felt to be feasible to pursue enforcement for non-payment or delivery. This flags one of the key assumptions in this research that the biodiversity compensation promised is actually delivered (it may not be).

4.6 Evidence from the evaluation of the biodiversity offsetting pilots (Interim Report June 2013) has already highlighted the value of local authority ecologists to the

\(^{35}\) Case law and so called Grampian conditions means that planning permission cannot be granted on the basis of management of land that is outside the ownership of the applicant.
promotion and delivery of biodiversity offsetting. The research presented here has highlighted their value in securing compensation under the current planning regime wherever this is possible. The role of local nature NGOs in examining applications and in providing compensation should also be recognised.

What difference might biodiversity offsetting have made

4.7 From the cases and the project team’s experience with the biodiversity offsetting pilots, it is possible to draw out some qualitative discussion points on the potential difference that the use of biodiversity offsetting might have made. Each case includes a short consideration of what difference biodiversity offsetting might have made and these can be reviewed in Appendix A.

4.8 The main assumptions here are the use of the Defra metric as it stands and there being a sufficiency of appropriate offset receptor projects available to the cases.

4.9 The main possible differences relate to:

- **Transparency** – in a number of the cases the process by which the loss of biodiversity and related compensation packages and costs were agreed is not very clear. The metric would potentially provide a single output that would set out the loss and required compensation (in biodiversity units). This would indicate more clearly what was being lost and how it is being compensated for. This would require a more transparent application of the mitigation hierarchy and distinction between what was regarded as mitigation and what was compensation for residual loss. With regard to financial compensation, it is possible that using the metric might result in these payments reducing – although as referred to previously the driver for these payments is not clear.

- **Time taken to agree compensation packages** – a substantial amount of time is spent identifying and agreeing the detail of compensation packages. Within a functioning biodiversity offsetting system off-site compensation would potentially be agreed more quickly and without the need for land acquisition by the applicants – which has high costs attached. Despite this potentially substantial time saving, it should be noted that within most of the cases, including those with off-site compensation, other aspects of the application were on-going / causing delay so a reduction in time to agree off-site compensation does not necessarily result in the development commencing sooner. Although in one of the cases reviewed in this research the provision of available off-site compensation would have resulted in a very significant and clear reduction in delay (see case 009), in the other case where biodiversity was the main reason for delay the issue was protected biodiversity which is not subject to biodiversity offsetting.

- **Frequency with which biodiversity compensation is required** – as above this research suggests that the current frequency of biodiversity compensation across all planning application is very low. This would be expected to increase within a mandatory system (although it is less clear what change if any would happen within a voluntary system).

- **The use of multipliers** – in many of the cases there is limited quantification of loss. Hence it is not possible to determine whether the metric and its multipliers (which set the ratio of compensation to loss) would result in more or less compensation habitat. Where quantification happens current multipliers are crude and tend to require two units of compensation for every unit lost. This is generally less than required via the metric (depending on the condition and type of habitat).
4.10 It should be recognised that there are certain cost elements that are not expected to change. The need and costs associated with ecological information inputs (surveys and EIA) will remain as will the costs (including delay) associated with mitigation for biodiversity and non-biodiversity matters.

**Sensitivities within the research**

4.11 As set out in the Summary of the research approach (section 2) this research is a pragmatic solution to undertake the investigation within available time and resources. The results are intended to illustrate the practical challenges and responses that those involved in agreeing and delivering compensation for non-protected biodiversity undertake as well as the related costs. Due to the nature of this research, there is a significant potential for selection bias and this has been recognised in the presentation and discussion of the results. As such, caution is required when scaling up any of the costs presented here.

4.12 The main research source was the online planning documentation supported by interviews. Many of the individuals involved in cases have moved on or are not willing to talk which has meant that the total number of interviews represents a small proportion of the total number of contacts approached. Again this sensitivity has been recognised in the presentation of the results and was addressed as far as possible during the research.

4.13 There is, on a day to day basis, a tendency to amalgamate mitigation and compensation measures for practical implementation purposes, e.g. through integration in a single environmental management plan. While this is a pragmatic solution by developers and planners it makes distinguishing between mitigation and compensation costs very difficult if not impossible. This is problematic from the point of view of trying to determine what difference biodiversity offsetting might make to costs, since offsetting by definition should only apply to residual biodiversity loss and so comparisons of possible future biodiversity offsetting costs with current compensation costs are made more complicated because current costs for what is called compensation may in fact include measures that are actually mitigation and vice versa.

4.14 The results presented seem to imply that off-site compensation has higher costs than on-site. The management and monitoring costs of on-site compensation are rarely publicly available (unless the applicant is an LPA) whereas off-site compensation is often based on negotiated financial sums. Hence, the nature of the results may over-represent the relative costs of off-site compensation.

4.15 This research has struggled – for very good reasons - to pull apart costs associated with the different aspects of biodiversity (mitigation / compensation / protected / non-protected), as this is not a distinction that the case study contacts recognise. Where the costs are not distinct this is identified in the results.

4.16 The range and frequency of costs identified across all the cases should, therefore, be the basis of any scaling-up of costs and not the costs associated with any single case, since single cases – by the nature of their selection - are invariably unique and atypical.

**Discussion on the research and possible future research**

4.17 It is not within the scope of this research to evaluate the effectiveness or appropriateness of any compensation promised or delivered. It has to be assumed that the potential benefits to biodiversity as determined by those involved were
delivered. There were indications during the case study exploration that despite the presence of various structures to ensure delivery (such as Steering Groups and legal agreements) delivery of compensation packages was not assured.

4.18 Therefore possible future research might include further exploring the cases introduced in this research to understand the delivery of any compensation – potentially including ecosystem services and functions as well. It might also be useful to apply the biodiversity offsetting metric retrospectively, where possible, to see what difference biodiversity offsetting might have made.

Conclusions

Application of the mitigation hierarchy

4.19 The literature review and exploration of the case studies indicates that there is a lack of clarity in the application of the mitigation hierarchy. In practice processes relating to mitigation and compensation are rarely distinct and frequently considered to be the same thing. As such, the costs presented will often include mitigation and compensation despite the researcher’s best efforts to distinguish these. That is not to say that the case study contacts do not understand the two concepts, but that in reality the mitigation hierarchy is ‘fuzzy’ with actions and costs often contributing to multiple parts of the mitigation hierarchy.

Net developable area

4.20 The results show that planning applicants seek to avoid and retain biodiversity where possible, particularly for high value features. The case studies have indicated that retaining natural areas on-site has a number of benefits to the applicant:

- **Demonstrates commitment to the mitigation hierarchy and planning policy** – avoiding areas of high value is considered to reduce likely objections;
- **Space for non-biodiversity mitigation measures** - for example water storage or management in ponds and reducing visual or noise impacts;
- **Space for biodiversity mitigation measures** - such as bat boxes and bird feeding stations;
- **Space for biodiversity compensation measures** – as on-site compensation, which applicants and LPAs appear to prioritise within the cases examined,;
- **Scope for future developments or variation in the development** - in some instances;
- **Increased amenity value** – which is noted to be important for increasing the value of residential schemes.

4.21 From the cases examined, it appears that the current application of planning policy and other considerations means that un-developed land within a development has value to the developer in remaining undeveloped and that at the least its retention does not seem to be considered a cost.

Frequency of costs

4.22 In terms of the frequency with which compensation for non-protected biodiversity is required this research suggests that compensation for non-protected biodiversity habitats is rare across the planning system as a whole, in the range of 0.04 – 5% of all planning cases. The evidence sources suggest that the lower part of that range is most likely. This large range of two orders of magnitude reflects the range of evidence collected through the research as well as the variation of application
within LPAs and sectors.

4.23 Terms such as ‘rare’ or ‘very rare’ as descriptors of frequency for biodiversity compensation arrangements were most common among interviewees, with the quantitative data supporting this. On the basis of this research, it is possible to conclude that **non-protected biodiversity compensation is required in less than 0.1% (less than 1 in a 1,000) of all planning applications.**

4.24 Based on the results, compensation for non-protected biodiversity is more likely to be required where the following characteristics are present:

- Major planning applications;
- Developments with large footprints;
- A high degree of local controversy;
- An EIA is required;
- An LPA ecologist is involved;
- Where there are significant biodiversity features. In particular the presence of protected species or habitats will drive biodiversity compensation, even compensation for non-protected species or habitats. Applications where SSIs and CWS are present appear more likely to require biodiversity compensation than non-designated sites.

**Types of costs**

4.25 There are various different cost elements associated with agreeing biodiversity compensation, but only a small proportion of these costs can be attributed to biodiversity compensation as distinct from other parts of the planning process.

4.26 Most of the identified process costs are not unique to biodiversity compensation. For example costs associated with ecological information, surveys, EIAs and developing and agreeing a management plan are significant, but are usually required regardless of the need for any biodiversity compensation. Generally, where it is required, biodiversity compensation might increase the scale of these existing costs by adding more complexity.

4.27 Beyond these existing costs the cases illustrate certain unique cost elements associated with managing and monitoring on and off-site compensation. These costs relate to:

- Developing and agreeing the compensation aspects of any management plan;
- Putting in place agreements to secure the delivery of any management plan;
- The specific monies provided for the management and monitoring of compensation.

**Scale of costs**

4.28 The scale of these costs varies depending upon the impact of the development, with larger biodiversity impacts (in terms of the extent of the habitats and their importance according to local policy) requiring higher costs. This can be seen in the range of total management costs which vary from £30,000 to £2,000,000 (including all non-biodiversity mitigation costs, where such mitigation costs may be greater than the biodiversity compensation costs).

4.29 The other substantive determinant of the costs is the ease with which compensation measures are identified and agreed, with complex or very specific compensation requirements potentially, but not typically, taking years to agree. As
a result across some cases there is clearly a substantial amount of time and effort spent developing management plans, legal agreements and negotiating final financial agreements for biodiversity compensation.

4.30 Person days spent negotiating and agreeing the detail of compensation varies within (based on the role of the individual) and across cases (based on the complexity of the compensation required).

4.31 Within a case it appears that where there is off-site compensation the potential provider and applicant spend a significant amount of time in negotiation, for instance NGO time in case 008 involved approx. 30 days of senior time, case 010 10 days and case 009 20 days. LPA ecologists are often heavily involved and within the cases spent significant amounts of time agreeing specific off-site compensation – 15 days in case 009 and 15 days in 010. The amount of time the applicant spends on these negotiations is less clear from the cases partly as they were less willing to divulge specifics but also as they did not record specific uses of time – i.e. when they were working on biodiversity or non-biodiversity issues.

4.32 Looking across the cases it appears that the more compensation is required the more time it takes. Other specifics like the form of compensation required also determines the amount of time taken – for instance where specific habitats or species were prioritised (002 and 009) - so called like-for-like compensation - a significant amount of time appears to be necessary, partly as the compensation options available are more limited.

4.33 From the case studies examined, these costs do not appear to be a high proportion of the overall development value nor a particularly high proportion relative to total time spent by applicants and authorities. As with all the costs presented it is not clear from the evidence how they split between compensation, mitigation and protected biodiversity. In some instances the time taken to agree these aspects is significant and in a smaller number of instances it is causing delay and uncertainty around the application – often when the potential impacts on biodiversity are significant and include protected biodiversity features.

4.34 Within six of the cases at least one contact felt that there was some delay in permission being granted attributable to biodiversity. The scale of this varied significantly from 6 – 8 calendar weeks (002) to 36 calendar months (003) with the amount of delay a function of the time taken to negotiate and agree the final compensation package and agreeing the details. In these instances delay and/or uncertainty was rarely due to non-protected biodiversity compensation alone. Rather there were other more significant planning reasons for delay or uncertainty For example within cases 002, 006, 020 non-biodiversity issues were the main causes of delay and within 003 problems relating to protected species were preventing the granting of permission. Within these cases non-protected biodiversity might have been an issue, but in only one case (009) was it a priority in planning terms.

4.35 In conclusion, the number of lost days for construction due to non-protected biodiversity compensation and the associated opportunity costs is very small across the planning system as a whole. In cases with high biodiversity impact, this number is higher and in a very small number of specific instances there are significant delays and associated costs.
5. Appendix A - Completed Case Study Templates

The anonymised case study templates are presented below, summarising each of the case studies.
### Case Reference

**002**

### Summary of development

**Type of development:** Airport  
**Approval granted:** Yes  
**Notes:** Large development with significant on-site, off-site and financial compensation. Recent development includes using the Defra biodiversity offsetting metric.

### Summary of Interviews

In total four interviews were conducted with:  
- Planning officer.  
- Local nature NGO.  
- LPA Landscape Architect.  
- Applicant Development Manager.

### Summary of Development

Extension of the Main Runway and associated infrastructure including the realignment and tunnelling of a section of trunk Road; A new Air Traffic Control (ATC) tower; Realignment of road together with a short section of tunnel; Revisions to the fuel farm; New exit taxiway; treatment of obstacles and the diversion of services and watercourses. (approx. 2 ha in total)  

The runway is expected to be in use by Spring 2014.

### Summary of Biodiversity Compensation

The applicant has committed to habitat compensation for the loss of designated sites of County Value (CWS). A Compensation Plan would be developed in partnership with the LPA and Local nature NGOs. The proposed compensation ratio is 2 ha replaced for every 1 ha lost.

- The permanent loss of approximately 60Ha ha of predominantly neutral grassland and marshy grassland will be compensated by creating grasslands with similar plant species composition (2:1 ratio). The Airport Master Plan proposes that approx. 120ha of neutral and marshy grasslands will be created to compensate for the predicted losses.  
  - Provision of approx. 0.5ha of scrub will be created around the margins of the new grassland habitat.  
  - Hedgerows and lowering of trees and shrubs will be compensated by planting new sections of species-rich hedgerows and stocking existing gaps outside of the obstacle treatment zones on a 1:1 ratio for the predicted loss of approx. 3 km of hedgerows and trees.  
  - Translocation of the small population of White-clawed Crayfish from sections of the watercourses.

**Monitoring** plan in place for existing and created grasslands for the first three years, then every five years after that. (Annual payments of approx. £60,000 to be paid to the Council to monitor the performance of the obligations imposed upon the applicant and in producing an annual report)  

There is also annual monitoring and reporting as a result of the initial 1999 planning approval and S.106 agreement.

The applicant shall also make the following contributions (**financial compensation**):  
- £10,000 to LBAP in respect of mitigation which cannot be undertaken on-site including: loss of Barn Owl roost, loss of breeding habitat for bird species and loss of hedgerows. (NOTE this figure was queried and its status is not clear).  
- £40,000 to the LPA for a local project in respect of mitigation which cannot be
Case Reference
002 undertaken on-site.

Summary of any Significant Non-Biodiversity Planning Issues

Transport: Issues regarding a new bus exit and cycle routes are present in the S.106 agreement paper.

Local plan and design issues:
- The local Unitary Development Plan (adopted 2006) includes a number of landscape considerations primarily related to Green Belt designations and local nature reserves, while also the preservation of certain historic buildings. The various provisions identify the Council’s commitments when considering the development proposals, such as highlighting that transport corridors can provide suitable environments for new planting and landscaping (relevant to the realignment of roads).
- Demolition of local businesses.
- Applicant is expected to contribute £10,000 annually for 20 years for tree planting and woodland creation schemes in surrounding areas, based on the Carbon management plan to off-set carbon dioxide emissions according to local plans, guidelines and strategies.

Timeline of Negotiation and Agreement for Biodiversity Compensation

The whole process was around 2.5 years, including the 6-month pre-application negotiations.

Case Study Analysis

Type of Costs
The main cost identified elements were:
- Developing the management plan.
- Delivering the management plan.
- Costs associated with the translocation failure and biodiversity offsetting.

Scale of Costs
### Case Reference

**002**

#### Time
- WT estimated around 45 days of time taken between 2009 and 2013. This was estimated to have a financial cost of £2,500 - £3,750 for everything up to the S.106 agreement including the pre-consultation meetings, submitting responses etc. min. £7,500 from S.106 agreement to planning permission granted
- LPA say cost to them was £250,000 from planning application to planning consent.

#### Financial
- £100,000 for the offsetting for the grasslands
- £40,000 to the Council for project Kingfisher
- All on-site compensation measures
- LPA said they are paid £60,000 annually for monitoring where: 50% goes into monitoring implementation of the management plan with regards to mitigation, ecology, landscaping and historic environment and 50% goes to the monitoring of air quality, noise etc.

#### Delay
- LPA: believe there was delay due to biodiversity of 6-8 weeks. This was because of challenges of getting people together (scheduling problems) to finalise the management plan and related legal steps.
- WT – no delay due to biodiversity
- Applicant - no delay. Felt that they got close but they managed to avoid delay. Other, non-biodiversity issues were more significant.

#### Net Developable Area:
- Not raised as an issue.

#### Frequency of Costs
- LPA – say less than 1%. Provided figures that in 2013 3 instances of biodiversity compensation out of 2,500 cases to date (0.12%). In 2012 this figure was 0.04%.
- WT said that they only deal with large cases but that 80% of these require compensation, but he wasn’t very confident about that figure.
- LPA Ecologists – says fewer than 1 in 10 cases (of major applications) require biodiversity compensation.

#### Other Comments / Analysis
**What difference might biodiversity offsetting have made?**

From discussion with the applicant they thought that there was limited scope for off-site compensation as they owned a substantial amount of adjacent land which they have used for compensation. The only off-site biodiversity compensation is the money provided to the Council was to address issues relating to reduced riverside habitats. This could have been subject to the metric but it is not clear how, if at all, the amount of compensation would have differed. As mentioned there is some biodiversity offsetting occurring on the site as a result of failed translocation efforts.

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56 This cost is associated with grassland that was supposed to be translocated. However it was found that this was not technically possible and that the grassland would be lost. In response the monies originally set aside for translocation were reallocated to provide for off-site compensation. To do this the applicant used the Defra biodiversity offsetting metric and hence this cost is felt to be outside the scope of the study which does not include biodiversity offsetting.
**Summary of development**

**Type of development:** Energy from waste plan  
**Approval granted:** 2012  
**Notes:**

**Summary of Interviews**

In total 2 interviews were held with the
- Applicant Planning Manager
- LPA Ecologist

**Summary of Development**

Planning permission for an energy from waste facility; incinerator bottom ash processing; air pollution control residue treatment and disposal in a monocell; access road, surface water management and habitat management; demolition of farm house and farm buildings.

**Comments:**

LPA requested biodiversity compensation in accordance with the local Minerals and Waste Core Strategy (WCS) and the NPPF (paragraphs 109 & 118)

Development started Summer 2013.

**Summary of Biodiversity Compensation**

Creation of habitats (location of replacement habitats both on-site and off-site in accordance with recommendations made by the County Planning Authority in consultation with statutory consultee) within and outside the application boundary and land.

**Within farmland:**
- Approx. 3 km of new hedgerows
- Approx. 15.5ha of species-rich neutral grassland created through habitat management.

**Within Wider Estate:**
- Approx. 40 ha of woodland and shrub
- Approx. 2 ha of grassland
- Creation of approx. 0.1ha reedbed and lagoon (approx. 500m²) and two ponds (approx. 200m² and 400m²)
- Creation of an 'open mosaic’ habitat for butterflies to recreate the track bed habitat that is being lost

**NOTE:** The Ecological Management Plan (EMP) also contains a balance sheet calculating the gains through mitigation and compensation and indicates that net gain is established by the compensation package above.

**Species:**

Any residual impacts on species will be compensated through the creation of new areas or enhancement of existing habitats for most of the species affected. Additionally a total of approx. 10 ponds suitable for breeding great crested newt will be created.

A Judicial Review on the process for resolving great crested newt issues was brought but was not successful.

**Monitoring:** On-going management and monitoring provisions for at least the next 30 years
- Monitoring reports biennially summarising monitoring surveys undertaken for species.
Case Reference

003

- Monitor created and enhanced grassland using fixed point quadrats biennially.
- Every 5 years submission of monitoring surveys on plants and butterfly larvae.

Summary of any Significant Non-Biodiversity Planning issues

The development site is immediately adjacent to a Farmhouse, which is a grade 2 listed building. The property is owned by the applicant but, in order to offset the acknowledged impact on the setting of the listed building, the planning application proposed the development of a Management Plan for the property, to be overseen by a Management Liaison Committee. To facilitate the implementation of the Plan, the applicant has committed itself to funding improvements to the property to a sum of not less than approx. £80,000 over a 3-year period and has signed a legal agreement to that effect.

Objections:

- Residents had objected about tree loss – in response loss was avoided.
- Other objections were placed for the management of great crested newts (as referred to above) and for hazardous waste and air pollution. Both were dismissed by the court.

Timeline of Negotiation and Agreement for Biodiversity Compensation

The EMP has 5 drafts (including the final version submitted and approved in Summer 2012), required 3 consultations in between and took a year from initial to final draft.

Case Study Analysis

Type of Costs

The main identified cost elements were:

- Consultant’s fees.
- Management and monitoring costs.
- Delay.
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<th>Case Reference</th>
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<tr>
<td>003</td>
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<tr>
<td>Scale of Costs</td>
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**Time**
- Applicant felt that it took 16 months to agree the final package. Not able to differentiate between different aspects of biodiversity (protected species, surveys etc).

**Financial**
- Estimated that £200,000 required for ecological consultants fees.
- Final package of mitigation and compensation comes to £1,115,150 and includes management up to 2042.

**Delay**
- Developer: argued the process required almost three years, while the time from planning application submission to granting was 16 months and that can be attributed mainly to biodiversity.
- LPA felt that there was no additional delay related to non-protected biodiversity compensation although it was recognised that the time taken to agree the compensation was significant.

**Net Developable Area:**
- Appears that the biodiversity on-site did determine the arrangement of the access road in particular. But other parts of the site are undeveloped for various reasons – such as for future development potential and void space.

**Frequency of Costs**
LPA felt that around 5% of all major waste and minerals applications (of which they receive less that 6 per annum) require compensation for non-protected biodiversity.

**What difference might biodiversity offsetting have made?**
No off-site compensation was delivered in this project as there was sufficient scope on-site. Most of the time costs for this development relate to protected biodiversity and hence the, substantial, delay is not likely to have changed.
Case Reference
004

Summary of development

**Type of development:** Redevelopment of old industrial site for mixed use.

**Approval granted:** 2006

**Notes:** Development yet to commence.

Summary of Interviews

In total 3 interviews were held with the:

- Managing agent
- Managing agent
- LPA Case officer

Summary of Development

The former industrial site was intended to contain housing, a new school and playing grounds. It was one of a suite of 5 interlinked developments put through planning at the same time (the others were a school across the river which would be relocated to the site, the amalgamation of two different schools, the creation of new open recreational space, and the creation of new sports pitches).

Ecological impacts on the site included those to the adjacent riverbank and to lodges (standing water) on the site containing great crested newts (GCN). The latter had developed conservation value during those years in which the site was left unused.

The site extends to approx. 33 acres, of which there are approx. 25 acres for development.

Now that the development has stalled for some years, certain elements of the original proposal (e.g. the building of new schools) have proceeded elsewhere. It is therefore not clear what will happen to the site and whether any of the original development plans will be implemented.

Process for Agreeing Biodiversity Compensation

The majority of the work was done in the pre-application stage. Detailed discussions were had between the developer, the council, the county ecologist and others regarding the ecological receptors on-site, and the opportunities for mitigating or compensating for impacts upon these.

A sum of approx. £37,000 (in respect of off-site ecological mitigation measures) was required to offset loss of lodges on-site and impacts to riverbank. The figure was arrived at by the in-house ecologist, who estimated the restoration costs in £/ha, which were then multiplied by the total hectares impacted. There was also an intention to deliver some of the compensation on-site through creation of habitat with flowing water, and further restoration work off-site in nearby protected areas (some owned by council, others privately owned). The compensation was therefore a combination of on-site and off-site initiatives. An Environmental Monitoring (EM) report was to be submitted to the LPA every three months, once restoration undertaken and habitat established.

Consequently, by the time this came to application, the details of compensation required under any proposed scheme were largely understood by the developer. As a result, it was felt that there were no delays to the planning process as a result of discussions pertaining to ecological compensation.

Subsequently, the development stalled for some years (there was speculation that this was due to funding sources drying up, amongst other factors). Following a series of minor disputes, the developer decided to attempt and proceed with the development without the council, but it transpired that the development required access through council-owned land. Finally, the developer left the project, and it is not clear what will happen to the site.

Summary of any Significant Non-Biodiversity Planning issues
Case Reference
004
- £120,000.00 (Canal Restoration Payment) received by the Council for CR works to restore the canal frontage
- £53,760 car park improvements payment
- £196,440 (Metrolink Payment) received by the Council for the purpose of the construction of a new link to the Metrolink platform
- £316,095.58 to the Council on works to construct a riverside walkway

No estimate given for the value of the project as a whole.

Timeline of Negotiation and Agreement for Biodiversity Compensation

2006
Planning permission granted

Redevelopment of the site stalled

2012
Extension applied for

Permission renewed

Developer abandoned project, fate of site now uncertain

Case Study Analysis

Type of Costs
The main cost identified elements were:
- Time taken to negotiate and agree the compensation package in pre-application
- There was no cost associated with LPA ecologist, but it was noted that the LPA are not retaining the ecologist as an employee due to costs (they are going to move elsewhere but remain working on ecological issues in planning within the region). It was not clear what the cost would be without the ecologist in-house

Scale of Costs

Time
- According to the interviewees, there was very little time or delay to the project as a result of the ecological compensation. Just the time taken to discuss the issues in pre-application
- With the ecologist no longer sitting in house, it was speculated that there may be some small delays introduced in future applications. But again, these are not considered significant

Financial
- The developer will pay £37,000 for the implementation of biodiversity
## Case Reference

| 004 compensation works. |

### Delay
- Again, the council contends that there was no delay to the processing of this application as a result of the biodiversity compensation. The current system, assuming the correct approach is taken to pre-application, is considered acceptable.
- However, it was noted that in other applications, considerations pertaining to ecological compensation absolutely cause delays to the process.
- The primary delay in implementation for the development in question is of course the stalling of the entire project, which has resulted in the opportunity to create the necessary schools on the site potentially being missed.

### Frequency of Costs
The estimate given for proportion of applications in which ecological mitigation or compensation is eventually required was 20% of all proposed developments.

### Other Comments / Analysis
The planning council are apparently in the ‘top ten’ of planning authorities in the UK; although it was not clear against which metric; and as such, perhaps do not exemplify an average planning authority.

**What difference might biodiversity offsetting have made?**

It is hard to see how the plans or necessary compensation would have changed significantly; however, the use of the metric may have led to greater transparency in the way the compensation requirements were calculated. As it was, this was carried out by the in-house ecologist, apparently on a quantitative basis, but the rationale for the figures arrived at was not given.
Case Reference
005

**Summary of development**

**Type of development:** Creation of plots with planning permissions for housing  
**Approval granted:** 2007  
**Notes:** Houses built, and ecological compensation implemented and 5 years into management

**Summary of Interviews**

In total 1 interview was held with the Case officer

**Summary of Development**

**Background:** The applicant owned the land, which included a Site of Importance to Nature Conservation (SINC). Existing SINC was eroded by unauthorised access (encampment, motorbike racing, etc). Was deemed by the local nature NGO in 2006 to no longer warrant designation. Planning permission was obtained for a number of plots on the land and adjacent to the site, which could then be sold off by the owner, in exchange for funding to restore the SINC.

Without taking on the management plan for the SINC, the applicant would not have been able to obtain planning permission for the land. The development area equates to approx. 0.2 ha whilst the wildlife site area is approx. 4.6 ha

Post the successful application 5 plots for 4 detached houses were released in the area.

**Process for Agreeing Biodiversity Compensation**

Landowner (a farmer) agreed to the scheme. Applied for 12 plots, but the LA determined that the minimum number of plots necessary to create a fund big enough for the management of the site was 5, so they granted that. For each plot, the landowner contributed £20,000 to an ecology fund for the site (i.e. £100,000 overall). No objections in the planning process. Each plot was the sold to a third party by the landowner, and 4 houses have been built on them. Without the deal, the planning would never have been granted for a variety of reasons, including the impacts on the designated site (total land take was around 2-3% of the site). The plots were covered in Japanese Knotweed, which the house builders had to deal with.

Fund is held by a local bank and implemented by the landowner. Management plan was written up for 15 years, with monitoring every year and 5 year check-ups. Management included removing rubbish, preventing unauthorised access, creating a public footpath through the site, rotational grazing, log-piling, and tree planting. No legal obligation after 15 years, at that point the plan is that the LA will sit down with the landowner and discuss the future. Not clear how this relates to the conditions specified above in the planning docs.

Has been running 5 years, and considered a success. The LA are pleased and would consider doing this elsewhere. The landowner has made a profit.

Cost was roughly the same as a normal planning application. There was a special ecological assessment completed, but no costs were available for this.

The LA has a Service Level Agreement with the local nature NGO (as do all county planning authorities) to provide the ecological expertise that is not available in-house. Biodiversity compensation is becoming more and more of an issue according to interview, especially as the trend towards building on brownfield sites grows. However, it is a low percentage of planning permissions overall, as so many are e.g. extensions and residential, which tend not to need them.

**Summary of any Significant Non-Biodiversity Planning issues**

There were no significant non-biodiversity planning issues.

**Timeline of Negotiation and Agreement for Biodiversity Compensation**
Case Study Analysis

Type of Costs

The main cost identified elements were:
- Ecological surveys
- Initial SINC site clear-up once compensation fund was created (ongoing management and monitoring is relatively small)

Scale of Costs

Time
- Time spent was considered not much greater than a ‘normal’ application
- Management plan in place for 15 years, with annual surveys and reviews every 5 years. Intention is that the landowner and planning authorities will ‘sit down’ to discuss further management at this time
- Note that this contradicts the length of management obligation specified in the planning documents (25 years)

Financial
- The council provided a figure of £100,000 paid in compensation for ecological impacts. This was calculated based on a fixed amount per plot (£20,000) with planning permission, and the overall amount of compensation set according to the estimated needs of the SINC.
- Note that this contradicts the figures given in the planning documents (£170,000)
- Not clear what consultant costs were

Delay
- No delay – the planning application only went ahead with the ecological compensation in mind. It is thus something of a blurred line, and could be seen as enhancement rather than compensation

Net Developable Area
- Arguably, this development resulted in an increase in developable area. The planning permission would never have been sought, and probably not granted, if the ecological works hadn’t been arranged. The increase is thus the 5 plots that became available for housing
**Frequency of Costs**

<table>
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<tr>
<th>Estimates of frequency of non-protected species compensation:</th>
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<td>• Very low proportion of all developments (actual estimate not given), but higher proportion if just considering new build.</td>
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<td>• This case was certainly atypical, because the authority approached the developer to suggest it as a pro-active approach to nature conservation. However, both the council and other stakeholders are keen to implement this approach again, as it proved successful.</td>
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**Other Comments / Analysis**

Successful case in terms of increasing developable area and satisfying all stakeholders interested in biodiversity conservation outcomes. However, an atypical example as it was quite ‘back-to-front’, with the authority encouraging the landowner to submit an application.

**What difference might biodiversity offsetting have made?**

To speculate, although there may have been little difference in practice, in theory the implementation of multipliers as a result of impacts upon a partially protected area might have resulted in greater habitat restoration requirements by area.

In addition, the use of the metric would perhaps have required the LPA to be more transparent about the mechanism for calculating compensation requirements.
Case Reference
006

Summary of development
Type of development: Road
Approval granted: Summer 2009
Notes: LPA as promoter/developer as well as planning authority.

Summary of Interviews
Interviews were conducted with the following:
- LPA Head of Planning.
- Chief Executive local nature NGO
Including email communication with:
- Head of Environment LPA
- LPA Project Manager
- LPA case officer

Summary of Development
Construction of a new approx. 5.5km road, including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation, and facilities for non-motorised users.
The proposed scheme will link the outskirts of various towns with the intention of, easing congestion and improving air quality. It will partly run along the line of a disused railway line and then pass around the northern side of a Site of Special Scientific Interest (SSSI). From there it passes another SSSI. A total of approx. 2 new major structures would need to be constructed along the route of the Link Road, additional to a number of culverts and retaining walls.

Process for Agreeing Biodiversity Compensation
Overview
The application with accompanying Environmental Statement (ES) was submitted to the LPA in Spring 2007. The application was advertised in Summer 2007 following its receipt. It was advertised for a period of six weeks. Following an initial assessment by LPA officers and comments on the scope and content of the application, the applicant prepared an addendum to the ES. Subsequently the applicant submitted a second addendum in Autumn 2008 comprising additional environmental information which was also advertised.

EIA
The ES identifies the loss and severance of the following habitats:
- Floodplain grassland and fen; Loss or severance of approx. 7.5ha high biodiversity value
- Species-rich neutral grassland; approx. 2.5ha
- Mesotrophic grassland scrub and secondary woodland; approx. 6.5ha
- Ditches and streams; approx. 2.5km
- Hedgerows including hedgerows with wet ditches; approx. 5km hedgerows
- Agriculturally improved grassland; and,
- Arable land.
In addition the scheme would create a barrier between habitats, sever habitat links, and cause noise and visual disturbance.

Air quality impacts (NOx) on two SSSI were assessed as not likely to cause exceedences in critical load (as this is already exceeded without the road), this was disputed by the statutory consultee.
Case Reference

006

2 addenda to original ES produced in Spring and Autumn 2008 providing further information on impacts and mitigation and compensation:

- The Addendum to the ES (Summer 2008) addresses issues raised in Reg 19 consultation including by two statutory consultees. In addition to effects on the SSSIs (air quality and nitrogen deposition) and protected species, these include effects of severance on BAP habitats and species, fragmentation of the area as a whole, adequacy of the ecological mitigation and enhancements proposed. It outlines the creation of extensive linear planting of shrubs either side of the carriageway and extensive balancing ponds with associated wetland features and habitat restoration and creation including scrub planting along the road embankments to create linear habitat linkage along the route which would restore connectivity to bisected hedgerows and create connectivity across the floodplain. Planting and planned management of areas of grassland would add biodiversity value by providing additional habitat of a scrub/grassland mosaic, and the creation of wetland habitats. Additional wetland habitat mitigation would be provided in a nearby site. This area would be designed and landscaped to create a variety of wetland habitats through creating shallow, marginal, deep water zones and additional reedbed habitat.

- The Supplementary Report (Autumn 2008) addresses:
  - bat survey data and mitigation and dormouse survey data and mitigation by planting and crossing for dormouse to mitigate fragmentation.
  - Inadequate mitigation for the loss of small areas of woodland ground flora, loss of connectivity and nitrogen deposition for SSSI.
  - Air Quality effects – local dry deposition of Nitrogen and Ammonia and associated contribution to acidification to be assessed for both SSSIs.

The Supplementary Report refers to compensation habitat for the Scheme that has been developed and agreed through the consultation process as constituting 2 for 1 replacement habitat. It addresses compensation for the indirect Air Quality, shading and loss of connectivity. It identified approx. 6.5ha of woodland. Statutory consultee objections relate to more compensation for effects of loss of connectivity and shading (ground flora) on SSSI, and nitrogen deposition on SSSIs and requirement for a second addendum to the ES and subsequent consultation delayed the consideration of the application by the Planning Committee. The statutory consultee withdrew its objection following provision of further evidence by applicant in the Supplementary Report.

2-for-1 replacement principle

The principle of ‘2-for-1’ habitat replacement agreed early in process: Addendum to the ES Volume 1, Summer 2008 refers to mitigation for the loss of habitat as a result of the Scheme to be provided on a two for one basis of habitat restoration and creation, with the creation of extensive linear planting of shrubs either side of the carriageway and extensive balancing ponds with associated wetland features, as agreed with statutory consultees and LPA Ecologist.

The ecological compensation and mitigation was subject to lengthy consultation, EIA and addenda identifying effects on wildlife, integration of measures within the scheme, and legal undertaking for the Compensatory Habitat Scheme for residual impact on SSSI (Air Quality, Pollution, Noise, Shading, Habitat Loss and Fragmentation). A mixture of part of Areas A and B proposed woodland compensation areas (identified in the plans
Case Reference

006

associated with the legal undertaking – existing woodland) selected for provision of compensatory woodland. The original ES includes a Mitigation and Compensation Strategy.

Conditions – on-site habitat enhancement

Compensation is provided for in conditions on the planning permission and a statutory undertaking (for off-site works to compensate for the effects on the SSSI):

- Condition requires submission and approval of a detailed scheme, to include the proposals in the Environmental Statement and subsequent addenda, for mitigation and compensatory habitat creation/restoration (including connectivity between habitats)
- Condition requires submission and approval of a habitat management plan for the application area and all mitigation and compensation features both during construction and then during the operation of the development for the lifetime of the road.
- Condition requires submission and approval of a scheme of monitoring.

The Landscape and Ecological Management Plan (Spring 2013) describes the proposed ecological and landscape mitigation, habitat creation, habitat management, and ecological monitoring during the preconstruction, construction and aftercare periods of the Scheme in order to safeguard specific landscape features, habitats and species, as required by various planning conditions.

There are a total of approx. 30 conditions that apply to the permission.

Section 106 Legal Undertaking

A Statutory Undertaking by the LPA in favour of the applicant signed Summer 2009 includes the Compensatory Habitat Scheme and Monitoring arrangements for effects on the SSSI. The Undertaking and S.106 (letter Spring 2009) refers to the provision and management of an area of approx. 6.5 hectares of habitat on a site that includes 2 existing woodland areas to compensate for the loss of approx. 3.5 hectares of SSSI habitat, under the compensatory habitat scheme based on a 2-for-1 principle to reflect unpredictability of success of habitat creation (on advice of statutory consultee and LPA Ecologist), plus linear planting of shrubs alongside carriageways, and balancing ponds

Monitoring

Approx. £97,000 is provided for by section 106 for all monitoring. The fee and costs are not broken down into how much will be used for ecological monitoring. Funding within LPA between departments, although the Director is responsible for both implementing the development and for planning.

An annual report on the Legal Undertaking is produced including of progress on the compensatory habitat scheme

Summary of any Significant Non-Biodiversity Planning Issues

- Economic development and regeneration – accessibility to enable development and investment
- Transport and traffic – reduced journey times, safety, reducing congestion on minor roads
- Landscape and visual impacts.
- Noise and tranquility
- Air quality
- Flood risk, water quality, drainage
- Agriculture – loss of best and most versatile land

Timeline of Negotiation and Agreement for Biodiversity Compensation
Case Study Analysis

Type of Costs

The main cost identified elements were:

- Design and delivery of ecological mitigation and compensation measures as part of the overall design of the scheme.
- Some delay to the consideration of the application by the LPA was a result of statutory consultee requiring further information at a late stage including a second addendum to the ES (The Supplementary Report, Autumn 2008) to address its outstanding concerns over mitigation and compensation for effects on protected species (bats and dormouse) and effects on the SSSIs. This delayed the process (consideration by Committee) by 2 months. Additional cost incurred (but not itemised) for the consultants to undertake the supplementary ES.
- Actual delivery of the development has been delayed, and subsequent costs increased, due to other factors including Government review of funding, public inquiry into compulsory purchase (Autumn 2009), legal challenges on different aspects of the scheme’s funding and development, and occupation of the route by protestors and associated security costs.

Scale of Costs

Time

- From the submission of the application in Spring 2007 to approval in Winter 2008 took 20 months. 2 addendums to the Environmental Statements were produced to address issues raised through consultation including with statutory consultee and relating to compensatory habitat provision, but also to address other issues. The requirement for a second addendum (Supplementary Report) to address statutory consultee concerns over impacts on the SSSI (Air Quality, Pollution, Noise, Shading, Habitat Loss and Fragmentation) and bat survey delayed the planning process for 2 months.
Case Reference
006
Financial
- Difficult to separate out the costs of habitat replacement from wider landscape, flood and water management and other mitigation measures as integrated into the overall design of the scheme and the Landscape and Environmental Management Plan. Costs itemised and include:
- Overall Landscape and Visual impact mitigation including: Extensive Screening planting and seeding, alongside a 7 year agreed maintenance period including for the planting of approx. 6.5ha compensation for impacts on SSSI; Habitat creation and management for wetland habitats (approx. 25Ha of new wetland habitat to be created); Habitat creation of approx. 19.Ha to woodland (to include approx. 6.5Ha as compensation for the SSSI); Neglected woods to be brought into active management. Reinstatement and creation of hedgerow connections. (approx. 9,000m2 of new hedges); Creation of approx. 19Ha of neutral grassland for badger foraging, approx. 9.5Ha of species rich grassland and approx. 23Ha of neutral grassland with scrub; Management of these habitats to ensure they are suitable for foraging, reptiles and invertebrates. Total Cost approx. £1,570,000.
- In addition the land purchase cost for all environmental mitigation elements, including the reclamation of open grassland areas, wetland and woodland habitat creation and agricultural reinstatement is estimated to be approximately £1m.
- Approx. £97,000 for all monitoring (not only ecological) is provided for by section 106 agreement.

Delay
- Ecological matters were considered alongside other issues as the scheme was developed and through the decision making process. Although statutory consultee late objections (impacts on the SSSIs) and requirement for a second addendum to the ES delayed the report to Committee by 2 months, further more serious delays (to the construction rather than planning) were due to legal challenges (funding for the scheme), uncertainty over the funding, compulsory purchase and associated public inquiry, and occupation of the route by protestors.

Net Developable Area:
The area subject to the application was increased to include land for habitat replacement (Environmental Statement). There is also a provision for wetland area creation (through creating shallow, marginal, deep water zones and additional reedbed habitat), along with the creation of new ponds and the creation of terrestrial habitat benefitting birds, foraging bats, badgers and GCNs. Dormouse habitat lost during the construction of the Scheme would be replaced by approx. 20Ha of woodland incorporating approx. 5500m of thickened woodland edge and at least 4000m of hedges of new planting within the Scheme area adjacent to the road. However, this additional land for habitat replacement is not land that would otherwise have been developed or available for development as part of the road proposal, so net developable area in the context of a linear scheme such as this, promoted by a public authority is not really an appropriate concept. Also the inclusion of the habitat replacement on adjacent land (as opposed to offset) is part of making the road development acceptable in that location.

Frequency of Costs
The LPA is a minerals, waste and transport planning authority. There are few minerals developments and the majority of large scale waste facilities are urban and so requirement for biodiversity compensation is rare.

A major and controversial scheme that has suffered delay largely due to legal challenge and uncertainty over funding, as well as the need to compulsorily purchase land for the road construction and for environmental mitigation including provision for replacement habitats. The process of determining and agreeing ecological mitigation and compensation did not appear to have delayed the planning process significantly (2 months due to statutory consultee objection over effects on SSSI and requirement for addendum to ES). The mitigation hierarchy applied through route selection to reduce adverse ecological impacts. Early agreement (2008) between the applicant, planning authority (same organisation) and conservation bodies that habitats affected by the scheme would be replaced on a 2 for 1 basis. The red line of the application was extended to include land for delivery of environmental mitigation and compensation and this was integrated into the design. The environmental mitigation and compensation included landscape and water management as well as ecology, and so it has not been simple to separate out costs specific to ecological mitigation and compensation, and not possible to obtain separate costs for the overall landscaping within the red line area and the provision of woodland off-site to compensate for effects on the SSSI.

Offsetting would probably not have made this process quicker or simpler as this is a publicly funded scheme, with the County Council as proposer and applicant as well as planning authority, agreement over compensation on a 2 for 1 basis was agreed early on, and land was included within the envelope of the development to deliver this. Conditions are used to require the replacement habitat provision as it is on-site. Use of the 2 for 1 replacement habitat principle is simpler than the metric and may not be as robust but was accepted as reasonable.

It is not simple to separate costs for habitat compensation for the following reasons:

- Habitat creation and management is integrated into landscape mitigation and enhancement
- Habitat enhancements within the red line to compensate for effects on designated sites (SSSIs) and on protected species are not distinguished from measures to replace loss of non-designated habitats

The estimates of costs provided above need to be considered with these limitations in mind. They are taken from publicly available documentation on the advice of LPA.

What difference might biodiversity offsetting have made?

Unlikely to have had a major effect. The habitat replacement and creation measures (on the 2 for 1 basis) were integrated into the overall scheme design, particularly the landscaping within the red line area of the development. The landscaping was essential to mitigate this impact, given the location and route of the road across open countryside and a valley. Compulsory purchase was required for landscaping anyway. Integrating biodiversity into the landscaping would be likely to be the most effective means of delivering biodiversity compensation even under an offsetting system. The scheme promoter’s view is that if there were a formal offsetting process then objections from statutory environmental bodies wouldn’t have been lodged in the first place so lengthy negotiations wouldn’t have been required. However this may have only related to the SSSI impacts and associated delay, but there were objections on other grounds considered at the same time too. A formal offsetting process would make it easier for scheme promoters to understand what will be required earlier on, rather than having to
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<th>Case Reference</th>
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<td>negotiate after bodies have objected, and presumably would also save potential objectors time and effort too.</td>
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Case Reference

007

Summary of development

Type of development: Energy from Waste
Approval granted: Spring 2012
Notes: Subject to a current application to amend the conditions that relate to the design of the plant which will affect other parts of the site.

Summary of Interviews

Interviews conducted with the following:
- LPA case Officer.
- LPA Ecology Advisor.
- Ecological consultant.

Summary of Development

Site details: The site (6ha) is an established industrial area adjacent to a park area and River. The site is a County Wildlife Site and is adjacent (in part) to the Green Belt. The site was previously used as part of a power station-site which was demolished in the 1980s.

Development: Construction of a Sustainable Energy Facility (approx. 2.5ha) comprising an Advanced Thermal Treatment (ATT) facility and an Anaerobic Digestion (AD) facility, together with the creation of a natural area (approx. 4ha).

Process for Agreeing Biodiversity Compensation

The development site comprises part of the 6ha CWS – previously developed land (including PFA deposits and part a clay capped asbestos dump) which has developed conservation interest (BAP habitats and species) and hosts protected species including GCN and badgers.

It was designated as a Local Wildlife Site due to presence of mosaic of habitats (marsh, remnant grassland, pools, fen and wet willow carr woodland) and indicator species, and supports Great Crested Newts.

The EfW development would cover approx. 2.5ha of the 6ha site.

EIA

An EIA Scoping exercise was undertaken in 2009/10. Statutory consultee comments on the EIA scoping request (Winter 2009) required no loss of flood storage, and recommended investigation of habitat enhancement. The local Biological Records Centre recommended that new habitats should be created in the proposed natural area to compensate for any losses.

The Environmental Statement (2010) concluded that with the mitigation proposed there would be no residual impact except loss of mature trees.

The Environmental Statement refers to the Post Development Mitigation, Monitoring and Management Plan which includes the following actions which will be preceded by written method statements, approved by the competent ecologist and arborist.
- Habitat enhancements for great crested newts and reptiles.
- Remedial tree work on trees to be retained.
- Ecological and tree protective fencing.
- Creation of a mammal tunnel.
- Closure of badger setts, within or near the development areas, under license.
- Subsequently or concurrently, licensed translocation of great crested newts and
reptiles will occur.

- Tree felling (outside the bird breeding season) and staggered site clearance.
- Excavation of depressions to capture run-off and thus control pollution (these will also be made suitable for wildlife, especially great crested newts).
- Erection of bird and bat boxes in the nature area

The habitat management plan (within the Mitigation, Monitoring and Management Plan) details proposals to enhance, create and maintain the following habitats and species for the site (mitigation work on-site to manage and enhance its interest):

- broadleaved woodland;
- broadleaved plantation woodland;
- continuous scrub;
- scattered scrub;
- unimproved grassland;
- tall ruderal;
- ephemeral/short perennial;
- marshy grassland;
- standing open water;
- bat & bird roosting and nesting sites; and
- amphibian & reptile hibernacula.

Planning Application
The statutory consultee originally objected to the planning application in summer 2010 as the FRA submitted with the application was not acceptable and it was considered that there would be an adverse impact on nature conservation. Following the submission of additional documents by the Applicant the statutory consultee removed their objection in Autumn 2010, subject to the Section 106 Agreement being signed.

Statutory consultee commented on the application on Summer 2010 and made no objection (based on no impact on designated sites of national or international importance), stating that the mitigation measures for protected species are adequate.

Local nature NGO originally objected to the further loss of the CWS. However they withdrew this objection on Autumn 2010 subject to the appropriate conservation of the remainder of CWS, and the securing of appropriate conservation interests in the local area as compensation for loss of a further part of this CWS. They recommended restoration of the undeveloped part of the site and transfer to the NGO on 100 year lease, and compensation in the form of £125,250 donation to the NGO to fund surveying, assessing, reporting and liaising with landowners, of local Wildlife Sites in the area.

LPA Ecology Advisor did not object to the proposal – not seen as an issue as the early successional habitat would benefit from disturbance and the nature area proposals were adequate. Issue of s.106 payments arose through objections to the development by a different LPA and nature NGO (Winter 2010). The development is on a Local Wildlife Site and adjacent to park and objectors argued that felt that such a large development would have adverse effects that need to be compensated for.

The officer’s report to Planning Committee (Winter 2010) refers particularly to the presence of European Protected Species (great crested newts) and the tests that need to be met (reflecting advice of the Biological Records Centre regarding the Habitats Regulations):
Case Reference

007

1. The activity must be for imperative reasons of overriding public interest (OPI) or for public health and safety.
2. There must be no satisfactory alternative.
3. The favourable conservation status of the species in their natural range must be maintained.

It concludes that satisfactory mitigation has been proposed in the Environmental Statement which would ensure compliance with legislation relating to protected species. It refers to a Waste Local Plan Policy that requires careful consideration of applications ‘which would affect semi-natural habitats of local importance either on or adjacent to the application-site, including non-statutory and other nature reserves, other sites of nature conservation interest designated in local plans, designated heritage sites (under the county council’s heritage scheme) and common land. The LPA may refuse such applications where the impacts on any of these features have been assessed to be adverse.’

Planning Permission

The planning permission includes approx. 25 conditions including:

- Management of ecology, species and habitats in accordance with the Ecology Mitigation Strategy.
- Management Agreement to ensure management of the nature area prior to commencement. This area will be managed in accordance with the post development Mitigation Monitoring and Management Plan.

The section 106 agreement signed Spring 2012 includes:

- Ecology Improvement - £75,000 to LPA to fund reedbed creation and other ecological improvements in the vicinity of the Site.
- Wildlife Preservation - £125,000 to local nature NGO. The funds would be mainly dedicated in surveying, assessing, reporting and liaising with landowners, of local Wildlife Sites in the area. This was to compensate for damage to the CWS, reflecting representations from the NGO and the local Biological Records Centre.

Summary of any Significant Non-Biodiversity Planning issues.

Waste management, air quality, transport and lorry movements, and visual impact were all raised.

Approx. 25 conditions attached to the permission, plus Section 106 Agreement including in addition to the contributions for off-site ecological works:

- A routeing agreement to ensure HGVs use specific roads.
- A contribution of £270,750 towards the a road improvement scheme.

Timeline of Negotiation and Agreement for Biodiversity Compensation
Case Study Analysis

Type of Costs

The main cost identified elements were:

- Financial cost of Management Plan for the nature area - not known, although the 2010 Post-development Mitigation Monitoring and Management Plan recommends changes to the existing Management Plan prepared in 2006 which includes costs of £56,250 over 10 years
- S.106 contributions to LPA and local nature NGO.

Scale of Costs

Time

- Not considered significant by LPA

Financial

- Financial cost of post-development ecology costs including for the Ecozone estimated £100,000 by developer’s ecological consultant (including badger mitigation, newt licensing, newt clearance, monitoring surveys and habitat management over 10 years but excluding site clearance, landscaping and planting, and off-site reed bed enhancements covered by s.106). Pre-development (planning) ecology costs for surveys and advice estimated at £25-30,000.
- Costs of contributions to third parties set out in s.106 - a contribution of £75,000 to fund ecological improvements on land adjacent to the site (LPA) and a contribution of £125,000 to fund Wildlife Sites projects in the area.
- LPA Ecology Advisor did not object to the proposal – not seen as an issue as the early successional habitat would benefit from disturbance and the nature area proposals
**Case Reference**

007

were adequate.

- Issue of s.106 payments arose through objections to the development by the LPA and local nature NGO. The development is on a Local Wildlife Site and adjacent to the Regional Park and objectors argued that felt that such a large development would have adverse effects that need to be compensated for. LPA had requested £100k which was reduced to £75k. It is not clear from where these figures are derived or why they were agreed.

**Delay**

- Ecological consultant not aware of any delay due to ecology apart from GCN license
- LPA is not aware that negotiations over biodiversity caused any delay to the application. Meetings with the applicant’s agents and negotiations covered a range of issues not only biodiversity. There was a delay between the Committee resolution (Winter 2010) and final grant of planning permission (Spring 2012) due to legal issues and negotiation around the s.106 but this was regarding the Highways component rather than the biodiversity payments

**Net Developable Area:**

- The approx. 3.3ha nature area of landscaping, ecological enhancement and flood attenuation is within the red line area but was retained on the advice of the statutory consultee for flood reasons and so unlikely to be developable – ecological enhancement in the nature area is realising an opportunity

**Frequency of Costs**

Rarely / occasionally: LPA Ecology Advisor view is the fact is that unless development directly affects a really good site, it is difficult to justify compensation. However the continued loss of small scale features is significant but difficult to contest in other ways other than by influencing future landscaping on a site. There is therefore a net loss of resource of local value but usually not significant enough to require full blown compensation. Unlike enhancements or mitigation, compensation off-site (accepting species translocations which now seem to happen whenever / wherever necessary but controlled by licensing when EPS) is difficult to relate to the nature of the application or the application-site unless there are really special circumstances, and so planners are loathe to go down that route as they do not consider this is either reasonable or appropriate.

**Other Comments / Analysis**

The case study illustrates two linked approaches – on-site enhancement and management (is the nature area on over half of the developable land – ‘mitigation’ or ‘compensation’) and the payment of funds for off-site compensation via s.106. However the evidence for why either of these approaches was taken is not particularly clear.

The on-site ‘compensation’ in the nature area was included within the application for the development and led by the developer’s ecology advisor – to improve the CWS and avoid objections from consultees to ease the planning permission. It reflects consultations with statutory consultee and LPA Ecologist.

LPA Ecology Advisor is not clear why or how the s.106 for payments to the LPA and local nature NGO were set and agreed. LPA ecologist and Records Centre did not raise objection to the application as the mitigation proposed (the nature area) was adequate, and did not seek any compensatory provision. The nature area appears to be driven by the statutory consultee’s comments regarding flood risk management and retention of flood storage capacity through ponds, which are also important mitigation for great crested newts on-site. The s.106 payment of £103,713 to the LPA was recommended in the statutory consultee’s comments on the application, for the creation of Biodiversity Action Plan priority habitat off-site in the form of reedbeds and associated habitats to ‘mitigate’ for losses on-site.
<table>
<thead>
<tr>
<th>Case Reference</th>
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<tbody>
<tr>
<td>007</td>
<td>Overall there is a lack of clarity over how and why mitigation and compensation has been agreed, and the development has not progressed. Indeed the site is subject to another application to amend the details of the AD part of the development. The LPA Ecology Advisor has advised that there is nothing within the formal response to the LPA which outlines the impact of the proposals and so why the money (for the off-site compensation funding via s.106) is required to justify compensation for this. It appears to have been negotiated by the local nature NGO and the developer due to their objection to the development pending agreement of funding. In addition the compensation (funding for Wildlife Sites projects) did nothing to clearly enhance the site itself or its ecology or anywhere else. LPA planning officer is of the view that negotiations over ecology did not cause delay to the development at planning or implementation stage. The delay in granting planning permission was due to negotiations over s.106 highways issues.</td>
</tr>
</tbody>
</table>

**What difference might biodiversity offsetting have made?**

Unlikely to have made a significant difference to what was undertaken but may have improved the audit trail for decisions and monitoring. On-site habitat enhancement was proposed as part of the application. The site is brownfield and the previous management plan wasn’t being implemented and so on-site enhancement was clearly deliverable. Payment of funds through s.106 for off-site works could be regarded as similar to an offset, although there appears to be no monitoring of the delivery of benefits as a result of this funding. Therefore offsetting may have enabled better monitoring of delivery of enhancements/compensation if funds were used for a specific offset site.
Case Reference
008

Summary of development
Type of development: Mixed residential.
Approval granted: 2011
Notes:

Summary of Interviews
In total 3 interviews were held with the
• Consultant landscape architect.
• LPA planning case officer
• Local nature NGO

Summary of Development
Former use: The site is a Greenfield site comprises mainly former farmland and existing woodland. The woodland of particular interest is classed as an Ancient Woodland, but is not on the Ancient Woodland register as it is too small. The site is immediately adjacent to a nature reserve.

Proposed Development: outline permission for mixed use development of housing, retirement village employment, education and retail uses, ancillary amenities and public open spaces including associated landscaping and means of access on land of approx. 70. ha in size: 60 ha of open land and 10 ha of woodland

Phase 1 includes the erection of approx. 275 dwellings of the Mixed Use Development. Housing will take up approx. 23ha and 10ha of ancillary development. The remaining approx. 39 ha will be greenspace comprising approx. 11 ha of woodlands, 22 ha of Nature Park and reserve and ha of village green space.

Summary of Biodiversity Compensation
The site includes a wooded area of 6ha- this is the only area directly affected by the development with the construction of the site access road reducing the area of wood by approx. 0.5ha). Other woods are quite small (1ha and 5Ha) but all classified as SSSI’s.

The compensation is agreed via S.106 Agreement: A local nature NGO is handed over through covenant various land parcels and will be responsible for all management and maintenance of major woodlands, nature parks and nature reserves and funding would be provided to secure the management and development of these areas in perpetuity.

The compensation is support by financial contributions to be used for habitat management, volunteer programme, community programme, trainee programme, education programme, rangering and maintenance.

The compensation package was agreed primarily through bi-lateral negotiations between the applicant and local nature NGO, with the LPA providing a back stop as required. It was recognised that agreeing the final package took a long time (up to two years) and that this was highly detailed / technical discussions around specific parts of the site and management activities.

The importance of securing a s.106 was raised as the local nature NGO had previous experience of not getting compensation agreed through Conditions alone.

There are current issues around the liability associated with parts of the land managed through the compensation package. Specifically unforeseen costs associated with SUDS ponds are being incurred and it is not clear who is responsible for these costs, the local nature NGO or the applicant.

NOTE: Difficult to clarify between mitigation and compensation measures, because there is no clear distinction or quantified data on what is being lost apart from the approx. 0.5ha of wood. There is no way to isolate the amount of compensation offered for that particular loss or then isolate the amount provided by the local nature NGO for biodiversity and habitat creation. In effect much of the compensation package could

65
be considered to be in-direct compensation.

Monitoring:

- The Management Plans propose annual inspections followed by a review of the management plan to ensure aims and objectives are satisfied. A new plan should be drafted after 5 years (for the next 10-15 years) prepared in conjunction with the landscape architect, ecologist and local nature NGO. That is included in the payments.
- Discussions were held between the applicant and local nature NGO about which parts of the site the local nature NGO are responsible for managing. The local nature NGO were keen to only manage the nature reserve parts of the site, rather than the amenity grassland and road verges. This was agreed but took some time.

Summary of any Significant Non-Biodiversity Planning issues

Objections:

The proposal was rejected initially (partly on biodiversity grounds partly on grounds of access and impact on existing travel infrastructure and other issues) and went to public enquiry. The rejection was overturned and planning permission granted, subject to conditions.

Other issues relating to social housing transport and highways were also raised throughout the process.

Timeline of Negotiation and Agreement for Biodiversity Compensation

Case Study Analysis

Type of Costs
**Case Reference**

**008**

The main cost identified elements were:

- Original rejection of the planning permission.
- Negotiations on the specifics of the management plan – including compensation.
- Costs for managing the land.

### Scale of Costs

#### Time

- The local nature NGO felt that over the one to two years of negotiation they had spent around 30 days of quite senior time. No other estimates offered.

#### Financial

- A total payment of £1,045,072 to the local nature NGO. This includes management and maintenance for the various habitats.

#### Delay

- There was some delay but the LPA Ecologist felt that this was for non-biodiversity reasons. This was echoed by the Landscape Architect and the local nature NGO. The original refusal could constitute a delay and was partly based on concerns over biodiversity loss.

### Net Developable Area:

- Not felt to be an issue according to the Landscape Architect (who designed the masterplan). Their view was that they should avoid features of biodiversity value and this was a primary design principle for this project. The local nature NGO felt that there was significant value to having 1/3 of the site as a nature reserve. Firstly it meant that the local nature NGO would be much less likely to object and secondly it added value to the development.

### Frequency of Costs

The local nature reserve felt that compensation for non-protected species or habitats was “very, very rare” perhaps 1 in a 1,000.

The LPA felt that in most instances biodiversity compensation was required, but that this was difficult to enforce.

### Other Comments / Analysis

**What difference might biodiversity offsetting have made?**

Although not using Defra’s metric this case has many of the features of biodiversity offsetting. This was primarily due to the fact that all of the off-site compensation delivered is in local nature NGO land adjacent to the application site. The impact was quantified and on-site / off-site compensation established. The main time element was negotiating the specific management and related costs. But it would not have been deemed possible for the compensation to be delivered in another way as the local nature NGO would have not allowed it and they were in a strong position (in planning terms).

The amount of compensation may have differed as the metric might have quantified the biodiversity loss differently, but this is not clear without further research. It was discussed with two of the contacts how the metric would have affected the pattern of the development but neither the landscape architect nor nature NGO representative were willing to speculate on this.
Case Reference

009

Summary of development

Type of development: Mixed application for residential and commercial.
Approval granted: 2012.
Notes: Development yet to commence.

Summary of Interviews

In total 5 interviews were held with the:

- Applicant
- LPA case officer
- Stakeholder
- Statutory consultee
- LPA ecologist

Summary of Development

The planning application sought permission for a mixed use development on a brownfield site (less than 15 hectares):

- Full planning application for erection of a retail superstore and petrol filling station with associated car parking and servicing; creation of local nature reserve; construction of marina; main access road into site and spine road through site
- Outline planning application for erection of over 200 residential units; offices; restaurant; and commercial use.

Process for Agreeing Biodiversity Compensation

The majority of the site is designated as County Wildlife Site (equivalent) due to its species-rich grassland, willow scrub, ponds and Great Crested Newts. This, supported by the presence of protected species, drove the requirement for compensation. In particular no-net loss and ecological networks were referred to as important policy ‘hooks’ that were used when negotiating the compensation.

Various stakeholders (including statutory consultees and the LPA) indicated that they objected to the development on the grounds of the impact on biodiversity.

The main reasons for objection were:

- Losses of a significant part of the CWS
- Effects on the Great Crested Newt population
- Losses of Priority Habitat.
- In-direct effects on another CWS.
- Losses of ecological connectivity for Great Crested Newts and other wildlife
- Net loss of biodiversity - reference was made to Key Principles of PPS9 and related local policy.

The original application included on-site compensation only. After it was indicated that key groups would object to the application as it stood an amended application was offered that included some off-site compensation. It was felt that this proposal was of insufficient size and suitability quality. The initial off-site compensation proposed was an area of less than 3Ha whilst the area lost was around 8Ha.

Following negotiations between the applicant and the objectors (notably the LPA Ecologist and statutory consultee) it was agreed that approximately one third of the site would be required for the preservation of the Great Crested Newt population (this is viewed as on-site compensation). It was also agreed that to compensate for the loss of non-protected habitats and species it would be necessary for the applicant to find and acquire another site of an
appropriate size and location. The applicant would be required to develop a management plan for this site that facilitated the like for like compensation of the key habitat types. The applicant and objectors disagreed about the relative amount of habitat types (this was important as it determined the nature and related costs of like for like compensation) and this took time to resolve with the applicant ultimately agreeing with the LPA Ecologist.

Approximately one and a half years passed from the agreement in principle of finding a receptor site to the applicant completing the following general process:

- Finding and appropriate site.
- Acquiring the site.
- Undertaking surveys of the site to understand the ecological baseline.
- Developing an appropriate management plan.
- Developing and receiving planning permission.

At the end of this process the objectors removed their objection and permission was granted.

The final agreed compensation package includes:

- A small area to be added from adjacent land to counterbalance the impact on the CWS area.
- Creation of new ponds within the small area to balance the losses of open grassland and marshy grassland habitats, as a result of continuous disuse.
- Creation of an on-site nature reserve to host the Great Crested Newts.
- There will be off-site compensation for the loss of the majority of the habitats lost. The off-site compensation is approximately the same size as the area lost - around 8Ha.

This compensation package was agreed and formalised through Planning Conditions.

Monitoring and management are to be conducted by the applicant who has ownership of the development and receptor site where the compensation will be based; this will be delivered for 5 years.

Subsequent to planning permission being granted there has been a re-negotiation of the management plan of the receptor site. Now the compensation delivered will not be like for like, but will reflect the location of the receptor site within existing ecological corridors. This has resulted in a decrease in the costs of the delivery of the management plan for the receptor site (from approximately £485,000 to £150,000) and is viewed as beneficial for biodiversity as well.

The applicant and LPA ecologist were both asked why a commuted sum was not provided (instead of the land acquisition). The ecologist noted reservation with this approach as it was not always possible to find appropriate projects upon which these funds could be spend and that they had a preference for land acquisition.

The applicant also noted that the lack of guidance on what was deemed ‘appropriate compensation’ resulted in a substantial amount of time and resource being spent on schemes that were not deemed suitable by the various objectors.

Note:
Although not a significant factor in agreeing the compensation there were other issues noted. These included new case law around Great Crested Newt (the Morge case) and changes to the role and scope of statutory consultees.
One of the determinants of time was the survey (for protected species) windows of the receptor site. Surveys were required to ensure they were restoring the receptor site. Surveys have to be conducted at certain times to catch certain species and this was recognised as holding up the process of agreeing compensation somewhat.

The original application was received in 2009 and permission granted in 2012 but the site had been subject to previous interest and had been within exiting planning policy as a strategic site since the 1980s.

Normally the LPA will seek to process applications one way or another in 13 weeks. But the site was identified as a being a strategic site and one that would open up a range of other development that the LPA were keen to see. Hence despite the objections they kept the application in abeyance until such time as the compensation was agreed and objections removed. The LPA indicated that a speculative application for this sort of site (i.e. for a similar site that had not been indicated as suitable for development in planning documentation) would have been refused.

**Summary of any Significant Non-Biodiversity Planning issues**

There were some highways issues but these were apparently resolved fairly early into the process. No other significant issues were raised.

The total investment of the redevelopment is said to be £80 million.

**Timeline of Negotiation and Agreement for Biodiversity Compensation**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/2009</td>
<td>Planning application made with original compensation proposal and EIA</td>
</tr>
<tr>
<td>02/2010</td>
<td>Initial design for receptor site proposed</td>
</tr>
<tr>
<td>01/2011</td>
<td>Addendum to EIA</td>
</tr>
<tr>
<td>04/2011</td>
<td>Stakeholder removes objection</td>
</tr>
<tr>
<td>05/2011</td>
<td>Consultee removes objection</td>
</tr>
<tr>
<td>05/2011</td>
<td>LPA Ecologist removes objection</td>
</tr>
<tr>
<td>03/2012</td>
<td>Planning permission granted</td>
</tr>
</tbody>
</table>

**Case Study Analysis**

**Type of Costs**

The main cost identified elements were:

- Time taken to negotiate and agree the compensation package
- Financial costs associated with surveys, designing management plans and the delivery of the management plans (monitoring is viewed as being a minor amount)
### Case Reference

**009**

- Delay associated with satisfying the need for compensation.

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### Scale of Costs

#### Time

- LPA time for planners: 10-15 hours per month over two years (34 – 51 days). This is for the whole application not just the biodiversity aspects or the time taken relating to non-protected species compensation alone.
- LPA time for ecologists: at least 15 days over the whole application.
- Time for stakeholder: 20 days of over the whole application.
- Time for stakeholder: At least 5 days over the whole application.

#### Financial

- £137,000 fees, £33,000 surveys over 10 years and c.£20,000 management and admin related to biodiversity compensation prior to permission being granted.
- £100,000 fees for Great Crested Newt - nature reserve monitoring for 6 years and then in perpetuity.
- £152,000 creation of on-site nature reserve
- £160,000 creation of off-site nature reserve, £62,000 newt fencing for trapping.
- Total costs c.£664,000 (as per developer’s figures)
- The issues caused a 2 year extension of the planning process, plus an 8 month extension to the works programme
- As the compensation was agreed in Conditions rather than a section 106 there are no publically available figures to support this.

#### Delay

- It took around two years to negotiate the compensation package and within that there was an explicit delay of at least a year due to the requirement to find a receptor site.
- It was noted that without the receptor site and agreed compensation package the development would have been refused.

#### Net Developable Area:

- The developer indicated that they always planned on leaving aside a third of the site for the ‘nature-reserve’ / retained habitat and that this was accounted for in the original master plan, hence it was felt that the footprint of the site had not been subject to significant change through the process to agree compensation.

#### Frequency of Costs

Estimates of frequency of non-protected species compensation:

- 5% of all development (25% for protected species).
- Two consultees felt that this case was ‘atypical’ and an ‘exception’. Both could only recall one other case of off-site compensation.
- Every year the county comments on 600 cases across all the districts. This number is capped. It was felt that most of these cases involve some form of compensation, often minor. Minority of cases have high impact and hence require high levels of compensation.

#### Other Comments / Analysis

The process for agreeing compensation clearly resulted in a significant delay that the developer holds responsible for the fact the development has yet to start and the main partner is renegotiating their involvement.

All parties recognised that this application was atypical in particular as everything in the redline boundary was a CWS and it was a site of strategic importance. Meaning there was some planning conflict on the appropriateness of developing the site.

**What difference might biodiversity offsetting have made?**
If there had been appropriate site available for the off-site compensation it is likely that a substantial amount of time would have been saved.

It should be recognised that the high value of the biodiversity on the application site might have resulted in a very high level of biodiversity units being created. It is not possible to say whether this would have resulted in higher final management costs but it is possible.
Case Reference
010

Summary of development
Type of development: Road
Approval granted: 2005 for outline permission but full permission approved in 2011

Notes:

Summary of Interviews
In total 3 interviews were held with the plus email correspondence with lower tier LAs:
• Protected species expert nature NGO
• Planning liaison local nature NGO
• LPA Ecologist

Summary of Development
The Link Road is an approx. 5 Km long dual carriageway. Currently under construction, the major new road is scheduled to be completed in the Winter of 2015. The project was granted full approval by the government in Summer 2012.

Summary of Biodiversity Compensation
EIA(2004):
• The scheme provides: approx. 3.5km of new and translocated hedges; 100 new specimen trees; approx. 15.5ha of new woodland, woodland edge planting and scrub (to offset the loss from the site clearance of: 5.5km of field hedges and 0.44km of garden hedges; 70 mature individual trees; 1.1ha of woodland).
• To compensate for the loss of various CWS:
  • A new wetland habitat would be created as well as scrub and woodland planting in close proximity
  • Grassland establishment
  • Hedgerow and woodland planting for loss of two County Wildlife Sites (CWS).
• Creation of habitat suitable for protected bird species foraging (multiple areas)
Cost calculations exist (including maintenance costs) but are all under the title mitigation measures and split by areas making the distinction between mitigation and compensation costs difficult.
To compensate for unavoidable impacts upon protected species, which couldn’t be fully mitigated through the scheme design off-site compensatory provision provided through:
1. Agreement with local nature NGO for financial contribution to purchase and subsequent management of nature reserve for the benefit of protected species. The reserve was purchased from a District Council for £360,000 and extends along 2km. The LPA have committed £100,000 towards the purchase of the site. 75% upfront and 25% split over 5 years for management.
2. Agreement with private landowner / farmer for land management measures.
3. Agreements with LPA tenants for land management measures at LPA Farm Estate holdings.

Summary of any Significant Non-Biodiversity Planning issues
The current estimated cost of the scheme is approx. £130 million
Objections:
• Approx. 20 statutory and 45 non-statutory objections
• Local residents recall that at earlier consultations there were no non-road alternatives included; it was simply a choice between different routes.
• 2011 local opposition group collected over 5,000 postcards showing opposition to the scheme.

Timeline of Negotiation and Agreement for Biodiversity Compensation
**Case Reference**

010

<table>
<thead>
<tr>
<th>2005 – 2007</th>
<th>Developing Business Case</th>
</tr>
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<tbody>
<tr>
<td>2007</td>
<td>First bid for major scheme funding</td>
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<tr>
<td>2008</td>
<td>Compulsory Purchase Orders made</td>
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<tr>
<td>2009</td>
<td>Public Inquiry</td>
</tr>
<tr>
<td>2010</td>
<td>Scheme is placed in the development pool for consideration with 45 other schemes</td>
</tr>
<tr>
<td>2011</td>
<td>Final funding bid to Department for Transport. December</td>
</tr>
</tbody>
</table>

**Case Study Analysis**

**Type of Costs**

The main cost identified elements were:
- Agreeing compensation package.
- Identifying appropriate land and land owners for off-site compensation.
- Monies for compensation package.
- Delay due to negotiation.

**Scale of Costs**

**Time**

- It was recognised that agreeing the need for compensation was done quite quickly; finding possible compensation measures took significantly longer. The RSPB felt that without the acquisition of the site which provided sufficient compensation they might not have removed their objection to the scheme. The acquisition of this site was recognised as fortuitous.
- Detailed negotiations with land owners took time, for example at least 5 meetings required over a 6 month period with one land owner before the land management agreement was finalised. Estimated that 15 days were taken on agreeing the land management on LPA land. FWAG spent around 2 weeks meeting local land owners to discuss options.

**Financial**

- £100,000 to support the acquisition of the site plus other monies for the other off-site compensation. No specific financial information available for the on-site compensation.

**Delay**

- Felt that the biodiversity aspects of the application did not cause any delay. Other issues were more significant including compulsory purchases.

**Net Developable Area:**

- Not recognised as a cost of the biodiversity compensation.
## Case Reference

### 010

**Frequency of Costs**

LPA Ecologist felt that non-protected species and habitats rarely compensated for. But that this is improving. This was supported by the other interviewees.

**Other Comments / Analysis**

Without the off-site compensation it is possible that key groups would have retained their objection to the scheme. Significant amount of time spent finding and agreeing land management agreements with land owners.

**What difference might biodiversity offsetting have made?**

The time taken finding suitable a compensation package (which included engaging with land owners to change their land management and finding an appropriate site) would have been reduced, assuming that suitable worked up schemes were available.
Case Reference
020

Summary of development
Type of development: Utility works
Approval granted: 2009
Notes:

Summary of Interviews
In total 2 interviews were held with the
• Applicant.
• LPA ecologist.

Summary of Development
A planning application was submitted for the construction of utility works within a local wildlife site. A planning condition attached to approval of the application required a detailed scheme for ecological compensatory measures. A subsequent application was made to approve details reserved by the condition for ecological compensatory measures. Following this a further application was made for a larger works which required a S.106 to cover ecological compensation for the loss of 1 ha of meadow land.

Process for Agreeing Biodiversity Compensation
The approval of the initial application for utility works included a condition to provide a scheme for ecological compensatory measures for the loss of a small area of habitat within the planning application boundary, which the LPA considered could not be prevented or adequately mitigated.

Eight months later the developer made an application for approval of the ecological compensatory measures. The total area of land within the Local Wildlife Site to be affected by the development amounted to 1.3 ha. The applicant argued that only a small area 0.04 ha of the Local Wildlife Site would be permanently lost to development as most of the impacts were temporary as, following construction works, the land would be restored (as mitigation).

Based on this argument, the applicants offered a sum of £1300 as a compensatory payment for the loss of 0.04 ha of meadow. The applicant also argued that creation of a replacement meadow area of 0.04 ha would not provide a viable unit of habitat and so suggested that the money could be used to undertake improvement works on land elsewhere. An amount of £1500 was finally agreed between the LPA and the applicant and a S.106 was signed a year after the application for approval of compensatory measures had been submitted.

Around the same time that the S.106 was agreed for the initial application, a further application was submitted for much larger works within the Local Wildlife Site. The LPA considered the proposal to be acceptable subject to a S.106 to ensure no net loss of habitat. An ecological assessment was submitted with the application however this had not addressed all of the issues of concern to the LPA in identifying the impacts.

Negotiations on the S.106 involved debate on the size of land to be considered for compensation and the approach for calculating costs for biodiversity loss / habitat creation elsewhere. The area of land which the LPA considered should be subject to compensation was just over 1 ha. Calculations made by the LPA were based on the loss this area of meadow and the need to create like-for-like habitat. A sum of around £120K was proposed to cover creation of replacement habitat, excluding costs for the purchase of a suitable area of land. The LPA also pointed out that compensation should be on the basis of overall
Case Reference

020

net gain. The applicant contended, however, that the area permanently affected by the development was 0.45 ha and that this should be the area used to calculate biodiversity losses. Based on a previously agreed approach for calculating compensation the applicant suggested the sum of £18K. The applicant also suggested that compensation should be possible without the need for land purchase by improving an existing area of land within the applicant’s ownership or by supporting a biodiversity initiative of the LPA. A figure of £35K was finally agreed between the applicant and the LPA and the S.106 signed 11 months following the submission of the application. The LPA used the funds on habitat improvements for ground nesting birds (a feature lost to the development) on land in LPA ownership.

The LPA reported that agreeing the sum of money to be paid as compensation took a matter of weeks but that signing the S.106 took a long time due to documents being exchanged between solicitors.

No objections to the development were received from nature conservation organisations subject to the provision of satisfactory ecological compensation measures.

Summary of any Significant Non-Biodiversity Planning issues

Contaminated land issues had to be dealt with as well as ecological compensation. In relation to the first application the LPA commented that it would have been helpful to have had these issues resolved prior to submission of the planning application to avoid the delays in determination.

The final application for more extensive works involved the need for the applicant to purchase land from the LPA (as part of the proposed area for the development was on land owned by the LPA).

Timeline of Negotiation and Agreement for Biodiversity Compensation

Case Study Analysis
<table>
<thead>
<tr>
<th>Case Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>020</td>
</tr>
</tbody>
</table>

**Type of Costs**
The main cost identified elements were:
- Time taken to negotiate and agree the compensation package
- Delay associated with time taken to produce the S.106

**Scale of Costs**

### Time
- Applicant time to negotiate the S.106 agreements
- LPA ecologist time to respond to ecological issues in relation to the planning applications and to make calculations for compensation for biodiversity losses
- LPA enforcement officer time to pursue the applicant on a S.106 agreement
- LPA planning officer time to liaise with the applicant and deal with discharge of conditions (relating to contaminated land and transport as well as biodiversity)

### Financial
- Costs of consultants to undertake surveys and prepare an ecological assessment of the impact of proposals
- A cost of £1,500 to cover compensation for biodiversity losses from the initial application
- A costs of £35,000 in compensation for biodiversity losses and to enhance habitat elsewhere, plus fees of £1000 to cover LPA costs of entering into the S.106

### Delay
- Negotiations on the S.106 for biodiversity compensation resulted in holding up the more extensive development works by four to five months
- Contaminated land issues also took time to resolve

### Net Developable Area:
- All the area required for the development was used

**Frequency of Costs**

**Other Comments / Analysis**
The applicant expressed interest in offsetting as a means of providing a smoother and quicker way of resolving compensation issues.

**What difference might biodiversity offsetting have made?**
Application of biodiversity offsetting would have focused negotiations on the exact requirements for compensation. Impacts on biodiversity had not been identified by the applicant at the time the first application was made; these issues were raised by the LPA. While an Ecological Assessment was submitted with the application for the more extensive works, direct loss of habitat was not raised. Instead the notion had been that most of the construction works would result in temporary disturbance of habitat which would then be restored as mitigation. Clarity on the direct habitat loss would have enabled the metric to be used and appropriate offset identified along with associated costs. Thus the process for identifying and costing the required compensatory habitat would have been streamlined, thereby avoiding protracted negotiations. Use of biodiversity offsetting would have been helpful in this case.
### Summary of Development

**Type of development:** Mixed use  
**Approval granted:** 2010  
**Notes:**

#### Summary of Development

An outline planning application was submitted for a mixed use development on approx. 35 hectares of predominantly brownfield land, comprising a new school, sports facilities, retail units, residential dwellings, a nature park and recreational facilities. This was followed by various applications for phase 1 of the development.

The outline application was supported by an Environmental Statement that included detail on the biodiversity that had developed on the site and proposals for mitigating and compensating losses.

#### Process for Agreeing Biodiversity Compensation

The development area consisted of a mosaic of habitats (woodland, scrub, heath, grassland and ponds) that had developed on a former spoil disposal and landfill site. The range of habitats that had developed on the site and that would be lost included priority BAP habitats; however none of the site includes any local or national wildlife designations.

Conditions of planning approval included the need for: a site Environmental Management Plan for the protection of ecological and archaeological features; mitigation, compensation and enhancement strategy; and a biodiversity management plan covering details of on-site and off-site habitat creation and restoration to be maintained for at least 20 years from commencement of pre-construction activities.

In developing mitigation and compensation proposals it was assumed that the development would result in the total loss of habitats from the site; as a consequence it would not be possible to reduce or avoid impacts and therefore compensation was deemed necessary. However, opportunities to enhance biodiversity were taken into account in developing plans for the site and included the creation of a nature park. In compensating for losses, the general principle was applied of creating double the area of any habitat type lost.

On-site mitigation and compensation included:
- Hedgerows – to be retained on-site and managed and new hedgerows planted as part of landscape planting
- Semi-natural broadleaved woodland (approx. 4 ha)
- Open heath mosaic
- Habitat enhancements for species

Habitats that would be lost and which would require off-site compensation included the need for:
- Lowland heath (approx. 1 ha)
- Open mosaic on previously developed land (approx. 2.5 ha)
- Standing water (approx. 5 ponds and several ephemeral ponds)
- Habitat enhancements for species

The majority of compensation works for phase 1 of the development related to on-site habitat creation while off-site works were mainly linked with phase 2. Seven locations within the LPA ownership were identified for off-site compensatory habitat creation and enhancement works.

Planning applications were submitted and approved for four of these sites as earthworks were required to create ponds. Biodiversity Management Plans for the receptor sites, which provided the details of compensatory works including ongoing maintenance, accompanied...
Case Reference

021

the planning applications. The off-site habitat creation and restoration works, on a minimum of 7 ha of land, were due to start at least three years in advance of the anticipated losses in phase 2 of the pre-construction activities. However, while the planning applications had been submitted and approved, the compensatory works have not gone ahead as phase 2 development works are on hold.

As the regeneration proposals were a LPA development and the LPA was unable to enter a S.106 with itself, a memorandum was prepared to confirm compliance with obligations that would normally be covered by a S.106. While the memorandum included the financial costs for contributions relating to many of the obligations, exact sums and timing of payments for both phase 1 and phase 2 works were left to coincide with submission and approval of relevant schemes. The sums for off-site compensation works have still not been agreed as phase 2 of the development works, for which the off-site compensation works applied, have been put on hold.

Summary of any Significant Non-Biodiversity Planning issues

Contaminated land issues

Timeline of Negotiation and Agreement for Biodiversity Compensation

Case Study Analysis

Type of Costs

The main cost identified elements were:

- Ecological component of the Environmental Statement including survey work and preparation of a mitigation strategy
- Preparation of a biodiversity management plan to accompany the outline application
- Preparation of receptor site biodiversity management plans and planning applications
- Implementation of on-site pre-construction mitigation and compensation for phase 1

Scale of Costs

Time
<table>
<thead>
<tr>
<th>Case Reference</th>
<th>021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecological works started three years before planning application was submitted</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Planning applications for receptor sites were submitted and approved according to planned timescales and did not hold up the process</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Financial**
- On-site mitigation and compensation works have been included within the overall project costs
- Costs of compensation works at off-site receptors have not been calculated as phase 2 of the project has been put on hold

**Delay**
- None as ecological aspects were taken into account and designed into the planning process from the start

**Net Developable Area:**
- All area developed as ecological compensation was integrated with the requirement for landscaping which included the creation of a nature park

**Frequency of Costs**
- Not discussed.

**Other Comments / Analysis**
This was a LPA initiative and as such the LPA was keen to ensure good practice was followed in compensating for biodiversity losses.

**What difference might biodiversity offsetting have made?**
The application of biodiversity offsetting may not have made a difference in this case. As this was a LPA led development, the LPA followed planning policy with respect to biodiversity and sought to compensate for losses. Use of offsetting would however have guided the identification of compensatory habitat requirements.
<table>
<thead>
<tr>
<th>Case Reference</th>
<th>022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary of development</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Type of development:</strong> Road scheme</td>
<td></td>
</tr>
<tr>
<td><strong>Approval granted:</strong> 2002 &amp; 2010</td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Summary of Interviews</strong></td>
<td></td>
</tr>
<tr>
<td>In total 2 interviews were held with the:</td>
<td></td>
</tr>
<tr>
<td>• LPA ecologist.</td>
<td></td>
</tr>
<tr>
<td>• Local Wildlife Trust.</td>
<td></td>
</tr>
<tr>
<td><strong>Summary of Development</strong></td>
<td></td>
</tr>
<tr>
<td>The planning application was for the creation of habitat required to compensate for loss of habitat from the construction of a road scheme. The initial planning application for the road scheme had been made some eight years before. In the intervening period a public inquiry was held.</td>
<td></td>
</tr>
<tr>
<td>The route mainly passed through arable land, urban and industrial areas and arable land and scattered areas of semi-natural habitat. While most of the route was considered to be of low ecological value, the route also passed over a river and through a 1 ha area of high local nature conservation value.</td>
<td></td>
</tr>
<tr>
<td><strong>Process for Agreeing Biodiversity Compensation</strong></td>
<td></td>
</tr>
<tr>
<td>In identifying the preferred route for the proposed road scheme (which occurred three to four years before the initial application), it was recognised that an area of local value for wildlife would be lost. Standard practice at time involved linking with other interested bodies. The need to compensate for loss of habitat was discussed with the local wildlife trust, which was involved in searching for an appropriate area of land for the creation compensatory habitat.</td>
<td></td>
</tr>
<tr>
<td>The area of high local nature conservation value affected by the road scheme included a reed bed (considered rare at the local / district level) used as a major winter roost by three BAP species as well as a winter roost site by other bird species. The adjacent habitat included scrub (used for breeding by several bird species), calcareous grassland and hedgerows. The reed bed and associated habitat had developed on an area of contaminated land and for this reason had not qualified as a County Wildlife Site. The road scheme was predicted to result in loss of 1 ha of the area of high nature conservation value, which included the loss of 0.1 ha of reed bed and 50 m of hedgerow. In addition, there was predicted to be a loss of significant areas of riparian bank habitat inhabited by water voles and loss of scrub elsewhere along the route.</td>
<td></td>
</tr>
<tr>
<td>Mitigation measures covered planting and landscaping along the route with loss of scrub, hedgerow and other areas of low nature conservation value replaced by extensive planting, aimed at replicating semi-natural habitat and rural landscape features. In total 2.2 ha of replacement tree and shrub planting were to be provided. Planting also included the establishment of herb-rich calcareous grassland along extensive areas of embankment. Where bridges were required to cross the river, dry passageways were provided for water voles, otters and other wildlife.</td>
<td></td>
</tr>
<tr>
<td>By the time of the Public Inquiry (where compensation requirements were agreed), good progress had been made in securing an area for the creation of replacement reed bed habitat. The created reed bed was planned to be twice as large as that lost and to be set within a 1 ha area of complementary habitat; this was to compensate for the loss of high local nature conservation value habitat of 0.1 ha of reed bed and 1 ha of adjacent scrub and</td>
<td></td>
</tr>
</tbody>
</table>
A survey of the proposed area for habitat creation was surveyed by the county ecologist to identify existing biodiversity interest in the area. This found that there were no species of conservation interest that would be adversely affected by the habitat creation works.

The local wildlife trust was involved in overseeing the creation and long term management of the habitat creation area in conjunction with the landowner. Reed bed creation involved excavation works.

The work to create the compensatory habitat was started after construction of the road scheme, whereas it had been the intention to start before.

The negotiations to agree the need for compensatory habitat and identify a suitable area were not considered to hold up the process of agreeing and starting works on the road scheme. There were no objections to the road scheme on the basis of biodiversity.

Compensatory habitat provision has resulted in a much higher quality and size of reed bed and associated habitat than that lost.

Summary of any Significant Non-Biodiversity Planning issues

- The scheme went to Public Inquiry as there were objections to compulsory purchase orders
- The road scheme cost a total of £17.7 million

Timeline of Negotiation and Agreement for Biodiversity Compensation

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2002</td>
<td>Original planning application for road scheme approved</td>
</tr>
<tr>
<td>08/2005</td>
<td>Planning application for minor amendments to proposed road scheme approved</td>
</tr>
<tr>
<td>01/2006</td>
<td>Public Inquiry held to address objections to compulsory purchase orders</td>
</tr>
<tr>
<td>06/2008</td>
<td>Construction work started on the road scheme</td>
</tr>
<tr>
<td>06/2010</td>
<td>Planning application for compensatory habitat creation approved</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>Compensatory habitat creation works completed</td>
</tr>
</tbody>
</table>

Case Study Analysis

Type of Costs

The main cost identified elements were:

- Financial costs of ecological surveys within the study area of the road scheme and
### Case Reference

<table>
<thead>
<tr>
<th>Reference</th>
<th>022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ecological elements of the Environmental Statement</strong></td>
<td></td>
</tr>
<tr>
<td>• Financial costs associated with the compensatory habitat creation planning application, including preparation of drawings and a planning statement and gathering of information on bridge loadings to take machinery prior to works being undertaken</td>
<td></td>
</tr>
<tr>
<td>• Financial cost of £100K (covered by a S.106) to create the compensatory habitat and cover ongoing maintenance for a 10 year period</td>
<td></td>
</tr>
</tbody>
</table>

### Scale of Costs

#### Time

- The local wildlife trust had been involved in the road scheme over a period of about 20 years. Initially time was spent with the LPA consultant ecologist in identifying and surveying suitable areas for compensatory habitat. Once a suitable location had been identified time was spent surveying the site for protected species and reporting.
- The LPA ecologist was involved in contributing to the ecological aspects of the scheme including undertaking a survey of the area for compensatory habitat creation and preparing the planning statement.
- The LPA Planning department was responsible for preparing the planning application for compensatory habitat provision

#### Financial

- Costs of ecological surveys and assessing the impact of the scheme on biodiversity were included within the overall costs of preparing the Environmental Statement; the exact costs of the biodiversity element would be difficult to determine from the overall cost
- LPA ecologist fees for undertaking a survey of the area proposed for habitat compensation amounted to just over £100
- As this was a LPA application the LPA provided £100K for the creation of compensatory habitat and ongoing maintenance for a 10 year period.

#### Delay

- None.

#### Net Developable Area:

- The whole area necessary to construct the road scheme was developed.

### Frequency of Costs

- Only a small proportion (less than 5%) of county planning applications require compensation for biodiversity. Good practice is applied by the county ecologist with pre-application advice to ensure that developers follow the mitigation hierarchy.
- While negotiating compensatory habitat is an unusual occurrence, this example demonstrates the close working partnerships developed between Council departments and with outside organisations to facilitate this type of project when needed.

### Other Comments / Analysis

In this case, offsetting might not have made a big difference. The area of reed bed lost (amounting to 0.1 ha) had developed on contaminated land and was replaced by double the area of reed bed (0.2 ha). Reed bed creation extended the existing area of reed bed on the compensation-site resulting in the creation of a 2 ha area of reed bed next to flood plain grazing marsh. While no water voles or otters were recorded prior to the creation of compensatory habitat, restored ditches now support water voles and the area is regularly used for hunting by otters.

**What difference might biodiversity offsetting have made?**
Biodiversity offsetting may not have made a huge difference in this case as this was a LPA application and the LPA followed planning policy and applied good practice. The outcome achieved was overall net gain.
### 6. Appendix B - Identified Management and Monitoring Costs

The information presented here is a summary of the management and monitoring costs set out in the case studies above.

It should be noted that these costs presented below are those that were identified as being relevant to compensation, but that these figures also include mitigation costs and costs associated with non-biodiversity matters. Costs which could be identified were not included hence this is not a complete representation of all costs related to compensation for non-protected biodiversity.

<table>
<thead>
<tr>
<th>Case Reference</th>
<th>Compensation</th>
<th>Size</th>
<th>Total Payment</th>
<th>£/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>002</td>
<td>Neutral and marshy grassland (1:2 ratio)</td>
<td>120Ha</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Hedgerows and trees</td>
<td>3km</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Project Kingfisher Contribution</td>
<td>n/a</td>
<td>£40,000</td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Grassland offsetting (failed translocation)</td>
<td>71Ha</td>
<td>£100,000</td>
<td>£1,408.5</td>
</tr>
<tr>
<td>003</td>
<td>Woodland and scrub</td>
<td>40Ha</td>
<td>£100,000</td>
<td>n/a</td>
</tr>
<tr>
<td>003</td>
<td>New hedgerows</td>
<td>3km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Species-rich grassland</td>
<td>15.5Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Grassland</td>
<td>2Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Reedbed and lagoon</td>
<td>0.1Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Open-mosaic habitat</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td><strong>Total</strong></td>
<td>n/a</td>
<td><strong>£1,115,150 for all</strong></td>
<td>n/a</td>
</tr>
<tr>
<td>004</td>
<td>Off-site compensation payments</td>
<td>n/a</td>
<td>£37,000</td>
<td></td>
</tr>
<tr>
<td>005</td>
<td>£20,000 x 5 plots on a Site of Importance to Nature Conservation</td>
<td>0.2Ha</td>
<td>£100,000</td>
<td>£500,000.0</td>
</tr>
<tr>
<td>006</td>
<td>Floodplain grassland and fen; Loss or severance of approx. high biodiversity value</td>
<td>7.5ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Species-rich neutral grassland; approx. 2.5ha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Mesotrophic grassland scrub and secondary woodland; approx. 6.5ha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Ditches and streams; approx. 2.5km</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Hedgerows including hedgerows with wet ditches; approx. 5km</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Agriculturally improved grassland; and,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case Reference</td>
<td>Compensation</td>
<td>Size</td>
<td>Total Payment</td>
<td>£/Ha</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>006</td>
<td>Arable land.</td>
<td>n/a</td>
<td>£1,560,000 all mitigation and compensation</td>
<td>n/a</td>
</tr>
<tr>
<td>006</td>
<td>Land purchase to support the mitigation and compensation</td>
<td>n/a</td>
<td>£1,000,000</td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>Monitoring</td>
<td></td>
<td>£97,000 for all monitoring</td>
<td></td>
</tr>
<tr>
<td>007</td>
<td>Contribution to fund ecological improvements on land adjacent to the site</td>
<td></td>
<td>£75,000</td>
<td></td>
</tr>
<tr>
<td>007</td>
<td>Contribution to fund Wildlife Sites projects in the area.</td>
<td></td>
<td>£125,000</td>
<td></td>
</tr>
<tr>
<td>008</td>
<td>Compensation for footprint of the development</td>
<td>23.14Ha</td>
<td>£1,045,072</td>
<td>£31,364.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.18Ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>009</td>
<td>Off-site compensation</td>
<td>7.9Ha</td>
<td>£150,000</td>
<td>£18,987.34</td>
</tr>
<tr>
<td></td>
<td>Land acquisition for off-site compensation</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>009</td>
<td>On-site compensation</td>
<td>7.53Ha (assumed 50-50 split)</td>
<td>£152,000</td>
<td>£40,533.33</td>
</tr>
<tr>
<td>009</td>
<td>On-site protected species compensation and mitigation</td>
<td>7.53Ha (assumed 50-50 split)</td>
<td>£100,000</td>
<td>£26,666.67</td>
</tr>
<tr>
<td>010</td>
<td>Support off-site acquisition</td>
<td>7.1Ha</td>
<td>£100,000</td>
<td>£1,408.45</td>
</tr>
<tr>
<td></td>
<td>Altering land management</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>020</td>
<td>Loss of meadow</td>
<td>0.04Ha</td>
<td>£1,500</td>
<td>£37,500.00</td>
</tr>
<tr>
<td>020</td>
<td>Loss of meadow</td>
<td>0.45Ha</td>
<td>£35,000</td>
<td>£77,777.78</td>
</tr>
<tr>
<td>022</td>
<td>Off-site compensatory habitat</td>
<td></td>
<td>£100,000</td>
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</tr>
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