Rochester Airport - Innovation Park Medway

Ecological Management and Enhancement Plan (EMEP)

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# Introduction

* 1. This Ecological Management and Enhancement Plan (EMEP) has been prepared to accompany the LDO that enables the redevelopment of part of the Rochester airfield for commercial and business use. It provided as one of a suite of supporting documents to the LDO alongside the masterplan, the parameter plan, Environmental Statement and the design code. These documents will be relied upon by future tenants for the production of self-certification documents. The EMEP sets the ecological targets for habitats and species for the development. This includes the type, quantum and condition of habitats to be created and maintained and the priority actions, pre-construction surveys and quantum of wildlife installations for target species. These requirements are broken down into the different contributions that will be made by each of the four phases of development and their relevant parcels so that each parcel is clear on the measures it needs to deliver to meet the requirements of the EMEP.
  2. Delivery of the requirements of each phase will be controlled though the self-certification process associated with the LDO. As part of the self-certification process each proposed development within the site will need to provide a Compliance Statement stating how the design for the proposed development delivers or exceeds the requirements of this EMEP.
  3. The EMEP responds to Ecological Impact Assessment of the proposed development and aims to ensure a net gain for biodiversity value is achieved as a result of the development with an increase in biodiversity value above the existing value of the habitats to be lost of at least 10%. Where a net gain cannot be achieved on Site then the requirements for off-Site compensation have been set.
  4. The Site supports a range of legally protected species and requirements relating to these species to ensure compliance with legislation and to ensure the species are sustained in the local area are proposed. Species or groups of species present afforded legal protection include bats, birds, common lizard and dormouse.

## Structure

* 1. The EMEP is divided into Sections:
* Section 1 introduces the EMEP and summarises the key features of the masterplan and the phasing of the development in relation to ecological features and green space.
* Section 2 summarises the existing baseline ecological value and the predicted impacts of the proposed scheme as set out in the EcIA.
* Section 3 sets out the key objectives of the EMEP.
* Section 4 sets out the ecological prescriptions of the development.
* Section 5 sets out how the EMEP should split into each phase, parcel or plot and be delivered through detailed planning applications.
* Section 6: Figures and Appendices- including the BIAC calculator and legislation and policy context.

## Masterplan and Phasing

* 1. The Innovation Park Medway allows for the erection of up to 101,000 square metres of Business (Use Class B1) and General Industrial (Use Class B2) floor space with associated means of access, distributor and service roads, multi-storey parking facilities, footpaths and cycle ways, sustainable drainage systems and landscaping.
  2. The ‘Site’ is taken to be the entire red line boundary as shown on Figure 1. The Site is assumed to be coming forwarded in four Phases, which are also shown on Figure 1. Phases 1 and 3 are split between the sections within the north and those in the south. The Site is also divided into Parcels and each Parcel is subdivided into Plots. All of these units are shown on Figure 1.

## CDM regulations

* 1. When BSG Ecology designs construction work, as defined in the Construction (Design and Management) Regulations (CDM), we will comply with our statutory duties. Where our design is not construction work, as defined, we do not have any CDM duties.
  2. BSG Ecology will not be responsible for any design undertaken by other companies whether they are a ‘designer’ or a contractor.
  3. BSG Ecology will attend Site to review the quality of the ecology works and resolve any issues arising out of unforeseen circumstances but will not “control the way in which any construction work is carried out by a person at work” (CDM Regulations 25(2)). BSG Ecology will not carry out construction work (as defined).
  4. When BSG Ecology is the contract administrator we will not have any responsibility in relation to permitting the works to start (CDM Regulation 16) or the on-going adequacy of the Construction Phase Plan or welfare provisions by the contractor.

# Ecological baseline and predicted impacts

* 1. The Site is divided into two separate areas; the north western arm of the airfield dominated by open grassland and the south eastern area comprising a combination of hardstanding (disused car park) with small amounts of low growing vegetation typical of derelict land and the caravan storage park, with short mown amenity grassland and a dense band of deciduous woodland around the boundaries, which connects off-Site to the west (Figure 1).
  2. The Site overall is located within a lowland urban setting, with main roads, commercial buildings and residential housing present in the immediately surrounding area. The topography across the Site is consistent, being relatively flat with a slight incline in the south-eastern area.

## Important Features, impacts and compensation measures

* 1. The Ecological Impact Assessment identified a suite of important ecological features as follows:

### Off-Site designated sites

* 1. The Site lies adjacent to the east of the Kent Downs Area of Outstanding Natural Beauty and its associated designated sites and priority habitats. To the east of the Site is the Luton Banks Local Wildlife Site designated for the presence of good quality semi-improved grassland and deciduous woodland.
  2. Mitigation: No impact has been identified on any off-Site designated sites. Any enhancements within the Site should take into account the Site’s position between these ecological designations. Appropriate lighting scheme to be implemented around Site boundaries to ensure no light pollution occurs within Kent Downs AONB.

### Semi-improved grassland

* 1. This grassland community dominates the north western area of the Site shows greatest affinity with the MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community, which is characteristic of ungrazed grasslands. The low nutrient input regime combined with a low intensity mowing regime has contributed to the development of the species assemblage present. The habitat present is considered to provide a relatively extensive area of low nutrient input grassland that is of local ecological value.
  2. The proposals will result in a loss of the grassland, approximately 10ha, which covers the majority of the north western area
  3. Mitigation: Opportunities for the creation of grassland are available on-Site within the Runway Park and around the edges of the development parcels. An area of species-rich grassland should also be created off-Site. Priority should be given to proposals for the creation of calcareous and or neutral grassland (good condition semi-improved or unimproved grassland) and associated scrub habitats adjacent to or connecting existing designated sites or habitats of principal importance within the Medway Gap and North Kent Downs Biodiversity Opportunity Area, or the Kent Downs AONB as shown on Figure 3. If suitable projects within the timescale of development authorised by the LDO within these areas do not materialise, projects further afield should be considered, especially where they are adjacent to or link designated sites or habitats of principal importance. This is to ensure the development does not result in a net loss of biodiversity. This will be guided by a net loss calculation.

### Lowland broadleaved woodland

* 1. The lowland broadleaved woodland in the south eastern area on the Site forms a continuous habitat corridor on Site and provides connectivity to off-Site woodland. This habitat type is an HPI and in addition many of the trees within the woodland are protected under Tree Preservation Orders TPOs. However is considered to be of Site value, based on its relatively small size (2.1 ha) compared to other areas of woodland in the local area.
  2. The proposed development will result in the loss of an area of this woodland (less than 0.5 ha) and therefore resulting in fragmentation of the habitat.
  3. Mitigation: New tree planting will be required on Site to incorporate locally native species, to be planted around the south eastern area in line with Policy EN9: Trees, Woodland and Hedgerows

### Bats

* 1. All UK bats are European protected species. The Site provides foraging and commuting habitat for seven different bat species; common pipistrelle, Myotis sp., noctule, soprano pipistrelle, Nathusius’ pipistrelle, brown long-eared and serotine bats. The majority of foraging activity is located around the south eastern area. The north western area is not currently of significant importance for foraging bats.
  2. The GLTA identified four trees with bat roosting potential (see Figure 2); however these trees lie outside of the development footprint and are therefore unlikely to be impacted. Thus no impacts to roosting bats are anticipated.
  3. The proposed development has the potential for direct effects on bats (e.g. loss or degradation of roosting, foraging and commuting habitat and loss of individuals during Site clearance /construction), and also indirect effects (e.g. degradation/ fragmentation of habitats through light pollution during the occupation phase). These effects could lead to a reduction in populations of species at the Site.
  4. Mitigation: Appropriate lighting scheme to be implemented around the entire site but particularly focussed on the Site/woodland boundaries of the south eastern area. The lighting will be low level or will use hoods or cowls to prevent light spill onto the woodland. Design and implementation of lighting scheme for the south eastern area, to be specified in the EMEP.

### Dormouse

* 1. Dormice are European protected species. Dormice have previously been recorded within the woodland around the south eastern area. It is likely that dormice disperse around the woodland on Site (restricted to the south eastern corner) and use the woodland year round during their active and hibernation periods.
  2. As a small section of woodland is to be removed, this will result in the permanent fragmentation of dormouse habitat, which will likely limit their foraging and dispersal potential. Indirect impacts may also occur through light spill onto the woodland from the new development. These effects could lead to a reduction in population of dormouse at the Site.
  3. Mitigation during construction phase: Under an appropriate licence the removal of trees/woodland should be carried out in two phases, i.e. above ground vegetation removed in winter and below ground roots removed in summer. This will avoid disturbance to dormice at their most sensitive times.
  4. Mitigation required during operational phase: Appropriate lighting scheme to be implemented around the entire although especially focussed on the Site/woodland boundaries of the south eastern area (as shown on Figure 2). The lighting will be low level or will use hoods or cowls to prevent light spill onto the woodland.

### Breeding birds

* 1. The Site contains grassland habitats and woodland which support a range of breeding bird species. These include a number of SPIs (particularly farmland birds) and Red and Amber listed species (Eaton et al., 2016). All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended).
  2. The value of the Site for breeding birds has been assessed with reference to the numbers of breeding species using the Site (Fuller, 1980). The overall breeding bird assemblage is considered to be of Local value.
  3. Skylark (an SPI) is also present on Site; however it is listed as ‘common’ breeding species in Kent (Kent Ornithological Society, 2017), a maximum of four singing males were recorded within the Site, due to the size and suitability of the Site for these species this is considered a likely maximum number of pairs of this species.
  4. The proposed development has the potential to cause direct effects on breeding birds (e.g. loss of individuals and of habitat supporting this species during construction) and also indirect effects (e.g. light spill and noise and disturbance close to boundary habitats). These effects could lead to reductions in populations of these species at the Site.
  5. Mitigation required during construction phase. To avoid contravention of legislation that protects nesting birds, clearance of the grassland and removal of trees and scrub during the nesting bird season will be avoided (i.e. for most species the nesting period generally lasts between March to August so work involving vegetation removal is usually best completed between September and February). In the event that removal of this vegetation is necessary at a time when birds may be nesting, a suitably experienced ecologist would need to survey the habitat prior to clearance and appropriate action then taken as required.

### Reptiles

* 1. The Site supports a small population of common lizard. This species is protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended) and are SPI in England.
  2. Development at the Site has the potential to cause direct effects on reptiles (e.g. loss of individuals and of habitat supporting these species, and habitat fragmentation during construction). These effects could lead to reductions in populations of reptiles at the Site.
  3. Mitigation required during construction phase: To avoid the potential for killing or injury of reptiles, the grassland and scrub should be cut through phased clearance and maintained as a short sward throughout construction to prevent reptiles from returning to the habitat. On completion of the works all areas of suitable habitat on site will be available for natural recolonisation by reptiles.

# Objectives

* 1. This section sets out the objectives of the EMEP.

## Objective 1

* 1. To ensure construction work complies with legal protection of species.

### Rationale

* 1. The Site supports a range of protected species with varying degrees of protection from that provided to all nesting wild birds through to higher levels of protection for European protected species such as bats and dormouse. For some species simple measures such as timing of works will be required to meet legal requirements and for others further survey and the application for licences from Natural England will be required.

## Objective 2

* 1. To ensure the creation and long term protection of retained and new habitats and species installations.

### Rationale

* 1. To create new habitats/ wildlife features and retain existing habitats to promote the ecology within the Site as well as improve the local area by providing complimentary and connective habitats for off-Site habitats of principal importance and designated sites. Many habitats and installations provided for species require protection from external factors and maintenance to ensure long term delivery of the benefits.

## Objective 3

* 1. To ensure the proposed development results in an overall net gain in Biodiversity Value that is at least 10% higher than the value of the habitats that will be lost as a result of the development.

### Rationale

* 1. Government policy requires all new development to result in a measureable gain for biodiversity. This net gain can be achieved within or off Site of the development or a combination of both approaches.

## Objective 4

* 1. To ensure the development when complete will provide opportunities for users of the Site to experience nature during the working day.

### Rationale

* 1. Contact with nature and having access to natural surroundings is known to provide a range of physical and mental health benefits and access to places with natural vegetation or areas where wild plants and animals can be seen will enhance the experience of people working in the innovation Park Medway adding to the quality of the working life.

# Prescriptions

* 1. This section sets out the principles of clearance works, licences, habitat creation and habitat management that will be incorporated into any detailed landscaping proposals in order to ensure the objectives are met.
  2. Each objective has a series of prescriptions in order to achieve that objective. Each management prescription is divided into three sections: provision of the habitat/feature, key biodiversity benefits of the habitat/features, and management (where required) of the feature following creation/installation.
  3. Each management principle is assigned a code (e.g. 1A, 2B, 3C), which relates to the habitat type or feature that is to be created or installed as part of the objective. This coding system is used in the work schedule (in Section 5) and has been designed to enable the reader to refer back to the detail set out in this section.

## Objective 1: To ensure construction work complies with legal protection of species.

### Prescription 1A – Clearance of woodland/ trees

#### Relevant area of Site

* 1. Parcels S1 and S2. Trees with bat roost suitability, those marked on Figure 2 will be retained where possible.

#### Licences required

* 1. Dormouse

#### Timing

* 1. Prior to clearance and/or construction works.
  2. First cut down to 50 mm to be undertaken between November and March (inclusive).
  3. Second phase (grubbing out of stumps and roots) April to October (inclusive)

#### Equipment

* 1. Limited to hand tools such as brush cutters and chainsaws unless otherwise agreed between the contractor and ecologist.

#### Staff

* 1. Carried out by a contractor under direct supervision of ECOW (under licence).

#### Method

* 1. All trees and woodland to be retained where possible. Woodland that is retained should be enhanced as per Prescription 2C.
  2. To follow the method that will be set out in the dormouse licence. Method will likely be a two-stage method of clearance. The first stage will include cutting vegetation to no less than 150 mm above ground, and removing the cuttings immediately, to avoid impacts to dormice, breeding birds and reptiles which may be hibernating. The second stage will include removing the below ground sections of vegetation during the active season, to avoid impacts to hibernating dormouse and reptile.
  3. If the removal of any tree with bat suitability is required, then where safe to do so, trees to be climbed using ropes and/or ladders, and all safely accessible potential roost features (PRFs) to be inspected for evidence of bat use (bats, droppings and evidence of wear/use in internal cavities from polish/staining from fur oils, characteristic smell, etc.) by a licenced ecologist immediately prior to felling.

### Prescription 1B – Clearance of scrub

#### Relevant area of Site

* 1. Entire Site (where scrub present)

#### Licences required

* 1. Dormouse (in Parcels S1 and S2).

#### Timing

* 1. Prior to clearance and/or construction works.
  2. First cut down to 50 mm to be undertaken between November and March (inclusive).
  3. Second phase (grubbing out of stumps and roots) April to October (inclusive)

#### Equipment

* 1. Limited to hand tools such as brush cutters and chainsaws unless otherwise agreed between the contractor and ecologist.

#### Staff

* 1. Carried out by a contractor under direct supervision of ECOW (under licence).

#### Method

* 1. All scrub to be retained where possible. Scrub that is retained should be enhanced as per Prescription 2B.
  2. To follow the method that will be set out in the dormouse licence. Method will likely be a two-stage method of clearance. The first stage will include cutting vegetation to no less than 150 mm above ground, and removing the cuttings immediately, to avoid impacts to dormice, breeding birds and reptiles which may be hibernating. The second stage will include removing the below ground sections of vegetation during the active season, to avoid impacts to hibernating dormouse and reptile.

### Prescription 1C – Clearance of grassland

#### Relevant area of Site

* 1. Parcels N1, N2, N3, N4, and N5.

#### Timing

* 1. Prior to clearance and/or construction works.
  2. To occur during the active period for reptiles and outside breeding bird season (September or October). If the breeding bird season cannot be avoided the grassland should be progressively mown (to displace reptiles) until a close mown sward is achieved prior to the start of nesting and thereafter maintained until the grassland is removed.

#### Equipment

* 1. An agricultural mower, or similar.

#### Staff

* 1. Mowing can be carried out by a contractor without supervision.

#### Method

* 1. All grassland to be retained where possible. Grassland that is retained should be enhanced as per Prescription 2E.
  2. The first cut of any long/ rough grassland should be undertaken under direction of the ECoW in September or October. This will be down to no less than 100 mm.
  3. After two days the ECoW should inspect the area for any likely refugia or presence of any reptile species and carefully dismantle and move any suitable features. On agreement from the ECoW a second cut as low as possible should be undertaken (maximum height of 100 mm).
  4. After the second cut the construction area(s) should be stripped of top soil and retained in an unsuitable condition for both ground nesting birds and reptiles until the start of the work.

#### Outcome/signoff

* 1. The Site Manager should monitor grass condition until the start of construction/turf stripping in these areas, and should arrange for mowing once a month, or when it approaches 100 mm in height (whichever is the sooner).

### Prescription 1D – Lighting during construction

#### Relevant area of Site

* 1. Parcels and Plots: N1, N6.2, N6.3, N6.4, S1 and S2.

#### Timing

* 1. Between the times of 30 minutes before the official sunset and 10 minutes after the official sunrise for the entirety of the construction and clearance works.

#### Method

* 1. During the demolition and construction phases of development, there shall be no artificial lighting used on Site between the times of 30 minutes before the official sunset and 10 minutes after the official sunrise.

## Objective 2: To ensure the creation and long term protection of retained and new habitats and species installations.

* 1. Although no detailed prescription has been included for other important ecological habitats (such as freshwater resources, marginal habitats, etc.) this does not preclude them from this development. In fact where the opportunity arises to create these habitats this should be promoted, this can include the enhancement of SuDS features or other essential landscape features to benefit wildlife.

### Prescription 2A – Lighting

* 1. The following key measures are to be incorporated into the Lighting Strategy:
* Any lighting required in or adjacent to retained semi-natural habitats (as shown on Figure 4) will be designed in such a way to minimise light spill into and across these sensitive areas. Where possible the light levels in this area will be below 0.5 lux.
* The space between lighting units in proximity to semi-natural habitats will be increased as much as possible.
* Lighting will be directed away from mature trees and retained and newly created / enhanced woodland/ scrub areas as much as is reasonably possible. Rear light guards will be fitted onto lighting columns in close proximity to woodland/ scrub to reduce light spill onto this habitat.

#### Key biodiversity benefits

* 1. The lighting scheme will reduce the likelihood of light-sensitive species, such as bats, dormouse and night-flying insects being affected by the development.

### Prescription 2B – Planting of scrub

#### Provision of scrub

* 1. New species-rich native scrub planting will be undertaken. Species mixes should include native and/or fruiting species such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, dogwood *Cornus sanguinea*, hazel *Corylus avellana,* wild privet *Ligustrum vulgare*, holly *Ilex aquifolium* and field maple *Acer campestre*. In areas of retained scrub, these can be enhanced by additional planting and management as per this Prescription.

#### Key biodiversity benefits

* 1. Creation of new scrub habitat will strengthen commuting routes for bats, provide enhanced foraging, resting and nesting habitat for a dormouse and a range of bird species commonly associated with edge habitats, and provide additional habitat for invertebrates.

#### Management of scrub

* 1. Newly planted woody species will be watered and weeded as necessary, to ensure plantings successfully establish and thrive. The use of herbicides and pesticides will be limited in order to promote maximum the biodiversity associated with scrub areas and adjacent habitat. Within the first five years, any planted trees or shrubs that fail to establish will be replaced by similar plants at the same location during the next planting season.
  2. In order to maintain their ecological functionality, over-management of the scrub patches will be avoided. When subject to management scrub patches will not be cut below a height of 2 m.
  3. The scrub patches will be managed at most once every two to three years; cutting will be undertaken on rotation to allow the presence of some uncut scrub species in any one year.
  4. Any management (cutting) will be undertaken between November and February inclusive. This will avoid the nesting bird season and to allow berries to provide benefit to wildlife such as foraging birds and invertebrates.

### Prescription 2C – Planting of trees (not including orchard)

#### Provision of trees

* 1. New trees will be planted throughout the development as shown on Figure 4. Species used should include native and/or fruiting species such as oak *Quercus robur*, field maple *Acer campestre*, fruiting prunus species *Prunus sp.,* horse chestnut *Aesculus hippocastanum* and beech *Fagus sylvatica*. In areas of retained woodland, these can be enhanced by additional planting and management as per this Prescription. Any planting will also need to follow height restrictions required by proximity to the retained runway.

#### Key biodiversity benefits

* 1. The proposed tree planting will provide enhanced opportunities for foraging and shelter for a range of wildlife including dormouse, nesting birds, bats and invertebrates. Tree planting will strengthen existing corridors for bats and other wildlife commuting through the Site.

#### Management of trees

* 1. New trees will be weeded and watered as required to ensure establishment of the new plantings. The use of herbicides and pesticides will be limited in order to promote the maximum biodiversity associated with trees. Within the first five years, any planted trees that fail to establish will be replaced by similar plants at the same location during the next planting season.
  2. Once mature, the trees will be managed to allow them to flower and fruit as these are likely to provide an important food resource for wildlife. Pruning will therefore avoid periods when trees are in blossom or bearing fruit (March through to October). This will also coincide with avoidance of the nesting bird.
  3. Providing there are no conflicts with public safety, any deadwood will be allowed to remain in the tree canopy. Any fallen deadwood will be left in situ, or be moved to a more suitable location on Site and allowed to decompose naturally.

### Prescription 2D – Planting of orchard

#### Provision of orchard

* 1. A new orchard will be planted throughout the development as shown on Figure 4. Species used should include typical orchard (fruiting) species. They should be planted in low densities (between 50 and 150 trees per hectare on permanent grassland (see Prescription 2E).

#### Key biodiversity benefits

* 1. The proposed orchard will provide enhanced opportunities for foraging and shelter for a range of wildlife including nesting birds, bats and invertebrates.

#### Management of trees

* 1. New trees will be weeded and watered as required to ensure establishment of the new plantings. The use of herbicides and pesticides will be limited in order to promote the maximum biodiversity associated with trees. Within the first five years, any planted trees that fail to establish will be replaced by similar plants at the same location during the next planting season.
  2. Once mature, the trees will be managed to allow them to flower and fruit as these are likely to provide an important food resource for wildlife. Pruning will therefore avoid periods when trees are in blossom or bearing fruit (March through to October). This will also coincide with avoidance of the nesting bird.
  3. Providing there are no conflicts with public safety, any deadwood will be allowed to remain in the tree canopy. Any fallen deadwood will be left in situ, or be moved to a more suitable location on Site and allowed to decompose naturally. There should be less than 5 % bare ground, injurious weeds or scrub throughout the orchard and the grassland should have an average sward height between 5 and 30 cm.

### Prescription 2E – Creation of grassland

#### Enhancing retained grassland areas

* 1. The species-richness of retained grassland areas in public open space areas will be enhanced to increased species diversity. The existing grass sward will be closely cut and harrowed to create bare ground of at least 30% of the sward area. If the combination of cutting and harrowing alone cannot create the required extent of bare ground then rigorous raking by hand will be used.
  2. The bare ground areas will be sown with a wildflower meadow mixture comprising native wildflowers only (no grasses as the existing sward supports a reasonable variety of grasses) will be sown. It is important that the mix is supplemented with yellow rattle *Rhinanthus minor* which must be sown in autumn. Yellow rattle parasitises aggressive grass species, reducing their dominance and increasing opportunities for wildflowers to thrive. Due to the soil type currently being ‘Slightly acid loamy and clayey soils with impeded drainage’ then a list of the species based on those presented in Emorsgate EM5 or similar would be suitable.
  3. It should be noted that open space amenity grassland areas located throughout the Site can be used as recreational spaces and therefore regularly mown if desired.

#### Key biodiversity benefits

* 1. Species-rich grassland provides a rich foraging source for invertebrates, birds, and small mammals. This grassland type is also likely to provide suitable foraging habitat for bats and badgers.
  2. The larger areas of grassland habitat may also provide bird nesting habitat, particularly at interfaces between tall grassland and scrub cover.
  3. Grassland areas are likely to provide suitable basking and foraging habitat for slow worm *Anguis fragilis* which are known to occur locally in low numbers (although not recorded on Site). The areas of grassland adjacent to any waterbodies will provide habitat for grass snake *Natrix natrix*.

#### Management of species-rich grassland

* 1. Weed control will be limited to spot treatment or hand pulling of undesirable species such as ragwort *Senecio jacobaea*, creeping thistle *Cirsium arvense*, dandelion *Taraxacum agg*. and broad-leaved dock *Rumex obtusifolius* to prevent these species dominating in the sward.
  2. In order to promote the establishment of the species-rich grassland species and reduce competition with annual weeds the grassland will be mown regularly in the first year. Where possible, sections of grassland 5 to 10 m wide around the margins of the grassland areas, adjacent to scrub and woodland habitats will be left unmown and a tussocky sward allowed to develop as this will provide cover for invertebrates and reptiles.
  3. From year two onwards, providing the weed species have been controlled though the first year of regular cutting, the species-rich grassland will be allowed to flower and set seed. A single cut will therefore be undertaken annually in late summer (mid- August to mid- September). The arisings will be removed from the grassland. The margins of the grassland will be strimmed on a three year rotation to prevent development into scrub between November and the end of February. This timing will avoid impacts on nesting birds and reptiles.

### Prescription 2F – Green roofs

#### Provision and management of green roofs

* 1. Green roofs should be installed on all buildings where possible. Given the uncertainty of the final design and exact prescription for each building this EMEP has not provided advice as to which buildings are required to have green roofs installed.
  2. Green roofs should target native botanical species, especially those of local provenance if possible. In addition ideally the species should target those associated with calcareous grassland, to further establish a connecting corridor between the designated sites within the local area.
  3. The creation and management of green roofs should follow the guidance for ‘Biodiverse Roofs’ set out in The GRO Green Roof Code (Green Roof Organisation, 2014).
  4. Brown roofs, blue roofs and green walls are also suitable for the site.
  5. Any inclusion of green, brown, or blue roofs or green walls should be identified with detailed prescription within the relevant Ecological Compliance Note (Prescription 5C).

### Prescription 2G – Installation of bird boxes

#### Provision of bird boxes

* 1. House sparrow and swift boxes will be incorporated into the scheme at appropriate locations.
  2. All bird boxes will be installed in positions where they are out of reach of people from the ground to minimise disturbance and vandalism. Placing them between 3 m to 4 m high is optimal.
  3. All boxes will be erected in such a way as to ensure no possibility of slippage or fall and that, where necessary, future maintenance, inspection or replacement can be conducted safely.

#### House sparrow *Passer domesticus*

* 1. A minimum of four nesting features for house sparrows will be provided per Parcel. House sparrows are colonial nesters meaning they will build nests within close proximity to each other. It is therefore important that multiple nest boxes are provided to encourage the use of these features by house sparrows.
  2. House sparrows prefer to nest close to cover and typically forage in very close proximity to their nests (within 50 m). The tree, scrub, woodland and grassland habitats in the green open spaces provide suitable foraging habitat and shelter for house sparrows and the boxes will therefore be installed on buildings within 50 m of such habitat. The boxes will be placed in a well shaded position, to prevent overheating, preferably fitted on the north to east facing aspect.
  3. House sparrows require an entrance hole of no less than 32 mm in diameter. Boxes will be placed at least 2 m apart. No less than two boxes will be installed on any one wall. Swift *Apus apus*
  4. A minimum of four nesting features for swifts will be provided per Parcel. Swifts require an entrance hole/ slot of at least 65 mm by 30 mm. As with house sparrows, swifts will also nest in colonies so locating multiple boxes within one area is ideal. Swift boxes will be installed at least 5 m above the ground. A completely unobstructed airspace in front of the nest will be left to allow the swifts to fly at high speed directly into the nest. The boxes will be placed in a well shaded position, to prevent overheating, preferably fitted on the north to east facing aspect.

#### Management of features for nesting birds

* 1. As nest boxes are being installed on private property no further management (or monitoring) of these features is being recommended.

### Prescription 2H – Installation of bat boxes

#### Provision of bat boxes

* 1. A minimum of ten bat boxes will be secured on retained trees within the Site. There is a wide range of bat boxes available, for example the Schwegler bat box model 1FF is suitable for crevice dwelling species such as those recorded within the Site (*Pipistrelle* species, certain *Myotis* species, noctule and barbastelle) and does not require regular maintenance. They will be installed by contractors in locations agreed by the Ecologist.
  2. All boxes will be erected in such a way as to ensure no possibility of slippage or fall and that, where necessary, future maintenance, inspection or replacement can be conducted safely.
  3. A minimum of four per Parcel roosting opportunities for bats within the buildings will also be incorporated into the scheme. These will be included on buildings in proximity to areas proposed for new habitat creation to increase the potential that bats will find and use these features. Suitable boxes would be the Schwegler 1FR or Schwegler 2FR bat tubes (which can be faced in a variety of materials).

#### Management of features for roosting bats

* 1. Bat boxes on mature trees are to be inspected for evidence of use, by a licenced bat ecologist, between May and September, in years 1, 3 and 5 following their installation. Features for roosting bats which will be provided in buildings which will be in private ownership and therefore any management or maintenance is outside the control of this management plan.

### Prescription 2I – Installation of dormouse boxes

#### Provision of dormouse boxes

* 1. A minimum of ten dormouse boxes will be secured on retained trees within the Site within the retained woodland around S1 and S2. There is a wide range of boxes available, but should be specifically made for dormouse nesting. They will be installed by contractors in locations agreed by the Ecologist.
  2. All boxes will be erected in such a way as to ensure no possibility of slippage or fall and that, where necessary, future maintenance, inspection or replacement can be conducted safely.

#### Management of features for dormouse

* 1. Dormouse boxes are to be inspected for evidence of use, by a licenced bat ecologist three times a year between May and September, in years 1, 3 and 5 following their installation.

### Prescription 2J – Installation of deadwood habitat

#### Provision of dead wood habitat/ hibernacula

* 1. A minimum of five log piles will be created within the retained woodland around S1 and S2. These will created from locally sourced timber that is untreated and preferably still has the bark attached as this will increase the value of the log pile to invertebrates, fungi and other wildlife. They will be created using a mixture of sizes and shapes of timber to give structural diversity and create small enough sized voids for reptiles and amphibians. They will be positioned in sunny locations as this will provide optimal basking conditions for reptiles and invertebrates. The log piles will each cover an area of no less than 2 m by 1.5 m.

#### Key biodiversity benefits

* 1. Low numbers of reptiles are known to be present in the local area. The creation of deadwood habitat will provide shelter, and foraging habitat for these species. Other groups that will benefit from the creation of deadwood habitat include amphibians, invertebrates, birds, small mammals and fungi.

#### Management of dead wood habitat

* 1. Over time the wood within the log piles will naturally degrade and will therefore be replenished or new logs piles created to ensure the longevity of this resource.
  2. If possible the log piles will be created, and replenished, from wood obtained from on-Site habitat management works.

## Objective 3: To ensure the proposed development results in an overall net gain in Biodiversity Value.

### Prescription 3A – Biodiversity calculations

* 1. To ensure that the proposals within the Site have a net gain for biodiversity above the existing value of the habitats to be lost of at least 10%, a biodiversity calculator was run. This involved taking the baseline habitats currently present on Site and inputting them into DEFRA’s biodiversity metric 2.0. The habitats identified within the illustrative landscape plan were then inputted alongside data on the likely condition and the time taken to achieve the condition. This produced a figure indicated whether the proposals within the Site would have a net loss or net gain in biodiversity.
  2. The on-Site (pre-development) baseline was 79.21 Biodiversity Units.
  3. The on-site post-intervention score is calculated to be 29.63 Biodiversity Units.
  4. The total net unit change is therefore -49.59 Biodiversity Units, which equates to a net loss of -62.60 % of the pre-development baseline.

### Prescription 3B – Off-Site mitigation

* 1. An off-Site mitigation area should be secured. This will be under the responsibility of Medway Council and/ or Tonbridge & Malling Borough Council. This area should be as close to the Site as possible and provide sufficient mitigation to compensation for any Net Loss identified above. The financial contributions paid for by each Plot will cover the cost of the creation and management of this Mitigation Area.
  2. The betterment of the mitigation area will need to continue for at least 30 years after the completion of the development and ideally should be secured in perpetuity. The funding of this area should target improvements, and not cover and features of management that have previously been agreed or secured for this area.
  3. Priority should be given to proposals for the creation of habitats adjacent to or connecting existing designated sites or habitats of principal importance within the Medway Gap and North Kent Downs Biodiversity Opportunity Area, or the Kent Downs AONB as shown on Figure 3. If suitable projects within the timescale of development authorised by the LDO within these areas do not materialise, projects further afield should be considered, especially where they are adjacent to or link designated sites or habitats of principal importance.
  4. The mitigation area will ideally focus in on habitats lost within the Site (semi-improved or unimproved neutral grassland or, scrub) or those present within the wider area, such as calcareous grassland (semi-improved or unimproved) or woodland. The habitats should also look to providing breeding habitat for species that may be impacted by the development (e.g. skylark).
  5. To ensure that the mitigation area provided is sufficient to off-set any biodiversity loss a calculator should be run for these compensation habitats. For example, using the Defra Metric if off-site compensation turned arable habitat into semi-improved neutral grassland in good condition then to deliver a 10 % net gain then 57.51 Biodiversity Units would be required, which would equate to an area of approximately 10 ha of Modified Grassland in Poor Condition or Arable Land to be converted to Other Neutral Grassland in Good Condition. Alternatively enhancing Poor Condition Lowland Calcareous Grassland into Good Condition by improving management on that land. Options being explored by the council include Coney Banks, Daisy Banks and multiple sites at Horsted Valley.

## Objective 4: To ensure the development when complete will provide opportunities for users of the Site to experience nature during the working day.

### Prescription 4A – Provision of footpaths within greenspace

* 1. In order to allow people access into greenspace and to encourage enjoyment of nature a series of footpaths will be incorporated into the landscape design. These will be primarily focused in the Runway Park, but also connect the southern and northern sections of the development.

### Prescription 4B - Provision of Interpretation Boards

* 1. In order to raise public awareness of the ecological measures being implemented at the Site, interpretation boards will be installed in key habitat areas, the optimum location will be adjacent to footpaths that pass through or next to the newly created habitats. These interpretation boards will clearly set out the reason for the habitat creation and include information about the sensitivity of the habitats.

## Objective 5: Monitor the establishment of habitats and wildlife installations

### Prescription 5A – Monitoring of habitats and wildlife installations

* 1. A single visit will be undertaken by the Ecologist each year for the first five years. The timing of the visit will be agreed between the Site Manager and the Ecologist. This visit will be undertaken in late spring/early summer during the optimum period for botanical survey.
  2. The monitoring visits will entail the following:
* Woodland, trees and scrub – notes to be made on the success of the supplementary and newly created native species planting and management.

Successful woodland/ scrub habitat is that which provides suitable habitat for badger, hedgehog, bats, invertebrates and birds. It therefore needs to be species rich with mature trees with plenty of crevices, and a well-established ground flora.

* Species-rich grassland - notes to be made on the establishment of newly created species rich-grassland.

Successful grassland habitat is that which provides suitable habitat for reptile, hedgehog, breeding birds, and foraging habitat for bats, birds and badgers. The grassland will therefore require tussocky areas, alongside patches of bare earth or log piles for basking reptiles.

* Bat boxes within the public open space (years 1, 3 and 5 only).

Bat boxes on trees are to be inspected for evidence of use by a licenced bat ecologist in years 1, 3 and 5 post-development.

* Notes will be made on any incidental sightings of wildlife, such as birds, reptiles, small mammals, invertebrates, evidence of badger activity etc. during the visits.
  1. Following each visit, a brief report will be prepared to document the findings of the visit and provide recommendations of any remedial action or any changes in management required.

### Prescription 5B - Revision of EMEP

* 1. If at any time during the first five years the Site visit identifies the need for further remedial action (above and beyond what is identified in the EMEP), then revisions shall be made to the outline EMEP. These changes will be agreed between the Site Manager, the Ecologist and the Local Planning Authority. If the changes are limited to a specific Parcel and can be covered within a Compliance Note then no change to this EMEP will be required.

### Prescription 5C- Ecological Compliance Notes

* 1. As each Plot completes their self-certification process through the LDO it shall be accompanied by an Ecological Compliance Note. An ECN can cover multiple Plots or Parcels if required. These ECNs will cover the following:
* Confirmation that all Prescriptions set out in this EMEP relevant to that Plot or Parcel will be followed.
* Clear notification of any likely deviation from any relevant Prescriptions.
* Setting out any additional Ecological enhancements that the Plot or Parcel can provide above those on which the net Gain calculation has been based. Please note Prescription 3A, whereby if an additional ecological enhancement (e.g. green roof) is provided this will be taken into account for the final Biodiversity Calculator for that Plot or Parcel and any financial contributions reduced accordingly.
* Locations of bird or bat boxes within the Plot or Parcel.
* A final Biodiversity Net Gain Calculation for that Plot or Parcel
* Confirmation that on conclusion of this calculator the agreed final figure will be paid to Medway Council that they can successfully discharge Prescription 3B.

### Prescription 5D- Monitoring (and management) of off-Site net gain habitats

* 1. To ensure that the creation of off-site habitats are successful and provide sufficient net gain provision for the loss identified above (Prescription 3B), the areas created will need to be subsequently managed and monitored.. A Habitat Management Plan should be written for those off-Site areas identified for off net gain. This document should confirm that the required Biodiversity Units can be delivered and by which habitats/ areas. It should then set out the strategy for appropriate management, monitoring and remediation to ensure that these habitat gains are delivered over a minimum of a 30 year period.
  2. Monitoring of these created and managed habitats should be done annually for the first five years, to ensure successful creation, and reducing in frequency thereafter to once every five years.
  3. The management will need to continue for at least 30 years after the completion of the development and ideally should be secured in perpetuity

# Implementation of Prescriptions

* 1. Table 1 sets out the proposed timings of the implementation of the EMEP Prescriptions and their subsequent management (if required).
  2. All ‘landscape plots’ outside the allocated Parcels or Plots (e.g. newly created orchard, road verges and Runway Park) will all be created and managed by **Medway Council** and/ or **Tonbridge & Malling Borough Council** or their nominated Site Manager. Therefore all Prescriptions set out within this document will be required to be followed by them.
  3. Prescription 3A has been split equally between all Plots, dependent on their size. Table 2 below covers the contribution required to be paid by each **Plot Developer** to Medway Council and/ or Tonbridge & Malling Borough Council so that they can successfully discharge Prescription 3B.
  4. As set out in the Landscape Masterplan the following assumptions has been made for each Plot:
* On-Plot landscaping will be 27 % of the Plot area. This will incorporate grassland, scrub or trees (Prescriptions 2B, 2C or 2E). The final value landscaping for each plot should be included within the final calculation.
* No green roofs (Prescription 2F) have been factored into the Biodiversity Calculator. If green roofs, brown roofs or green walls can be incorporated into the Plot then deduction from Net Loss fee.
  1. Prescriptions 3B and 5D will be the responsibility **of Medway Council** and/ or **Tonbridge & Malling Borough Council**.
  2. Table 3 then covers which Prescriptions are required for each Plot. It should be noted that Prescriptions 2D, 3B, 4A, 4B, 5A, 5B and 5D are only required to be dealt with by Medway Council and/ or Tonbridge & Malling Borough Council and not each Plot Developer.

***Table 1: Work Schedule***

| **Prescription** | **Timing** | **Year after construction** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Construction** | **1** | **2** | **3** | **4** | **5** | **Ongoing** |
| **Objective 1** | | | | | | | | |
| **Prescription 1A – Clearance of woodland/ trees** | Cut 1: November to March  Phase 2: April to October |  |  |  |  |  |  |  |
| **Prescription 1B – Clearance of scrub** | Cut 1: November to March  Phase 2: April to October |  |  |  |  |  |  |  |
| **Prescription 1C – Clearance of grassland** | September or October |  |  |  |  |  |  |  |
| **Prescription 1D – Lighting during construction** | Entire construction period |  |  |  |  |  |  |  |
| **Objective 2** | | | | | | | | |
| **Prescription 2A – Lighting** | N/a |  |  |  |  |  |  |  |
| **Prescription 2B –Scrub** |  |  |  |  |  |  |  | \* |
| Creation | N/a |  |  |  |  |  |  |  |
| Management | November to February |  |  |  |  |  |  | \* |
| **Prescription 2C –Trees** | | | | | | | | |
| Planting | N/a |  |  |  |  |  |  |  |
| Management | November to February |  |  |  |  |  |  | \* |
| **Prescription 2D – Planting of orchard** | | | | | | | | |
| Planting | N/a |  |  |  |  |  |  |  |
| Management | November to February |  |  |  |  |  |  | \* |
| **Prescription 2E – Creation of grassland** | | | | | | | | |
| Over-Sowing of meadow grassland mixes | Autumn or Spring |  |  |  |  |  |  |  |
| Year one regular grass cut | March to October |  |  |  |  |  |  |  |
| Annual cut grass | mid- August to mid- September |  |  |  |  |  |  | \* |
| **Prescription 2F – Green roofs** |  |  |  |  |  |  |  |  |
| Creation | N/a |  |  |  |  |  |  |  |
| Management | N/a |  |  |  |  |  |  | \* |
| **Prescription 2G – Installation of bird boxes** | N/a |  |  |  |  |  |  |  |
| **Prescription 2H – Installation of bat boxes** | N/a |  |  |  |  |  |  |  |
| **Prescription 2I – Installation of dormouse boxes** | N/a |  |  |  |  |  |  |  |
| **Prescription 2J – Installation of deadwood habitat** | N/a |  |  |  |  |  |  |  |
| **Objective 3** | | | | | | | | |
| **Prescription 3A – Biodiversity calculations** | N/a |  |  |  |  |  |  |  |
| **Prescription 3B – Off-Site mitigation** | N/a |  |  |  |  |  |  | \* |
| **Objective 4** | | | | | | | | |
| **Prescription 4A – Provision of footpaths within greenspace** | N/a |  |  |  |  |  |  |  |
| **Prescription 4B - Provision of Interpretation Boards** | N/a |  |  |  |  |  |  |  |
| **Objective 5** | | | | | | | | |
| **Prescription 5A – Monitoring of habitats and wildlife installations** | | | | | | | | |
| Annual monitoring (\*\*Monitoring in years 1, 3 and 5 should include dormouse and bat boxes on trees.) | late spring/early summer |  | \*\* |  | \*\* |  | \*\* |  |
| **Prescription 5B - Revision of LEMP** | N/a |  |  |  |  |  |  |  |
| **Prescription 5C** - **Ecological Compliance Notes** | N/a |  |  |  |  |  |  |  |
| **Prescription 5D – Monitoring and management of off Site habitats** | As appropriate |  |  |  |  |  |  | \* |

\* The management of these habitats will continue as per the first five years in perpetuity (where possible), this is considered to be at least 30 years.

***Table 2-4: Break down of required contribution to off-Site Net Gain payment by Plot, Parcel and Phase***

* 1. The cost of the off-site management and maintenance (including monitoring) has been calculated as being £525,000. Tables 2-4 set out a possible breakdown of these costs, by taking the area of each Phase, Parcel and Plot. It is however the responsibility **of Medway Council** and/ or **Tonbridge & Malling Borough Council** to determine the process in dividing up the costs foreach developer and how this contribution should be collected.

***Table 2: Required contribution for off-Site mitigation.***

|  |  |
| --- | --- |
| Total | £ 525,000.00 |
| Total development area (m2) | 139179 m2 |
| Cost per m2 | £3.77 |

***Table 3: Break down by Phase***

|  |  |  |
| --- | --- | --- |
| **Phase** | **Area (m2)** | **Contribution** |
| **Phase 1 North** | 24390 | £ 92,002.03 |
| **Phase 1 South** | 10331 | £ 38,969.78 |
| **Phase 2** | 24851 | £ 93,740.97 |
| **Phase 3 North** | 26991 | £ 101,813.31 |
| **Phase 3 South** | 11636 | £ 43,892.40 |
| **Phase 4** | 40980 | £ 154,581.51 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Table 4: Break down by Parcel and Plot***   | **Parcel** | **Parcel Area (m2)** | **Parcel Contribution** | **Plot** | **Plot Area (m2)** | **Plot Contribution** | | --- | --- | --- | --- | --- | --- | | **N1** | 8565 | £ 32,308.21 | **N1.1** | 2479 | £ 9,351.09 | | **N1.2** | 1800 | £ 6,789.82 | | **N1.3** | 2705 | £ 10,203.59 | | **N1.4** | 1581 | £ 5,963.72 | | **N2** | 15825 | £ 59,693.81 | **N2.1** | 2925 | £ 11,033.45 | | **N2.2** | 2250 | £ 8,487.27 | | **N2.3** | 2100 | £ 7,921.45 | | **N2.4** | 2400 | £ 9,053.09 | | **N2.5** | 2700 | £ 10,184.73 | | **N2.6** | 1950 | £ 7,355.64 | | **N2.7** | 1500 | £ 5,658.18 | | **N3** | 14177 | £ 53,477.36 | **N3.1** | 1127 | £ 4,251.18 | | **N3.2** | 2249 | £ 8,483.50 | | **N3.3** | 1348 | £ 5,084.82 | | **N3.4** | 2689 | £ 10,143.23 | | **N3.5** | 2690 | £ 10,147.00 | | **N3.6** | 2251 | £ 8,491.04 | | **N3.7** | 1823 | £ 6,876.58 | | **N4** | 17438 | £ 65,778.24 | **N4.1** | 1375 | £ 5,186.67 | | **N4.2** | 2457 | £ 9,268.10 | | **N4.3** | 1750 | £ 6,601.21 | | **N4.4** | 2100 | £ 7,921.45 | | **N4.5** | 2750 | £ 10,373.33 | | **N4.6** | 2925 | £ 11,033.45 | | **N4.7** | 4081 | £ 15,394.02 | | **N5** | 20227 | £ 76,298.69 | **N5.1** | 3550 | £ 13,391.03 | | **N5.2** | 3954 | £ 14,914.97 | | **N5.3** | 2198 | £ 8,291.12 | | **N5.4** | 2499 | £ 9,426.53 | | **N5.5** | 2243 | £ 8,460.87 | | **N5.6** | 2176 | £ 8,208.13 | | **N5.7** | 3607 | £ 13,606.04 | | **N6** | 22095 | £ 83,345.01 | **N6.1** | 5525 | £ 20,840.97 | | **N6.2** | 8974 | £ 33,851.01 | | **N6.3** | 4048 | £ 15,269.54 | | **N6.4** | 3548 | £ 13,383.48 | | **N7** | 18885 | £ 71,236.50 | **N7.1** | 1750 | £ 6,601.21 | | **N7.2** | 5366 | £ 20,241.20 | | **N7.3** | 2700 | £ 10,184.73 | | **N7.4** | 4881 | £ 18,411.72 | | **N7.5** | 4188 | £ 15,797.64 | | **S1** | 10331 | £ 38,969.78 | **S1.1** | 4558 | £ 17,193.33 | | **S1.2** | 1956 | £ 7,378.27 | | **S1.3** | 3817 | £ 14,398.19 | | **S2** | 11636 | £ 43,892.40 | **S2.1** | 5717 | £ 21,565.21 | | **S2.2** | 2256 | £ 8,509.90 | | **S2.3** | 3663 | £ 13,817.28 | |  |  |  |  |

***Table 5: Prescriptions required to be followed for each Plot***

| **Plot** | **Prescription** | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1A** | **1B** | **1C** | **1D** | **2A** | **2B** | **2C** | **2E** | **2F** | **2G** | **2H** | **2I** | **3A** | **5C** |
| **N1.1** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N1.2** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N1.3** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N1.4** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.1** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.2** |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.3** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.4** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.5** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.6** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N2.7** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.1** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.2** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.3** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.4** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.5** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.6** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N3.7** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.1** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.2** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.3** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.4** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.5** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.6** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N4.7** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.1** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.2** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.3** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.4** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.5** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.6** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N5.7** |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N6.1** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N6.2** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N6.3** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N6.4** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N7.1** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N7.2** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N7.3** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N7.4** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **N7.5** |  | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S1.1** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S1.2** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S1.3** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S2.1** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S2.2** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **S2.3** | Yes-licence required | Yes-licence required |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

# References

Green Roof Organisation (2014). The GRO Green Roof Code. <https://livingroofs.org/wp-content/uploads/2016/03/grocode2014.pdf> Accessed 02.09.2019.

# Appendices

Appendix 1: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

## National Planning Policy Framework (England)

* 1. The Government revised the National Planning Policy Framework (NPPF) on 19 February 2019. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.
  2. The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and ‘are not criteria against which every decision can or should be judged.’ At paragraph 8c) the planning system’s environmental objective refers to ‘protecting and enhancing our natural, built and historic environment’ and to ‘helping to improve biodiversity’
  3. In conserving and enhancing the natural environment, the NPPF (Paragraph 170) states that ‘planning policies and decisions should contribute to and enhance the natural and local environment’ by:
* Protecting and enhancing...sites of biodiversity value... ‘(in a manner commensurate with their statutory status or identified quality in the development plan)’.
* Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
* Minimising impacts on and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
* Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.
  1. In respect of protected sites, at paragraph 171, the NPPF requires local planning authorities to distinguish, at the plan level, ‘…between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.’
  2. Paragraph 174 refers to how plans should aim to protect and enhance biodiversity. Plans should: ‘identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;’ and to ‘promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.’
  3. Paragraph 175 advises that, when determining planning applications, ‘…local planning authorities should apply the following principles:

1. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
2. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
3. development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
4. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.’
   1. In paragraph 176, the following should be given the same protection as habitats sites[[1]](#footnote-1):
   2. potential Special Protection Areas and possible Special Areas of Conservation
   3. listed or proposed Ramsar sites; and
   4. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.’
   5. In paragraph 177 the NPPF refers back to sustainable development in relation to appropriate assessment and states: ‘the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site’.
   6. In paragraph 178, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of ‘potential impacts on the natural environment’ that arise from land remediation.
   7. In paragraph 180 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and , in doing so, they ‘should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.’

## Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

* 1. Paragraph 98 of Government Circular 06/2005 advises that “the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species’ protection provisions affecting the site concerned...”
  2. Paragraph 99 of Government Circular 06/2005[[2]](#footnote-2) advises that “it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted”.

## Standing Advice (GOV.UK - England only)

* 1. The GOV.UK website provides information regarding protected species and sites in relation to development proposals: ‘Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.’ GOV.UK advises that ‘some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.’
  2. The standing advice (originally from Natural England and now held and updated on GOV.UK[[3]](#footnote-3)) provides advice to planners on deciding if there is a ‘reasonable likelihood’ of protected species being present. It also provides advice on survey and mitigation requirements.
  3. When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: ‘The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee…it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.’

## Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)

* 1. The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.
  2. The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the ‘Biodiversity Duty.’
  3. Guidance for public authorities on implementing the Biodiversity Duty[[4]](#footnote-4) has been published by Defra. One of the key messages in this document is that ‘conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.’ In England the administration of the planning system and licensing schemes are highlighted as having a ‘profound influence on biodiversity conservation.’ Local authorities are required to take measures to “promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that ‘the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.’
  4. In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework[[5]](#footnote-5), which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.
  5. In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

## European protected species (Animals)

* 1. The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.
  2. “European protected species” (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

1. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
2. Possess or control any live or dead specimens or any part of, or anything derived from a these species
3. deliberately disturb wild animals of any such species
4. deliberately take or destroy the eggs of such an animal, or
5. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place
   1. For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—
6. to impair their ability—
   1. to survive, to breed or reproduce, or to rear or nurture their young, or
   2. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
7. to affect significantly the local distribution or abundance of the species to which they belong.
   1. Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:
8. The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’
9. ‘There is no satisfactory alternative’
10. The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

## *Definition of breeding sites and resting places*

* 1. Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.[[6]](#footnote-6) Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that ‘The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.’ Further the guidance states: ‘It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.’

## Birds

* 1. All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.
  2. The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, ‘Birds Directive’[[7]](#footnote-7)) (Regulation 10 (3)) requires that the objective is the ‘preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…’ Regulation 10 (7) states: ‘In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements’.
  3. In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: ’So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).’

## Reptiles

* 1. All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as “European Protected species” under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).
  2. All six native species of reptile are included as ‘species of principal importance’ for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.
  3. Current Natural England Guidelines for Developers[[8]](#footnote-8) states that ‘where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.’ Further the guidance states: ‘Normally prohibited activities may not be illegal if ‘the act was the incidental result of a lawful operation and could not reasonably have been avoided’. Natural England ‘would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.’
  4. The Natural England Guidelines for Developers state that ‘planning must incorporate two aims where reptiles are present:
* To protect reptiles from any harm that might arise during development work;
* To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.’

# Appendix 2: Biodiversity impact calculator

# Appendix 3: Figures

(overleaf)

1. Habitats sites are defined in the glossary as ‘Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.’ [↑](#footnote-ref-1)
2. *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich. [↑](#footnote-ref-2)
3. [https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species](https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals%23standing-advice-for-protected-species) [↑](#footnote-ref-3)
4. Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (<http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf>) [↑](#footnote-ref-4)
5. JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (<http://jncc.defra.gov.uk/page-6189>) [↑](#footnote-ref-5)
6. Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC. [↑](#footnote-ref-6)
7. 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union. [↑](#footnote-ref-7)
8. English Nature, 2004. *Reptiles: guidelines for developers.* English Nature, Peterborough. [https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006](https://webarchive.nationalarchives.gov.uk/20150303064706/http:/publications.naturalengland.org.uk/publication/76006) [↑](#footnote-ref-8)