

Dunsbury Hill Farm
Habitat Management and
Maintenance Plan (Link Road and
Associated Infrastructure Phase)

ATKINS

Portsmouth City Council

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Plan Design Enable

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This is a working document which will need to be updated for each of the subsequent phases of development once they have reached detailed design stage.

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1. Introduction

1.1. Purpose of This Document

This Habitat Management and Maintenance Plan will be provided as an appendix to the dormouse and bat licence applications relating to the activities covered by the full planning permission only (namely for the Hulbert Road roundabout, replacement lay-bys, link road from Hulbert Road to Woolston Road, road bridge and Hermitage Stream realignment) at Dunsbury Hill Farm).

The information contained in this plan forms part of the Ecological Design for Dunsbury Hill Farm, which details the ecological mitigation and compensation measures that are required during the construction, establishment and operation periods, to minimise the impact of the Works on ecological features as a result of commitments given in the Environmental Statement (ES), protected species licences, or constraints identified during subsequent survey work. This report outlines management, maintenance and monitoring that will be carried out by the appointed Contractor during the construction (approximately one year) and establishment period (five years following completion of construction). The measures in this plan will be included in the detailed specification for the works; that specification will also include detailed landscaping measures such as replacing planted material if it fails to establish.

This is a working document which will need to be updated for each of the subsequent phases of development once they have reached detailed design stage. Reference will need to be made to the bat and dormouse licences when this Plan is updated.

1.2. Scheme Background

Dunsbury Hill Farm is located on land between WaterlooVille and Leigh Park on the north western side of Havant Borough in Hampshire. The Site lies immediately to the east of the A3 (M) motorway Junction 3. The Site is bordered by woodland, both deciduous and mixed semi-natural woodland, to the west, south and east. The north of the Site is bordered by the verge of the A3 (M), which consists of long grasses and small individual mixed trees, and by Park Lane footbridge/cycleway towards WaterlooVille. The Site consists mainly of arable fields with a number of hedgerows. It also includes areas of semi-improved neutral grassland and mixed scrub with scattered bracken. A public access track (Park Lane) runs south-east to north-west across the Site and crosses the A3 (M) via a footbridge. The Hermitage Stream also runs across the south-west boundary of the Site from the A3 (M) and follows the edge of an area of woodland and semi-improved neutral grassland.

The Dunsbury Hill Farm Development is a proposed 20.2 hectare (50 acre) greenfield development site in the ownership of Portsmouth City Council. A hybrid planning application was submitted in early 2013, comprising a detailed planning application for an access road (known as the link road hereafter), and an outline planning application for the whole site development (business park), comprising a mix of B1, B2 and B8 land uses. The planned development is in accordance with Havant Borough Core Strategy Policy CS18¹. Planning permission was subsequently granted on the 19th February 2014, providing full planning permission for the link road phase, and outline planning permission for the subsequent business development phases.

1.3. Ecological Background

The ecological background to the Dunsbury Hill Farm Scheme can be found in **Appendix E**. In summary following a number of protected species and habitat surveys an Environmental Statement (ES) was produced by Atkins Limited and published in March 2012². The ES has been accepted by Portsmouth City Council, the planning authorities and statutory consultees. The recommendations set out in the ES will be delivered, including mitigation, compensation and enhancement works. It is also necessary to ensure that all legal requirements with regard to protected species are dealt with appropriately.

¹ Havant Borough Core Strategy (March 2011):

<http://www.havant.gov.uk/sites/default/files/documents/ADOPTED%20CORE%20STRATEGY%20FINAL%20VERSION.pdf>

² Atkins (March 2012) Dunsbury Hill Farm Environmental Statement Volume 1 Chapter 15 Ecology

During consultation with Hampshire County Council's Ecologists Peter McKeon³ and Tristan Norton⁴ further bat surveys (undertaken in September/October 2012 and July 2013) and a dormouse mitigation strategy were requested. The bat surveys targeted the series of predominantly mature pedunculate oak trees that lie along the route of the proposed link road and the proposed roundabout and new lay-bys between Hulbert Road and the Hermitage Stream.

2. Ecological Mitigation

A drawing showing an overall summary of ecological mitigation described below including locations of the dormouse, grey wagtail and bat boxes can be found in **Figure 15.2 Rev D in Appendix A**. A drawing showing the landscape planting proposals for the link road and associated infrastructure (Hulbert Road roundabout, new lay-bys and Hermitage Stream bridge) plus the native landscape planting for the Hermitage Stream realignment can be found in Appendix D.

2.1. Dormouse Mitigation

A Natural England mitigation/development licence for dormice must be in place before vegetation clearance for the Site. As described previously a Dormouse Mitigation Strategy Technical Note has been produced for the Site. A dormouse licence application for the link road phase will be submitted in early March 2014 and this has been the subject of Natural England's Pre-Submission Screening Service.

In line with the dormouse licence, areas of dormouse habitat to be retained (such as hedgerows and woodland SINC's) have been identified and can be seen in **Figure 15.2 Rev D in Appendix A** and **Figure 1 Rev A in Appendix B**. These figures will be included in a Construction and Environmental Management Plan (CEMP) to be produced by the Contractor; and the Contractor will ensure that these areas are protected by high visibility fencing in order to minimise the risk of accidental incursion by machinery and personnel.

2.1.1. Dormouse nest boxes

Prior to any vegetation clearance and constructions works for the link road taking place, thirty dormouse nest boxes will be installed by an experienced ecologist within suitable retained dormouse habitat that is in the woodland Sites of Importance for Nature Conservation (SINC's). Beech Wood East SINC, Cherry Tree Row SINC and Neville's Park East Woodland SINC will each have ten dormouse nest boxes installed. These nest boxes will provide additional nesting opportunities for dormice within the Site. The location of these dormouse nest boxes can be seen in **Figure 15.2 Rev D in Appendix A**, and will be included as part of a Construction and Environmental Management Plan (CEMP). These dormouse nest boxes will be monitored by a dormouse licensed ecologist as part of the five year post-works monitoring period as described in Section 5 below.

2.1.2. Dormouse crossing point (underpass)

A dormouse crossing point (underpass) constructed from meshing with planted native climbers of local provenance, such as wild honeysuckle, will be installed under the new link road bridge over the Hermitage Stream to reinstate the linkage between Beech Wood East SINC and Neville's Park East Wood SINC that will be lost to the new link road. New hedgerows of mixed native species, with particular emphasis on fruiting shrubs of importance to dormice such as hazel, will be planted either side of the bridge in order to maintain habitat connectivity. A drawing showing the design of the proposed road bridge with the meshing can be found in **Figure DHFS1 – ATK – TP25 – BR – DR – S – 0001 in Appendix C**. A photograph of an example of a dormouse underpass is in **Appendix C**. The photograph was taken by Paul Chanin from The Dormouse

³ Email correspondence following consultation of ES received 13/06/2012.

⁴ Email correspondence following consultation of November 2012 Updated Bat Survey Report and received on 11/03/2013.

Monitor Spring 2011⁵. The named ecologist for the Natural England mitigation/development licence for the Link Road Phase will be present during the construction of the dormouse crossing point (underpass).

2.1.3. Dormouse bridge and hedgerow translocation

During detailed design of development Phase 1, if installation of one or more dormouse bridges and/ or translocation of part of hedgerow H3 are required, then details on this mitigation will be added in this section with the next update of this document.

2.1.4. New planting

Compensation measures for dormouse through new planting within the wider Dunsbury Hill Farm development will aim to enhance and create both dormouse nesting habitat and habitat links between Beech Wood East SINC, Cherry Tree Row SINC, Neville's Park East SINC and other suitable dormouse habitat. Planting for the Link Road Phase and Associated Infrastructure can be seen in **Drawing no: 5099849/PLH/LSC/1001 – Rev A Dunsbury Hill Farm Link Road Landscape Proposals in Appendix D.**

Details of planting plans and specifications will be set out in a separate landscape contract document. These will follow the approach described below. The following vegetation planting will be undertaken post construction of the link road, Hulbert Road roundabout and replacement lay-bys, and will be planted during the appropriate planting season (likely to be November - March):

- Buffer planting of woodland edge mix to act as a buffer zone for woodland edges to Neville's Park East and West Wood SINCs;
- Buffer planting of woodland edge mix and inter-planting amongst existing trees on the Highways Agency verge approaching the Hulbert Road roundabout and replacement lay-bys;
- A new hedgerow of mixed native species of local provenance on the west and east verges of the proposed link road from the Hulbert Road entrance;
- New hedgerows of mixed native species of local provenance linking from the road bridge and dormouse crossing point (underpass) to retained dormouse habitat of Beech Wood East SINC, Cherry Tree Row SINC and the scrub habitat of the A3 (M) verge;
- Native climbers of local provenance, such as wild honeysuckle will be planted on the mesh of the dormouse crossing point (underpass);
- Planting of semi-mature pedunculate oaks along the east verge of the proposed link road to replace those which will be lost and;
- Buffer hedgerow planting for the Adder Hedge to protect the adder/reptile hibernacula on the south-east corner of this hedgerow, and to link up with Cherry Tree Row SINC providing habitat linkage for dormice.

All vegetation to be planted for the link road, Hulbert Road roundabout and replacement lay-bys will be maintained in order for it to become established; and the planting will be monitored during the establishment period and any failing/dead plants must be replaced with same native species.

The planting for woodland edge mix and inter-planting will comprise of native woodland species of local provenance, such as but not restricted solely to hazel, field maple, blackthorn, hornbeam, hawthorn, holly, elder, dogwood, wayfaring tree and wild honeysuckle. At each phase, compensatory habitat enhancement and creation will be proportional to the loss expected during that phase. New planting will be carried out as far in advance as possible prior to habitat loss during each phase (except as stated previously during the construction of the link road, Hulbert Road roundabout and replacement lay-bys) and compensation measures will ensure that there is no net loss of habitat during each phase as well as providing measures to ensure that connectivity is maintained and enhanced.

The planting for hedgerow buffer planting will comprise of native species of local provenance, such as hawthorn, hazel, field maple, hornbeam, dogwood, wild privet, beech, wayfaring tree, blackthorn, spindle, and wild honeysuckle.

⁵ People's Trust for Endangered Species (Spring 2011) The Dormouse Monitor

Additional new planting will take place for the subsequent phases of development but the details of the planting are not known at this stage. The planting list will only be known once each phase has reached detailed design stage, and then this document can be updated.

2.2. Bat Mitigation

A Natural England mitigation/development licence for bats related to trees with tag no's 781 and 795 must be in place before any tree felling/vegetation clearance and construction works take place for the link road from Hulbert Road to the Hermitage Stream. Such licence will be submitted to Natural England in early March 2014.

Further bat surveys will be needed for any trees likely to be affected for the Hermitage Stream realignment works within Cherry Tree Row SINC, and also for Phases 1 and 2 of the Site. Following the outcome of these bat surveys then a Natural England mitigation/development licence for bats may be required.

2.2.1. Bat boxes

Prior to the commencement of the felling of trees with bat roost potential, seven Schwegler 2FN woodcrete bat boxes, seven Schwegler 1FF woodcrete bat boxes; and one Schwegler 1FW four seasons' woodcrete bat box will be erected on suitable retained mature trees within Cherry Tree Row SINC and within Neville's Park Wood East SINC (The location of these can be seen in Figure 15.2 Rev D in Appendix A). The location where the bat boxes will be erected is considered to have sufficient distance from the site so that any displaced bats, will not be disturbed by the construction of the link road at this stage or at any later stages of the business park development, although close enough to the site to be within the local range of bats using the site.

The bat box designs have been selected to provide summer and winter roosts appropriate for the common pipistrelle and other species recorded using the Site, such as brown long-eared bats and noctules.

- Schwegler 1FF bat boxes: these boxes are suitable for crevice-dwelling summer roosting bats. They not require cleaning as the opening is located at the bottom.
- Schwegler 2FN bat boxes: they have a domed roof to allow bats to cluster for more insulation. This type of box does not require cleaning as it has a second opening located at the bottom. It is very suitable for woodland species like the Noctule.
- Schwegler 1FW four seasons' woodcrete bat box.

The number of boxes to be used is based on the following formula: three boxes per lost tree roost, and one box per tree with low/moderate bat roosting potential. These bat boxes will provide some alternative roost sites within the site for the duration of the works. It is also planned that these bat boxes remain permanently on site after construction works are completed, and therefore the location of the boxes will need to be considered carefully to avoid future disturbance. If the boxes are used by bats in the future they will become fully protected by European law.

Bat boxes will be installed in pairs or in groups of three boxes per tree, at least 4 m above ground level to avoid any potential vandalism, and will be positioned so that the entrances face south, south-west and south-east.

A limb or section from tree 781 containing features suitable for roosting bats will be assessed by the Named Ecologist or Accredited Agent, and from guidance by the contractor's tree surgeon in order to determine whether it is possible to strap the limb or sections of the limb to a suitable retained tree. If the limb is rotten and there are health and safety constraints with strapping the limb then the limb will not be strapped to the retained tree.

Two Schwegler brick roost bat boxes will be fitted to the Hermitage Stream bridge under the guidance of a suitably experienced ecologist acting as Ecological Clerk of Works.

2.2.2. Bat hop-overs and new planting

Semi-mature native trees, such as hornbeam, will be planted at two locations along the hedgerow H3, firstly at the southern end where the link road will be located between the hotel roundabout and the Wodston Road roundabout, and secondly at the location for the proposed access road through hedgerow H3 into the development plots for Phase 1. These semi-mature native trees will be planted either side of the gaps created by the link road and access road in order to link up with the retained vegetation either side of these gaps. Bats can then use the tree's to fly up and over the roads and carry on along the retained vegetation of hedgerow H3 and Cherry Tree Row SINC.

Buffer planting of native species of local provenance along retained hedgerows and woodland SINC's, along with new planting of native species of local provenance within the habitat creation area, described below and to include woodland edge, scrub, grassland, ponds and strengthening existing hedgerows will provide additional foraging, commuting and potentially roosting habitat for bats.

2.3. Reptile Mitigation

2.3.1. Hibernacula and log piles

Two hibernation sites (Hibernacula) will be created within the habitat creation area in suitable south-facing locations. These hibernacula will be composed of cut logs and branches from some of the felled trees along the link road, along with brash, tree roots and suitable inert hardcore / rubble from other areas of the Site. Turves can be taken from the species-rich grassland to the south-west of the Site (at the location of the footprint of the proposed hotel), and placed on top of these hibernacula and also within other areas of the habitat creation area. The ecologist will be present during the creation of both the log piles and hibernacula.

Log / brash piles and decaying tree stumps with roots will be used within the habitat creation area to provide places for reptiles to bask and shelter, and the decaying tree stumps will also be potential egg-laying sites for grass snakes. These features and the hibernacula will be placed in south-facing areas that are not at risk of flooding. Log/brash piles will also be created in other areas within the Site; namely two suitable areas along the west verge of the link road between Hulbert Road and the Hermitage Stream; and an additional log/brash pile next to buffer woodland planting for Dunsbury Hill Wood to the east of Park Lane and the Phase 2 development plots. Again these log/brash piles will be placed in south-facing areas that are not at risk of flooding.

Tree stumps with roots will be dug out from the route of the link road in June once any hibernating dormice that may be beside or within the tree stumps are active and have moved away into retained adjoining suitable dormouse habitat. The tree stumps will be hand searched for dormice by a suitably experienced and licensed ecologist in accordance with the methodology of the Natural England dormouse mitigation/development licence before they are excavated from the ground.

2.3.2. Precautionary Method of Working

All retained hedgerows and woodland SINC's will be suitably protected by high-visibility fencing in order to avoid accidental incursion by machinery and personnel. These protected areas will be marked on a drawing which will be included in the Construction and Environmental Management Plan (CEMP). A suitably experienced ecologist will be present during all vegetation clearance and soil stripping works on Site to undertake pre-clearance checks and minimise the risk that reptiles or other protected species are present. If reptiles are found then they will be carefully moved by the ecologist to suitable habitat outside the works. Agreement would be reached in advance with the landowner to ensure the management of the receptor site(s) remains suitable for reptiles during the construction phase. The suitably experienced ecologist acting as Ecological Clerk of Works for the Scheme would ensure this agreement with the landowner of the receptor site(s).

Areas identified by the ecologist with reptile potential, such as along the route of the link road and the proposed route of the Hulbert Stream realignment works will be made unsuitable for reptiles using habitat manipulation. Strimming at different levels will encourage reptiles to move into areas of suitable habitat outside the working areas in order to protect the reptiles from harm during construction works. Strimming

works should be undertaken at a time when reptiles are active (March – October) and during suitable weather conditions (dry, sunny and warm (ideally between 8°C and 18°C)).

Due to the presence of adders (which are venomous snakes), the ecologist acting as Ecological Clerk of Works **must** have suitable experience with the safe capture and translocation of adders. Any log piles or potential hibernacula (hibernation sites) will be carefully dismantled by the contractor (using adder bite proof gloves/gauntlets) under guidance by the ecologist and if reptiles are found then they will be carefully moved by the ecologist to suitable habitat outside the works.

2.3.3. Reptile Translocation

Hedgerow H3 will be severed by an access road into the development plots for Phase 1. Low numbers of slow worm and a single adder have been recorded as present at the base of this hedgerow. Prior to the start of work on Phase 1 the approach set out below would be reviewed to ensure that it remains appropriate.

Due to the fact that the hedgerow will be severed and in order to minimise risks of killing or harming reptiles, animals would be relocated outside the footprint of the Proposed Development. The reptiles will be translocated to the habitat creation area. This will be done using reptile fencing and a high density of artificial refugia. The translocation will be undertaken during the active season for reptiles (March – October) and during suitable weather conditions (dry, sunny and warm (ideally between 8°C and 18°C)). Due to the presence of adders (which are venomous snakes), the ecologist **must** have suitable experience with the safe capture and translocation of adders.

The ecologist acting as Ecological Clerk of Works will be present during the hedgerow translocation works to undertake pre-clearance checks for reptiles and other protected species, of the section of hedgerow to be translocated as described in Section 2.1.3 and during subsequent soil stripping for that area. Any reptiles found will be carefully moved by the ecologist to suitable habitat within the habitat creation area, and ideally in the locality of the hibernacula.

2.3.4. New Planting

As noted above in 2.1.4, new hedgerow buffer planting of native species of local provenance, such as hawthorn, hazel, field maple, hornbeam, dogwood, wild privet, beech, wayfaring tree, blackthorn, spindle, and wild honeysuckle, will be planted in the eastern end of the Adder Hedge (Location in Figure 1 Rev A in Appendix B), where there is an existing gap between the hedge and the woodland of Cherry Tree Row SINC. A number of reptiles, including adders were recorded amongst brambles of this hedge during the reptile surveys undertaken for the ES in September and October 2010, and the location was identified as a reptile hibernation site (hibernaculum), a feature which is particularly important for species such as adders⁵.

The buffer planting will protect and enhance this hedge and also provide habitat linkage to Cherry Tree Row SINC. The ecologist will be present during all planting works for the Adder Hedge to ensure that no reptiles are harmed during the planting.

2.4. General Measures to Protect Retained Habitats, Protected Species, and Ecological Enhancements

All retained hedgerows and woodland SINCs will be identified by the ecologist and marked on a drawing showing their locations and this drawing will be included as part of a Construction and Environmental Management Plan (CEMP). These retained hedgerows and woodland SINCs will be suitably protected by high-visibility fencing in order to minimise risks of accidental incursions by machinery and personnel.

All retained trees will be suitably protected using methodology in BS 5837:2012 *Trees in relation to construction* or a later update of this guidance, if available.

⁵ Atkins (March 2012) Dunsbury Hill Farm Environmental Statement Volume 3 Appendix 15.3 Reptile Survey Report

A suitably qualified and licensed ecologist will be present and act as an Ecological Clerk of Works during all vegetation clearance works and soil stripping works. Prior to any works starting, all contractors will be given a tool-box talk by the ecologist on the protected species and habitats on site, particularly dormice and what to do if any of these are found during the works.

The ecologist may be required to be present during construction works, particularly if the presence of a protected species has been identified. If a protected species, such as a dormouse or reptile, is seen during any works, then all works in that area must stop, all personnel/contractors must move away from the immediate area and not touch the animal/s and the ecologist must be contacted for further guidance.

Vegetation clearance will be undertaken outside of the bird breeding season (March to August). During the breeding season, all species of bird, their nests, eggs and young are legally protected by the Wildlife and Countryside Act 1981 (as amended) against disturbance, damage and destruction. If this is not possible then a suitably experienced ecologist must inspect any bird-nesting habitat for nesting birds within 24 hours prior to the start of clearance works. If breeding birds are found the Contractor shall not undertake clearance works until the nest is no longer in use. Any active nests (in use or being built) that are discovered must be suitably protected from damage, and the ecologist must be contacted to determine the width of the protection zone of undisturbed habitat around the nest that needs to be in place until the birds have fledged and the nest becomes inactive (as confirmed by the ecologist). The exclusion zone will be clearly marked stating its purpose and that no clearance of vegetation within the zone is permitted until further notice is given. Some species of bird have higher legal protection (Schedule 1) and are more sensitive to disturbance so the width of the protection zone will differ depending on the species and therefore advice must be sought from the ecologist.

Standard measures such as covering open trenches at night will be undertaken by the contractor to prevent injury and death of badgers, deer, reptiles, foxes and other wildlife.

If holes / burrows for other species (e.g. fox or rabbit) are discovered, care will be taken to avoid inhumane killing. Under the Wild Mammals (Protection) Act 1996 it is an offence to intentionally inflict unnecessary suffering to any wild mammal.

No ecological mitigation/enhancement features, such as dormouse nest boxes, bat boxes or reptile hibernacula will be interfered with, other than by or in the presence of a suitably licensed ecologist.

All new buffer planting for retained hedgerows, woodland SINC's and newly created habitat planting will be suitably protected during all construction works by high-visibility fencing in order to prevent accidental incursions by machinery and personnel. In addition, tree with tag no 795, a confirmed bat roost, will also be protected during all construction works using chestnut-pale fencing, in compliance with the bat mitigation licence for the link road phase.

Two grey wagtail nest boxes will be fitted to the Hermitage Stream bridge to provide additional habitat for this Amber List Bird Species of Conservation Concern⁷. An ecologist will be present during the installation of the grey wagtail nest boxes and will act as Ecological Clerk of Works.

2.5. Replacement planting of oak trees lost to the link road

Semi-mature pedunculate oaks will be planted along the east verge of the link road to replace those which will be lost. These will be planted by the contractor in suitable conditions between November to March post-construction of the link road. These trees will be maintained in order for them to become established; and the planting will be monitored during the establishment period and any failing/dead trees must be replaced with pedunculate oaks of the same age as those being replaced. Planting for the Link Road Phase and Associated Infrastructure can be seen in **Drawing no: 5099849/PLH/LSC/1001 – Rev A Dunsbury Hill Farm Link Road Landscape Proposals in Appendix D.**

⁷ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341.

2.6. Woodland edge buffer planting for woodland SINC

Woodland edge planting will be undertaken by the contractor in suitable conditions between November to March as part of the landscape works for the Phase 1 development plots. This planting will be undertaken prior to any construction works for the Phase 1 development plots. All vegetation to be planted will be maintained in order for it to become established; and the planting will be monitored during the establishment period and any failing/dead plants must be replaced with the same native species. Further information on woodland edge buffer planting for the woodland SINC will be provided at the detailed design stage for the Phase 1 development.

3. Habitat Creation Area

To the north of the planning application boundary is an area of land that lies between Beech Wood East SINC to the west, A3 (M) and the highways verge to the north and Park Lane to the east. This land is within the ownership of Portsmouth City Council and is currently a fallow arable field (Approximately 3 ha) with two defunct hedgerows dominated by hawthorn and interspersed with the occasional mature pedunculate oak tree along its south and east boundaries. This field will be a Habitat Creation Area and the location of it can be seen in **Figure 15.2 Rev D in Appendix A**.

The Habitat Creation Area will comprise of the following habitat and enhancement features;

- Woodland edge buffer planting of native species of local provenance, such as hazel, hornbeam, field maple, silver birch, elder, blackthorn, hawthorn, dogwood, beech, pedunculate oak, spindle, wayfaring tree, holly and guelder rose; which will be planted as a buffer adjoining Beech Wood East SINC;
Hedgerow planting of native species of local provenance to strengthen the existing hedgerows which lay along the south (Hedgerow H2) boundary and the east (Park Lane) boundary. Hedgerow species to include hawthorn, hazel, field maple, hornbeam, dogwood, wild privet, beech, wayfaring tree, blackthorn, guelder rose, spindle, and wild honeysuckle, and to include some parts of the translocated hedgerow H1 as described in Section 2.1.3;
- Native species-rich grassland mix of local provenance to be seeded and includes; yarrow, common knapweed, wild carrot, lady's bedstraw, ox-eye daisy, salad burnet, selfheal, meadow buttercup, common sorrel, red campion, bladder campion, common bent, crested dogtail, smaller cat's tail and slender creeping red fescue.
- Translocated grassland turves from the proposed location of the hotel (part of the Phase 1 development plots); which also contain common spotted orchids;
- Two reptile hibernation sites (hibernacula) to be placed in south-facing locations along the fence line of the highways boundary fence to the A3 (M) verge. The details for the hibernacula are described previously in Section 2.3.1;
- Two log/brush piles along with decaying tree stumps with roots to be placed in south-facing locations and are also described previously in Section 2.3.1; and
- Two ponds to be created in suitable locations that are away from overhanging trees and will be planted with native wetland/marginal species of local provenance; such as water forget-me-not, water mint, water milfoil, yellow flag iris, water starwort, frogbit, floating sweet grass, ragged robin and marsh marigold.

The reptile hibernacula and log/brush piles will be created following the felling of trees along the link road, and the decaying tree stumps with roots will be placed in the habitat creation area following their excavation in June (as described in Section 2.3.1). Woodland edge and hedgerow planting will be undertaken by the contractor in suitable conditions between November to March, and species-rich grassland seed shall be sown either in autumn (1st September – 31st October) or spring (1st March – 30th April), as described in the Dunsbury Hill Farm Works Information and Series 3000 Appendices⁸. Species lists also taken from Dunsbury Hill Farm Series 3000 Appendices – Landscape and Ecology.

⁸ Atkins 2014 Dunsbury Hill Farm Volume 3 Works Information - Environment and Volume 4 Series 3000 Appendices – Landscape and Ecology

The natural ponds will be created before planting and seeding takes place to ensure that no plants or seeds are damaged. The creation of the ponds and the planting, seeding and translocation of turves will be undertaken as part of the works for the Phase 1 development plots. All vegetation to be planted will be maintained in order for it to become established; and the planting will be monitored during the establishment period and any failing /dead plants must be replaced with the same native species.

The species-rich grassland will be maintained by two cuts undertaken during the first growing season, using appropriate machinery. Where wheeled vehicles are used they must be fitted with low pressure tyres. All arisings from the species-rich grassland are to be removed from site. A corridor of suitable grassland and scrub habitat of approximately 3 m must be kept to provide a protective barrier for the reptile hibernacula and log/brush piles during grassland cutting. This management methodology is described in the Dunsbury Hill Farm Works Information and Series 3000 Appendices – Landscape and Ecology.

All vegetation to be planted will be maintained in order for it to become established; and the planting will be monitored during the establishment period and any failing /dead plants must be replaced with the same native species.

4. Habitat Management and Maintenance

Comment [w1]: Can you refer to another document eg a maintenance schedule that will be need to be created in the planting contract to cover the maintenance during the establishment period?

4.1. Beech Wood East SINC

A woodland management plan for Beech Wood East SINC (which would be incorporated as part of the habitat management plan for the detailed design stage for development Phase 1) will be prepared by a suitably experienced ecologist and the agreed measures implemented. This woodland management plan will include details of how this ancient woodland will be managed to ensure the enhancement and long-term survival of the habitats present. Portsmouth City Council, as land owner, will be consulted in order to agree any management methods for this woodland. Management will aim to maintain a healthy ancient woodland habitat, maintain canopy linkages and increase species and structural diversity. Details will be provided in the woodland management plan.

Comment [w2]: Dear all – I am awaiting answers to all the comments related to landscape maintenance schedule, landscape monitoring and maintenance plan and responsibility for replacing damaged or failed plants from Atkins Landscape Architect. As soon as I have them then I can amend this document and send out to all parties. I will email the answers to all parties prior to amending and re-sending this document.

4.2. Hedgerows

New hedgerows, the translocated hedgerow section (H3) (if applicable to development Phase 1), and additional buffer planting of existing retained hedgerows will be managed to maintain and enhance species and structural diversity, which will benefit dormice. If any plants need to be replaced due to damage or failure, then the same native species will be replanted by the Contractor.

Comment [w3]: Yes, these need to be moved from monitoring to maintenance. Can you get landscape architect to skin through the whole of that section as well as looking at these details?

The newly planted hedgerows will be allowed to establish for at least five years. During this time they will be checked on a yearly basis to check growth and establishment of shrubs. If necessary, weed control (through spot spraying) will be carried out twice a year (early/mid spring and late summer). The newly planted hedgerows will only be cut once they are substantial enough (this may take longer than five years). Hedgerows (including new hedgerows once substantial enough and existing hedgerows) will be cut annually or once every two years. Ideally only one side of the hedgerow will be cut each year. This will be completed outside of the bird breeding season (which runs from March to August).

Comment [CD4]: Same comment as above – see what the LA says

4.3. Bat hop-overs

The semi-mature native trees that will act as bat hop-over's will be checked as part of the landscape monitoring and maintenance plan to ensure that they have established. If they need to be replaced due to damage or death of the trees, then the same semi-mature native species will be replanted by the Contractor.

Comment [CD5]: The wording is fine, but I'm not sure if it will down to the contractor to do this. Could you ask the landscape architect to see how they deal with landscape planting failure and who is usually responsible for replacing things?

5. Ecological Monitoring

5.1. Dormice

5.1.1. Dormouse nest boxes

The dormouse nest boxes will be monitored twice a year (spring and autumn) for the duration of the construction period (2014 and 2015) of the link road and Phase 1 by a licensed ecologist, and monitoring of dormouse nest boxes and mitigation measures will continue for 3 years from 2016 as part of the 5 years post-works monitoring. Any damaged or missing dormouse nest boxes will be replaced.

5.1.2. Dormouse crossing point (underpass)

Monitoring of the dormouse underpass will be undertaken as part of the Natural England development licence using an infra-red camera or other suitable method by a suitably qualified ecologist to determine whether dormice are using the meshing and vegetation structure under the bridge. The monitoring will be incorporated in the CEMP and will be undertaken during the post-works monitoring period of 5 years.

5.1.3. Dormouse bridge

If a dormouse bridge is installed, it is anticipated that monitoring of the use of the dormouse bridge will be undertaken as part of the Natural England development licence that will be submitted for that phase of the development (Phase 1 – 2015 – 2016) using an infra-red camera or other suitable method by a suitably qualified ecologist to ensure that dormice connectivity is being maintained across the link road and access road, and to determine whether dormice are using the dormouse bridge. The monitoring will be incorporated in the CEMP and will be undertaken during the post-works monitoring period of 5 years.

5.2. Bats

5.2.1. Bat boxes

To assess the success of mitigation, a licensed bat worker appointed by Portsmouth City Council will carry out the checks of the bat boxes. The methodology used to undertake the bat box monitoring will follow the guidelines stated in *The Bat Workers Manual* (Mitchell-Jones & McLeish, 2004⁹ and BCT's *Bat Surveys Good Practice Guidelines* 2nd Edition (2012)¹⁰.

The monitoring will be undertaken annually during the construction phase of the link road (i.e. from 2014 to 2016), and also during the following two years post-construction to monitor success during the establishment period. This will equate to 5 years of monitoring from 2014 to 2018 inclusive.

The monitoring will involve a single visit in September to each of the bat boxes that have been erected; the presence of bats or evidence of use by bats will be recorded. The timing of the inspections of the bat box and strapped sections of tree(s) is designed as to not disturb bats during the sensitive breeding and hibernation periods.

Records of bats will be passed to the local biological records office (Hampshire Biodiversity Information Centre) and the local bat group (Hampshire Bat Group). The information gathered will enable the effectiveness of the mitigation measures to be assessed in relation to the overall development. It will also provide data and enable ongoing population trends to be evaluated in relation to species distribution for bats within the local area.

If any bat boxes are damaged or vandalised during the monitoring period, the boxes will be replaced and the locations of the replacement bat boxes will be reviewed to ensure that future damage/vandalism is minimised.

⁹ Mitchell-Jones A. J. (2004) Bat Mitigation Guidelines. English Nature

¹⁰ Hundt. L. (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust

[illegible]

2015 - Link Road Phase												
Activity	January	February	March	April	May	June	July	August	September	October	November	December
Dormouse box monitoring												
Bat box monitoring												
Installation of dormouse underpass, bat brick and grey wagtail boxes in Hermitage Stream bridge (Indicative only)												

2016 - Link Road Phase												
Activity	January	February	March	April	May	June	July	August	September	October	November	December
Dormouse box monitoring												
Bat box monitoring												
Planting for link road, bridge, Hulbert Road roundabout and replacement lay-bys												

Deleted: Dunsbury Hill Farm

Deleted: Habitat Management and Maintenance Plan (Link Road and Associated Infrastructure Phase)

2016 - Development Plots Phase 1 and Hotel												
Activity	January	February	March	April	May	June	July	August	September	October	November	December
Dormouse box monitoring												
Bat box monitoring												
Translocation of turves from hotel plot to Habitat Creation Area												
Planting for Habitat Creation Area and creation of natural ponds												
Buffer planting of Beech Wood East SINC, Cherry Tree Row SINC and all retained hedgerows												
Translocation of section of Hedgerow H3 and subsequent translocation of any reptiles found during hedgerow translocation												
Installation of dormouse bridge and planting of native semi-mature trees at proposed access point in Hedgerow H3												

Comment [w6]: Who is going to write the maintenance schedule for all this new planting? Is this a separate document we can refer to?

Comment [w7]: Dear all -- I am awaiting answers to all the comments related to landscape maintenance schedule, landscape monitoring and maintenance plan and responsibility for replacing damaged or failed plants from Atkins Landscape Architect. As soon as I have them then I can amend this document and send out to all parties. I will email the answers to all parties prior to amending and re-sending this document.

2017 and 2018 - Ecological Monitoring												
Activity	January	February	March	April	May	June	July	August	September	October	November	December
Dormouse box monitoring												
Bat box monitoring												
Dormouse underpass and dormouse bridge monitoring												

~~Dunsbury Hill Farm~~

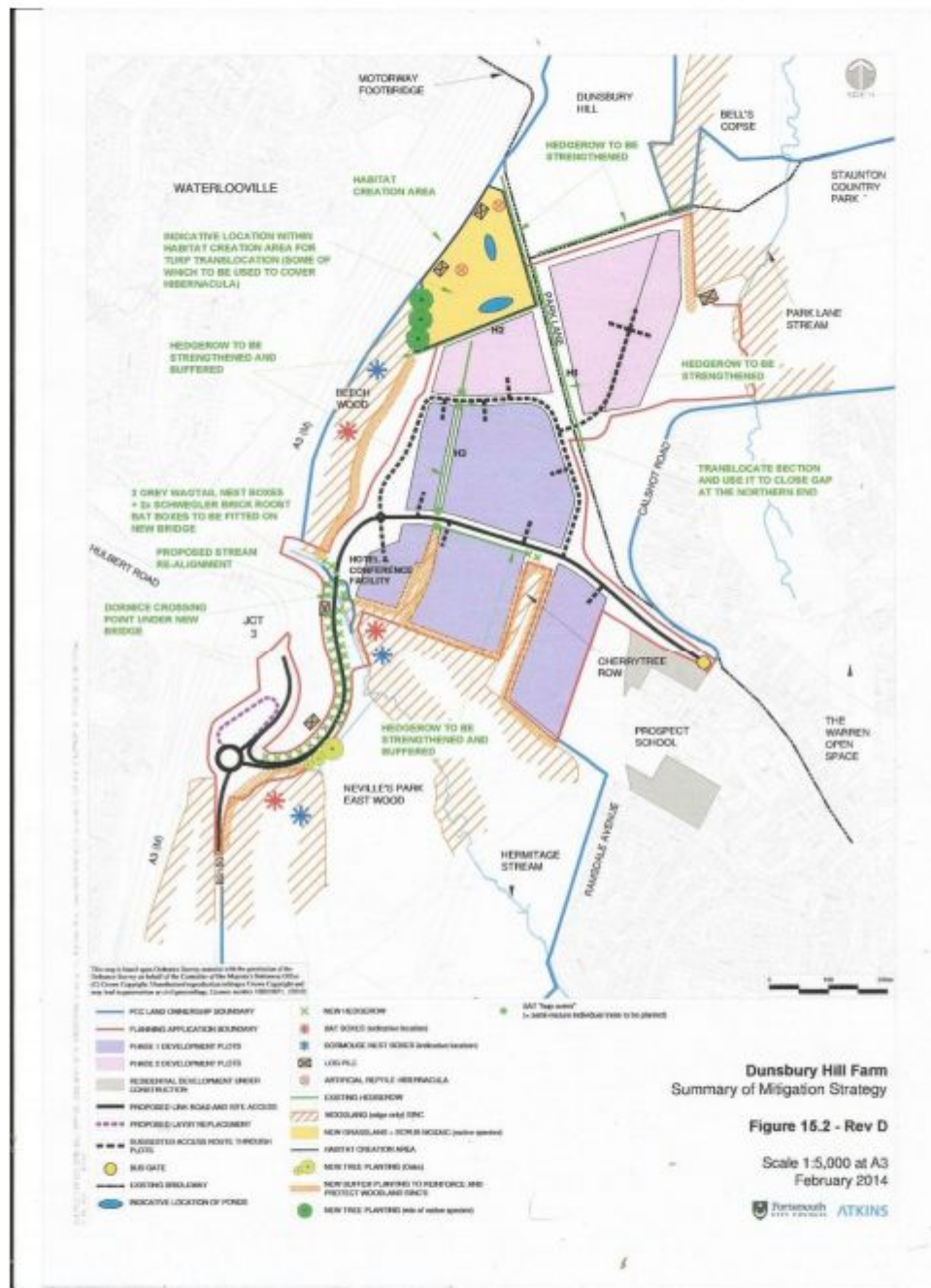
~~Habitat Management and Maintenance Plan (Link Road and Associated Infrastructure Phase)~~

Deleted: Dunsbury Hill Farm

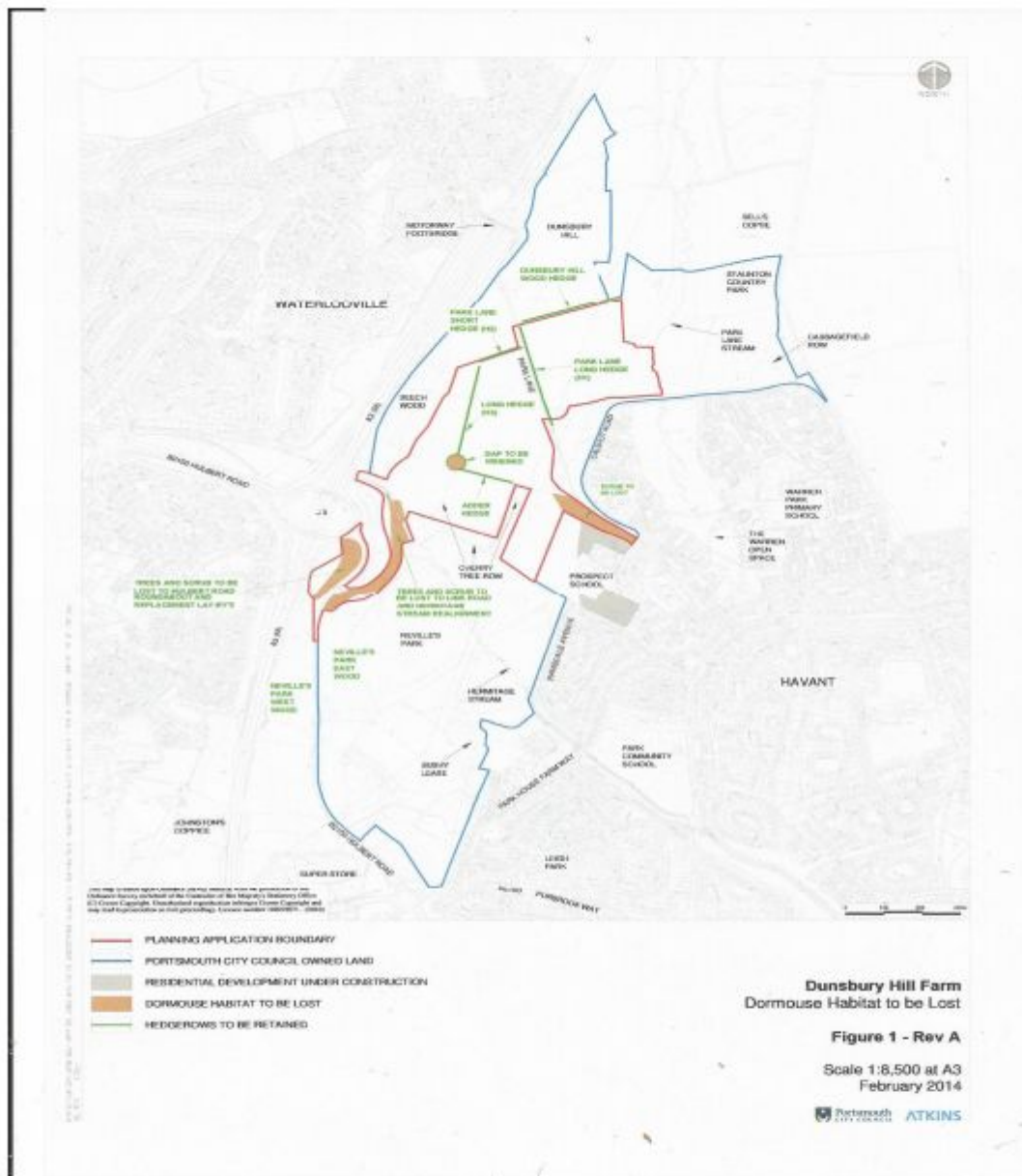
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and Maintenance Plan (Link
Road and Associated
Infrastructure Phase)

APPENDICES

Appendix A. Figure 15.2 Rev D. Dunsbury Hill Farm – Summary of Mitigation Strategy



Appendix B. Figure 1 Rev A Showing location of all hedgerows and woodland SINCs



Appendix C. Drawing of Dormouse Crossing Point (Underpass)

C.1. Drawing no DHFSI – ATK – TP25 – BR – DR – S – 0001 Rev A



C.2. Photo of example of dormouse underpass below taken by Paul Chanin for The Dormouse Monitor Spring 2011 People's Trust for Endangered Species (PTES)



Photo courtesy of Paul Chanin

Appendix D. Drawing of Landscape Planting Proposals for Link Road and Associated Infrastructure

D.1. Dunsbury Hill Farm – Link Road Landscape Proposals Revision A

Appendix E. Ecological Background

E.1 Environmental Statement

An Environmental Statement (ES) was produced by Atkins Limited and published in March 2012¹¹. Data gathering was undertaken to find the following features;

- All statutory designated sites of importance to nature conservation and ancient woodlands within 2 km of the Site;
- All statutory designated sites of importance to nature conservation that are downstream of the Site;
- All Special Areas of Conservation (SACs) designated specifically for bats within 30 km of the Site;
- All water bodies within 500 m of the site, in order to establish if the Site could be used as terrestrial habitat for great crested newts, a European protected species that uses terrestrial habitat up to 500 m from their breeding ponds;
- All protected species records within 1 km of the Site boundary, except for bats where a radius of 5 km was used;
- All Sites of Importance for Nature Conservation (SINCs), which are locally designated non-statutory sites, protected by planning policies at a local authority level, within 2 km of the Site boundary; and
- All priority habitats and species of principal importance that may be present within the zone of influence.

Ecological surveys were carried out for the ES. An extended Phase 1 habitat survey of the Site and its immediate surrounds was undertaken, broadly following the 'Extended Phase 1' methodology¹². The extended Phase 1 habitat survey provides information on the habitats in the survey area and assesses the potential for protected/notable fauna to occur in or adjacent to the Site. Surveys were carried out of vegetation within fields in the south of the Site that will be directly affected by the construction of the link road using the National Vegetation Classification as described in Rodwell¹³. Five hedgerows that are within the Site or on the boundary were inspected in relation to the 'wildlife and landscape' criteria set out in Schedule 1 of the Hedgerow Regulations 1997. A search for evidence of the presence of non-native invasive plant species, including Japanese knotweed, Himalayan balsam and giant hogweed was carried out within the Site or on the boundary.

Species surveys were carried out for great crested newts, reptiles, dormice, bats, otters, water voles, badgers, breeding birds and wintering birds.

The ES has been accepted by Portsmouth City Council, the planning authorities and statutory consultees. The recommendations set out in the ES will be delivered, including mitigation, compensation and enhancement works. It is also necessary to ensure that all legal requirements with regard to protected species are dealt with appropriately.

E.2 Additional Ecological Work Following Consultation

During consultation with Hampshire County Council's Ecologists Peter McKeon¹⁴ and Tristan Norton¹⁵ further bat surveys (undertaken in September/October 2012 and July 2013) and a dormouse mitigation strategy were requested. The bat surveys targeted the series of predominantly mature pedunculate oak trees that lie along the route of the proposed link road and the proposed roundabout and new lay-bys between Hulbert Road and the Hermitage Stream.

Bat surveys undertaken in September/October 2012

The bat surveys undertaken in September/October 2012 included; tree inspections using visual ground and climbing surveys and a dusk emergence/dawn re-entry transect survey, and were undertaken in order to gain an understanding of how bats use the habitats along this route, and whether any of the trees had evidence of usage as bat roosts¹⁶. The dusk emergence and dawn re-entry transect survey along the

¹¹ Atkins (March 2012) Dunsbury Hill Farm Environmental Statement Volume 1 Chapter 15 Ecology

¹² Institute of Environmental Assessment, 1995. *Guidelines for Baseline Ecological Assessment*.

¹³ Rodwell, J.S. (ed.) (1992) *British Plant Communities Volume 3: Grasslands and montane communities*. Cambridge University Press

¹⁴ Email correspondence following consultation of ES received 13/06/2012.

¹⁵ Email correspondence following consultation of November 2012 Updated Bat Survey Report and received on 11/03/2013.

¹⁶ Atkins (November 2012) Dunsbury Hill Farm Updated Bat Survey Report.

proposed route of the link road and roundabout revealed bat activity amongst groups of mature oak trees in the pasture and along the edge of the Hermitage Stream adjoining the woodland edge of Cherry Tree Row SINC.

At least three species of bats were recorded using the site during the transect survey in 2012, namely common pipistrelle, noctule, and a *Myotis* species. The species most recorded was the common pipistrelle whilst the noctule and *Myotis* species were only recorded sporadically. Recordings along this transect showed that the woodland edges and scrub/grassland margins to the Hermitage Stream provided important foraging grounds for bats. The scrub/grassland margins to the Hermitage Stream will be lost to the Scheme however, the woodland edges along the Hermitage Stream will not be lost to the Scheme.

The following trees with tags were assessed by the two surveyors as having low or negligible bat roosting potential from the ground inspections and were not climbed; 771; 772; 775; 776; 784; 746; 749; 598; and 830. The following trees with tags were assessed by the two surveyors as having low bat roosting potential from the climbing inspections; 773; 751; 837; 822; and 679. The other trees (782; 783; 746; 878; 3027; 3028; 834; and 3001) were assessed as having negligible potential following climbing inspections. The climbing inspections found no direct evidence of bats within the features inspected.

Bat surveys undertaken in July 2013

The requirement to carry out further bat survey works was identified, following a number of initial surveys on all trees to be affected by the works, carried out by Atkins in September/October 2012 and described previously, and submission of a preliminary report. As a result of the preliminary report, it was recommended that ground level tree inspection surveys should be carried out on a number of pedunculate oaks (tree tag numbers 815, 825, 807, 781 and 790). In addition it was recommended that a sampling survey, comprising a dusk emergence and dawn re-entry survey, be carried out on trees in Group 2 (tree tag numbers 781, 782, 783, 784, 776, 772, 773, 774 and 775), trees in Group 5 (tree tag numbers 746, 749, 750, 751, 751) and on two standing dead trees (tree tag numbers 794 and 794). The Tree Group numbers were taken from the Arboricultural Survey Report¹⁷ and drawings undertaken by Atkins and submitted as part of the ES. The bat surveys undertaken in July 2013 are detailed in a report by ECOSA Ltd¹⁸.

During the ground level tree inspection one pedunculate oak was found to have negligible potential for roosting bats, two were found to have low potential and two were found to have moderate potential for roosting bats. During the surveys four species of bat; common pipistrelle, soprano pipistrelle, long-eared species (sp.) bat, *Myotis* sp. and noctule bat, were recorded across the site. The sampling surveys identified the possible emergence of a single common pipistrelle from tree 795, and the re-entry of two common pipistrelles into tree 781. No bats were seen to emerge from any of the other trees surveyed.

The level of bat activity at the site was relatively low on both survey visits, considering the suitability of the habitat on site. It is possible that bats are attracted to the woodland adjacent to larger areas of rough grassland to the south-east of the site, which may provide better foraging opportunities. Common pipistrelle, soprano pipistrelle, long-eared sp. bat, *Myotis* bat species and noctule bat were recorded commuting and foraging on site. The species identification was confirmed through call analysis using Sonobate® (v2.9.7). For the single *Myotis* bat species the characteristics of the call did not clearly fit the echolocation parameters of a particular species. However, the characteristics of a Daubenton's bat call are considered to be the best profile "match" of the *Myotis* bat species which was recorded during the dusk survey on the 3rd July 2013. None of the calls which were analysed from the dusk and dawn surveys fit the profile of a Bechstein's bat.

Dormouse Mitigation Strategy

A Dormouse Mitigation Strategy Technical Note was produced in August 2013 and included background information to the proposed development; the status of dormice on site; and separated the mitigation strategy for the proposed link road and the wider development for employment uses and hotel¹⁹.

¹⁷ Atkins (March 2012) Dunsbury Hill Farm Development, Havant, Hampshire. Tree Survey Report.

¹⁸ ECOSA Ltd. (August 2013) Dunsbury Hill Link Road, Havant, Hampshire. Phase 2 Bat Survey.

¹⁹ Atkins (August 2013) Dunsbury Hill Farm. Dormouse Mitigation Strategy Technical Note.

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