

Appendix 10.1 - Terrestrial Ecology Assessment Methodology

10.1 Assessment of Effects

10.1.1 The assessment has been undertaken according to current guidance detailed by the Chartered Institute of Ecology and Environmental Management (CIEEM) (2016).

10.1.2 The assessment of the significance of predicted impacts on ecological receptors is based on both the 'sensitivity' of a receptor and the nature and magnitude of the effect that the Proposed Development will have on it. Effects on biodiversity may be direct (e.g. the loss of species or habitats), or indirect (e.g. effects due to noise, dust or disturbance, on receptors located within or outside the application area).

10.2 Sensitivity/Importance

10.2.1 The evaluation methodology has been adapted from the CIEEM Guidelines. A key consideration in assessing the effects of any development on flora and fauna is to define the areas of habitat and the species that need to be considered. This requires the identification of a potential zone of influence, which is defined as those areas and resources that may be affected by biophysical changes caused by project activities, however remote from the site.

10.2.2 In identifying these receptors, it is important to recognise that a development can affect flora and fauna directly (e.g. the land-take required) and indirectly, by affecting land beyond the development site (e.g. through noise generation or hydrological impacts). The approach that has been undertaken for this assessment to identify 'sensitive ecological receptors' (species and habitats that are both valued in some way and could be affected by The Proposed Development (as explained more fully in the remaining paragraphs of this section), and separately, to consider legally protected species.

10.2.3 It is impractical for an assessment of the ecological effects of a development to consider every species and habitat that may be affected; instead it should focus on valued ecological receptors. These are species and habitats that are both valued in some way and could be affected by The Proposed Development. Where there is no potential for valued ecological receptors to be affected significantly, it is not necessary for them to be considered.

10.2.4 The sensitivity of species populations and habitats is assessed with reference to:

- Their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations);
- Any social benefits that species and habitats deliver (e.g. relating to enjoyment of flora and fauna by the public); and
- Any economic benefits that they provide.

10.2.5 Both species' populations and habitats have been valued using the following scale: Very High, High, Medium, Low (County), Low (District), Very Low (Local), Very Low (Very Local).

10.2.6 The approach taken in this assessment is that a species population that is considered to be of medium or greater importance in biodiversity conservation terms is considered to be a

sensitive ecological receptor. Therefore, if a species population is considered to be of low value, The Proposed Development will not have a significant effect on the receptor in question. Exceptions are if the species population has been identified as having a high social or economic value or if the species is legally protected.

10.2.7 A similar approach is adopted for habitats i.e. if a habitat is considered to be of Very Low value, The Proposed Development will not have a significant effect on the receptor in question. The exception to this would be if the habitat has economic or social value (e.g. an open space that is used extensively for informal recreation by local people, where the area's wildlife is an important contribution to this value).

10.2.8 Ecological features have been valued using the scale set out in Table A10.1.1 below, with examples provided of criteria used when defining the level of value.

Table A10.1.1: Scale of Value

Sensitivity of Receptor	Examples (Guidance to Evaluation)
Very High (International)	An internationally important site e.g. Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar (or a site proposed for, or considered worthy of such designation); A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive).
High (National)	A nationally designated site e.g. Site of Special Scientific Interest (SSSI), or a site proposed for, or considered worthy of such designation; A viable area of a habitat type listed in Annex 1 of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole; A regularly occurring substantial population of a nationally important species, e.g. listed on Schedules 5 & 8 of the 1981 Wildlife and Countryside Act; A feature identified as a priority species/habitat in the UK BAP.
Medium (Regional)	Regional areas of internationally or nationally important habitats which are degraded but are considered readily restored; A regularly occurring, locally significant population of a species listed as being nationally scarce.
Low (County)	Viable areas of priority habitat identified in the LBAP or smaller areas of such habitat which are essential to maintain the viability of a larger habitat as a whole; A site designated as a non-statutory designated site e.g. Site of Importance for Nature Conservation (SINC), or a site listed on the Ancient Woodland Inventory (AWI) or Semi-natural Ancient Woodland Inventory (SNAWI); A regularly occurring, substantial population of a nationally scarce species, including species listed on the UK and Local BAPs e.g. common frog (a UK BAP species).
Low (District)	Areas of nationally important habitats which are degraded and have little or no potential for restoration; A good example of a common or widespread habitat in the local area, e.g. those listed as broad habitats on the LBAP; Species of national or local importance, but which are only

	present very infrequently or in very low numbers within the subject area.
Very Low (Parish/Local)	Areas of habitat which have value to the local environment, or populations of regularly occurring common species of local conservation interest; Local areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest; Common and widespread species.
Very Low (Very Local)	Areas of limited ecological value, which are not representative of semi-natural habitat and do not support wildlife of conservation interest.

10.3 Magnitude of Effect

10.3.1 Effects can be permanent or temporary; direct or indirect; adverse or beneficial, and can be cumulative. Effects can vary according to scales of size, extent, duration, timing and frequency of impacts. These factors are brought together to assess the magnitude of the effect on the 'conservation status' of the particular valued ecological receptors, and on the 'integrity' of the habitats that support them:

- Integrity is the coherence of the ecological structure and functions of a site or habitat that enables it to sustain its plant and animal communities and populations; and
- Conservation status is the ability of a habitat, a plant or animal community or population to maintain its distribution and/or extent/size.

10.3.2 Conservation status is therefore largely determined by the extent to which integrity is maintained. It follows that habitats may or may not be valued ecological receptors in their own right.

10.3.3 Wherever possible, the magnitude of the effect is quantified. Professional judgment is then used to assign the effects on the receptors to one of four classes of magnitude, defined in Table A10.1.2.

Table A10.1.2: Magnitude of Effect

Magnitude	Definition
High	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status.
Medium	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group. If adverse, this is unlikely to threaten its sustainability; if beneficial; this is likely to be sustainable but is unlikely to enhance its conservation status.
Low	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group that is within the range of variation normally experienced between years.
Negligible	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage/community population or group that is within the normal range of annual variation.

10.4 Significance of Effect

10.4.1 The significance of an effect results from the value of the ecological receptor and the magnitude of effect on it. Table A10.1.3 below illustrates a matrix, which is used in this assessment as guidance for impact assessment.

10.4.2 Where effects are considered Major, further more detailed assessment should be carried out as per EIA Regulations.

Table A10.1.3: Significance of Effect

Value of Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
Very High	Major	Major	Minor	Negligible
High	Major	Major	Minor	Negligible
Medium	Major	Major	Minor	Negligible
Low	Minor	Minor	Minor	Negligible
Very Low	Minor	Minor	Negligible	Negligible
Very Low	Negligible	Negligible	Negligible	Negligible