Ecological Mitigation and Management Plan

Land West of Marsh Barn Lane, Lancing (New Monks Farm Development) – Residential Phase 2

The Ecology Partnership, Thorncroft Manor, Thorncroft Drive, Leatherhead, Surrey KT22 8JB
T +44 (0) 1372 364133 E info@ecologypartnership.com W ecologypartnership.com

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LIABILITIES:
Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on a site at a later date.

The views and opinions contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

1.1 The Ecology Partnership was commissioned by CALA Homes to issue an Ecological Mitigation and Management Plan (EMMP) for the residential phase 2 at land west of Marsh Barn Lane at Mash Barn Estate, Lancing, West Sussex.

1.2 The site is located in Lancing, east of Worthing. It is bordered by newly built residential housing to the west, a football club and pitches to the south, with the development of the rest of the wider New Monks Farm development, which is under construction again to the south, east and north. This includes the development of a large Country Park. The site does not fall within any designated sites, however there are several within a 2km radius; including four Local Nature Reserves (LNR) and Adur Estuary Site of Special Scientific Interest (SSSI). There are no significant areas of woodland or ancient woodland in the wider landscape. The dominant habitat on site is semi-improved grassland/abandoned arable land.

1.3 The approximate red line boundary of the site is shown below in Figure 1.



Figure 1: Approximate red line boundary of the site

Description of Proposed Development and Planning Permission

1.4 Planning permission for the wider New Monks Farm development was granted on 4th February 2020 subject to a number of conditions. This was for a hybrid application which includes the red line boundary (above) and the adjoining site to the east and west. The planning permission covered an outline planning permission for the site for the erection of a further 351 dwellings:

"Hybrid planning application seeking (1) Full planning permission for the demolition of existing buildings and erection of 249 dwellings with temporary access via Grinstead Lane, a Country Park, relocation and extension of the Withy Patch Gypsy and Traveller site, permanent access via a new roundabout on the A27, landscaping, two additional football pitches and other associated infrastructure (including pumping facility at the River Adur); (2) Outline planning permission (with only landscaping reserved) for a non-food retail store (Use Class A1); and (3) Outline planning permission (with all matters reserved other than access) for the erection of a further 351 dwellings, community hub, primary school, and landscaping. The application is accompanied by an Environmental Impact Assessment."

1.5 The planning reference of the planning application is AWDM/0961/17. In addition, a series of EMMP documents were produced for different sections of the scheme to discharge Condition 14:

"No Phase of the development shall commence until an Ecological Mitigation and Management Plan (EMMP) for that phase has been submitted to and approved in writing by the Local Planning Authority. The EMMP shall incorporate the recommendations of Chapter 11 of the Environmental Statement dated June 2016 and its appendices, and Chapter 11 of the Further Information to the Environmental Statement dated December 2017 and its appendices."

1.6 With an EMMP approved for the wider New Monks Farm site, which included the red line boundary, much of the clearance and ground preparation for residential phase 2 has been undertaken in line with this document. The first phase of residential development, on this and the neighbouring land parcel, as well as the areas further east of the adjoining site above Shoreham airport and involving the pumping station construction and tidal wall modification area are covered by separate EMMP documents.

1.7 Since this work was undertaken a full new planning application (AWDM/0021/22) has been submitted for the residential phase 2 on site with Adur & Worthing Councils. The application is for:

"Erection of 385 dwellings and Community Hub (Flexible Class E/F1/F2 use) along with associated access, landscaping, car parking and public open space (an increase of 34 dwellings from the outline approval of 351 dwellings"

1.8 As part of the consultation comments received, Natural England requested an updated EMMP document for the revised scheme, specific to the residential phase 2 only. As such this document has been produced to support the planning application.

1.9 The initial baseline for survey information has been taken from the previous work undertaken on site by The Ash Partnership Ltd which was undertaken to support the hybrid planning application and outline application for the site (AWDM/0961/17). In addition, update information taken from the ES chapter for Ecology and associated site walkover undertaken by The Ecology Partnership Ltd in 2021, is also used. Mitigation

recommendations are based upon the recommendations of Chapter 11 of the Environmental Statement dated December 2021 comprised by The Ecology Partnership Ltd as part of the submission of the new full planning application based on the updated baseline.

1.10 Extensive mitigation has been undertaken on site as part of the hybrid application in line with the development of the wider site. This includes:

- A reptile translocation of the area undertaken in 2019 and 2020. Following an agreed number of trapping sessions with no capture, areas of the site was subject to sensitive vegetation cutting and a destructive search under ecological supervision. This work was undertaken by The Ash Partnership working alongside The Ecology Partnership
- Removal of European eel and other fish species from any existing waterbodies, by APEM Ltd through electo-fishing under relevant licences. Fish species were translocated to a suitable receptor site away from the development area.
- Removal of nesting bird habitat as required outside of nesting bird season (March – September inclusive) or following breeding bird survey or nesting bird checks as required undertaken by The Ash Partnership working alongside The Ecology Partnership.
- The new watercourses on site have been formed and planted with translocated existing marginal vegetation from watercourses that were lost as part of the wider site. This included sections of reed bed, this has begun to establish.

2.0 Roles and Responsibilities

Purpose and Objectives

2.1 The aims, objectives, and use of this document is to provide detailed information regarding the safe guard of ecologically important habitats around the site and to ensure that no wildlife is harmed by the development and that the legal protection status of species is upheld and adhered to. This document describes the mitigation, monitoring and audit processes that would be implemented to ensure works are being undertaken in accordance with these requirements, together with measures to ensure that appropriate corrective actions or mitigation measures are taken.

The Role of The Ecology Partnership's Ecologists

2.2 The Ecology Partnership (or alternative appointed site ecologist) will be on site when appropriate to monitor work so that no wildlife comes to harm and to provide advice to site workers about best practices. The Ecology Partnership's duties include, but are not limited to;

- Monitoring site works;
- Provision of status reports and updates as necessary;
- Provision of advice and liaison with workers on site as necessary;
- Identifying environmental risks and developing appropriate environmental controls;
- Delivery of environmental training for site personnel and sub-contractors;
- Liaison with Client.

If an occasion arises which requires advice about a wildlife issue, then The Ecology Partnership can be contacted on: **01372 364 133**

Site Workers

2.3 It is expected that all site workers will act responsibly whilst on the development site and adhere to wildlife protection zones. All site workers will be briefed on ecological issues with regards to fence lines and protection zones and timings. All site workers will receive a tool box talk (TBT) with relation to breeding/nesting birds that may be found on the site.

All site workers are expected to:

- Dispose of litter in the litter bins provided;
- Report fence damage immediately;
- Report any protected species found within the construction work areas.

Under **NO** circumstances must site workers:

- Clear any hedgerows, scrub or trees except under the supervision or permission of the ecologist;
- Dump material in fenced off areas/ uncleared areas and 'wildlife protection zones';
- Move or damage fences;
- Enter fenced off areas ('wildlife protection zones');
- Have fires or store materials in areas not previously agreed;
- Handle or catch animals (unless the animal is in immediate danger);
- Remove or disturb wildlife boxes.

2.4 If any site worker is unsure of any of the above points then they must refer to the site manager or the site ecologist.

2.5 It is considered that the site manager is responsible for the day-to-day monitoring of fence lines/ any tree protection fencing which is to be established around the site prior to site works. If the site manager has any concerns in relation to the fence line or indeed to other habitats or protected species, then the site manager must contact a suitable qualified person. The Ecology Partnership is happy to provide advice and will be happy to work with the site manager.

3.0 Badger Mitigation

Summary of Previous Work

3.1 In November 2016 (and previously in 2011), Badger Trust Sussex provided background records of badgers from within the 2km radius surrounding area, and this was found to cover the period 1999 to 2003. The results can be summarised as follows:

- Setts confirmed to the north-west of the application site, to the north of the A27 main road, as well immediately west of Mash Barn Lane. Badgers have also been recorded from Shoreham Airport to the south- east.
- Badger road traffic accidents (RTAs) include (i) along the A27 in 2002 and (ii) from a former railway crossing to the south of the site.

3.2 Land to the south of the application site was surveyed for badgers in March, April and September 2011 but no setts were found. Evidence of badger movement was noted in April and September 2011 along the south- side of Mash Barn Lane, west of Daniels Close, and this included runs and two latrines as well as badger feces along the field boundary.

3.3 Results of targeted surveys for badger in October 2016 by The Ash Partnership, have confirmed the presence of a sett to the west of the application site, approximately 50m west of Mash Barn Lane. A single individual appears to be foraging intermittently within the application site, as evidenced by foraging marks and faeces.

3.4 A walkover was undertaken of the site on 20th October 2021 by The Ecology Partnership. No signs of evidence of use by badgers were observed.

Pre-Construction

3.5 An update walkover badger survey will be conducted to provide an up-to-date assessment on the level of use of the site by badgers. This will include any previously un-surveyed habitat that was not accessible during initial survey work.

3.6 In addition to an update survey, any areas of thicker vegetation on site which may not have been accessible for initial survey will be cleared sensitively. If any suspected badger setts are discovered either during clearance work, or the update survey, site visits or by

site operatives, further survey work will be required to establish whether the structure is in use by badgers.

3.7 If an active badger sett is recorded on site then either a buffer around the sett or sett closure would be required. If sett closure is needed, a licence from Natural England must be applied for. Monitoring of the sett and identification of the sett status would be a requirement of the licence application. If no badger activity or setts are identified, then no further survey work would be required.

3.8 Dependent on the results of the update badger survey, then further surveys may well be required to secure a Natural England licence to close the setts, if required. If setts are identified, dependent on their nature and location, they may be able to be incorporated in to the design / scheme of the site. This will be assessed prior to any works or any decision to close setts. Timing restrictions apply to sett closures which are generally not permitted for closure during breeding season and therefore must be monitored and closed in the period of July – November inclusive.

3.9 Pre-construction works would include, but not be limited to:

- Updated surveys;
- Potential fencing off sensitive areas with Heras fencing;
- Securing a Natural England badger licence if necessary; and
- Sett closure under licence.

During Construction

3.10 As badgers are known to be present in the wider landscape there are a number of best practice guidelines, which should be followed when working in the vicinity of known badger setts.

3.11 Any trenches or excavations on site should be either covered over at night or a plank of wood placed in so as to allow any mammals to escape if the badgers were to accidentally fall in. Any open pipes or conduits laid should be blocked off each night to prevent badgers from entering them.

3.12 No food should be left on site within the construction area that might attract badgers present in the area. Food waste on site should be disposed of in sealed bins or containers.

3.13 Construction work should only take place between dawn and dusk with no late evening work. This will reduce possible disturbance to badgers as they emerge to forage and also reduce the risk of traffic casualties from late working site traffic.

3.14 All site workers will be informed of any known badger setts. Site workers must be informed that, by law, they must not:

- Interfere with setts;
- Dump equipment or litter in badger holes;
- Have fires next to badger holes;
- Damage or destroy setts

3.15 All site workers should be informed that if any badger, or other mammal, holes or a confirmed badger sett are identified during works then works must cease and a suitably qualified ecologist consulted. Further badger surveys may need to be completed to identify the size and type of sett.

Monitoring and Management

3.16 Monitoring of activity across the site for badgers will occur during the construction process. Any further monitoring that is required as part of Natural England mitigation licence will be agreed with Natural England.

4.0 Reptile Mitigation

Summary of Previous Work

4.1 Surveys between May to July 2011 recorded Common Lizard *Zootoca vivipara*, Slow Worm *Anguis fragilis* and Grass Snake *Natrix natrix* populations in the field to the south of the application site, a field that connected with the western ex-arable field. This area was subjected to a reptile translocation exercise and the capture populations were moved to an ex-situ receptor site approximately 2km to the north at Lancing College.

4.2 Subsequently, a targeted reptile survey by The Ash Partnership UK Ltd. along the line of the Vision Bund along the northern boundary of the Lancing Training Centre, based on the deployment of 58 heat traps in spring 2016, found no signs of reptiles within the abandoned arable field.

4.3 The autumn 2016 reptile surveys revealed a relatively widespread and 'high' population of grass snake is present within the New Monks Farm part of the application site. These are mostly located along the watercourses and this species may be benefitting from the rotting accumulations of dredged reeds along the channel, as this potentially provides egg-laying habitat. Slow Worm is localised within the former arable field within the red line boundary to the west of Mash Barn Lane, while Common Lizard occurs as singletons along the banks of the drainage channels. Both Slow Worm and Common Lizard were both categorised as 'low' populations.

4.4 The site has been subject to an extensive reptile translocation which has trapped and removed grass snake, slow worm and common lizard during the course of 2019 and 2020. This work was undertaken by The Ash Partnership working alongside The Ecology Partnership with the wider development site subject to the translocation work under the hybrid planning application (AWDM/0961/17).

4.5 Following an agreed number of trapping sessions and following five consecutive trapping sessions with no capture, areas of the site were subject to the sensitive cutting of vegetation on site followed by a destructive search under the supervision of a suitably qualified ecologist prior to groundwork.

4.6 The site is deemed clear of reptiles, with no direct connectivity to suitable offsite habitat from which reptiles could recolonise currently. Translocated reptiles are contained within three receptor sites located to the northwest of Shoreham Airport. Reptiles were trapped and moved to three receptor sites to the east of the trapping area: adjoining the Shoreham Airport (Figure 2).



Figure 2: Location of the three reptile receptor areas (orange) outside of the red line boundary

Pre-Construction

4.7 As the translocation work has been undertaken on site and the whole site subject to recent clearance and ground works. It is not considered that update surveys are required. If a significant amount of time was to pass before construction was to begin on site and habitats were left unmanaged and surrounding construction works are concluded allowing possible colonisation of the site, then advice should be sought from a suitably qualified ecologist to ensure that legal protection of reptile species is adhered to, and any required appropriate mitigation measures are undertaken to meet legal requirements.

During Construction

4.8 In the unlikely event a reptile is found during construction, works must cease and the advice of an ecologist sought.

Monitoring and Management

4.9 When the neighbouring country park which is currently under construction as part of the original hybrid planning application is complete, it will offer good quality habitat for reptile species. Operational maintenance will provide increasingly good reptile habitat provided a mosaic of rank, unmown grassland areas are kept alongside open parkland and stands of scrub and woodland. This forms the main mitigation and compensation area for reptile and other wildlife on site as part of the wider development.

4.10 Similarly, the establishment of marginal vegetation along the watercourses, within the wider New Monks Farm development, will continue to develop good habitat for grass snake, which are a semi-aquatic species. A dredging strategy will be used here to maintain these watercourses and prevent indiscriminate loss of marginal vegetation.

4.11 Once development of the country park and associated infrastructure is complete reptile exclusion fencing will be removed allowing previously translocated reptiles and reptiles from the local area to colonise the green habitats of the wider new monk's farm site.

4.12 No specific monitoring for reptiles is required.

5.0 Bat Mitigation

Summary of Previous Work

5.1 Bat roost surveys were carried out on onsite buildings, and those in the wider New Monks farm site to the east, in March 2015. Numbers 1-3 New Monks Farm Cottages, and Daniel's Barn Complex (believed to be on site) as well as North Barn Complex had no evidence of bat occupation, and all were assessed as having 'negligible to no bat roosting potential'. None of the trees within the site were assessed as having bat roosting potential.

5.2 Activity surveys in 2016 recorded just three species of bat; Common Pipistrelle (perhaps up to three individuals), Soprano Pipistrelle (probably two individuals) and Brown Long-eared Bat (just a single individual recorded). This suggests very low numbers of bats

appear to occur within the whole New Monks Farm site, the main activity being associated with Mash Barn Lane.

5.3 During the 2021 walkover survey very limited habitat for bats was noted on site. This is restricted to the drainage ditches on site. With the ditches connected to a network that runs across the local area, they may be used by bat species for foraging and commuting purposes to some extent. Mitigation and enhancement for bats has been built within the adjacent country park as part of the approved hybrid planning consent.

Pre-Construction

5.4 At the time of writing this document that the buildings within the wider New Monks Farm development, have already been demolished in 2019. Any pre-demolition survey work was undertaken by The Ash Partnership Ltd.

5.5 It is recommended that any retained trees are protected using Heras fencing or similar to ensure no accidental incursion into retained habitats. Screening (adding screens on the fence lines) may be considered suitable to reduce impacts from dust and lighting.

5.6 Prior to the commencement of works, any trees which are required to be removed should be rechecked to ensure that their structure and potential has not altered. In addition, any trees which have not been previously accessible due to access restriction should be inspected for potential to support roosting bats. Trees with low potential will not require further survey but soft felling should be employed as a sensitive method of removal. Trees with moderate potential require one dusk emergence and one dawn re-entry to be undertaken in suitable weather conditions between May and September, note that one of the two surveys must also be undertaken between May and August. Trees with high potential require three surveys between May and September, two of which should be undertaken between May and August. The surveys should comprise at least one dusk emergence and one dawn re-entry. If a bat roost is recorded within any trees, then a Natural England licence will need to be applied for and obtained prior to felling.

5.7 It is always recommended a sensitive lighting scheme is incorporated into new developments to limit the impacts of light pollution. Any proposed lighting scheme as part

of the development should consider bats in the surrounding area as well as the site. All bat species are nocturnal, resting in dark conditions in the day and emerging at night to feed. Bats are known to be affected by light levels, which can affect both their roosting and foraging behaviour. This needs to be considered with a sympathetic lighting scheme for the development. Recommendations include:

- Installing lighting only if there is a significant need;
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component;
- Directing light to where it is needed and avoiding light spillage;
- Using baffled lighting where light is directed towards the ground;
- Avoid putting lighting near tree lines or hedgerows and angling light away from these linear features which are used by commuting and foraging bats;
- Planting a barrier within the scheme to form a barrier.

During Construction

5.8 Bats would be adversely affected by visual disturbance caused by construction activities, notably through light pollution. This disturbance could potentially contribute to the displacement of this species. To mitigate this, if works are to take place during the night, any lighting required should be managed to avoid spill onto flight corridors for bats, most notably on site the newly created waterbodies. The impact can be minimised through the use of hoods, cowls or shields to prevent back spill onto ecological features.

5.9 In the absence of suitable roosting habitat within the application site, bat boxes will be installed within the various new development as integrated bat brick boxes on the exteriors of selected residential properties/garages.

5.10 The approximate locations of recommended bat bricks are indicated within the plan in Appendix 1. They should be installed beneath the apex of the roof, at least 3m from the ground, on east, west, and south facing aspects of the building, as shown in Appendix 1. however the final location should be agreed on the ground with a suitably qualified

ecologist to ensure that the box is cited in the best possible location for successful uptake by roosting bats. It is recommended that the following integral bat boxes are installed:

- Habibat boxes 001 & 003 are solid boxes made of insulating concrete with an internal roost space, which can be incorporated into the fabric of a building as it is built.
- Standard Integral Bat box from Sussex based company Bird Brick Houses. For use by most of the UK's bat species, including pipistrelles. The entrance hole and internal design can be altered to suit different bat species.

Note: the specification of the boxes used in the scheme may vary dependent on product availability.

5.11 It is recommended that any new residents moving into the properties with integral bat bricks are provided with an information leaflet to explain the purpose of the bricks. This will prevent the new residents from mistaking the gaps as damage to the brickwork and sealing them up.

Monitoring and Management

5.12 Erected bat boxes will be integrated into the walls of new residential buildings therefore will not require monitoring or maintenance.

5.13 Any licence specific mitigation, monitoring or management will be agreed with Natural England if mitigation licences are required on site.

6.0 Bird Mitigation

Summary of Previous Work

6.1 A wintering bird survey was undertaken between November 2014 to February 2015 by The Ash Partnership Ltd recorded 53 species. These surveys incorporated the whole of the New Monks Farm development site; including this land parcel as well as the larger adjoining site to the east. The results indicate four main bird assemblages within this part of the application site, and these are summarised below along with details of the more significant species based on Birds of Conservation Concern (BoCC) 4:

- Roosting species probably displaced from Adur Estuary (typically between tides) – Red List species include Lapwing (up to 2 individuals) and Herring Gull (up to 2 individuals). Note: large flocks of Lapwing occurred on nearby Shoreham Airport during autumn 2016 (over 50 individuals).
- Wetland species utilising the reed-lined drainage channels – Red List species include Grey Wagtail (singletons); while Amber List species include Snipe (up to 19 individuals), Teal (up to 25 individuals), Mallard (up to 11 individuals), Reed Bunting (up to 5 individuals) and Kingfisher (singletons) which is also a Schedule 1 species. Of interest is the presence of Water Rail (up to 3 individuals) and Cetti's Warbler (up to 5 individuals), the latter also being a Schedule 1 bird.
- Open grassland species – Red List species include Skylark (up to 11 individuals), House Sparrow (up to 27 individuals), Stock Dove (up to 80 individuals) and Starling (up to 11 individuals); and Amber List species including Meadow Pipit (up to 101 individuals).
- Scrub/edge species – Red List species include Song Thrush (up to 29 individuals); while Amber List species include Dunnock (up to 8 individuals).

6.2 During the spring breeding period the reedbeds along the drainage channels in the wider site were recorded supporting Reed Warbler and Cetti's Warbler.

6.3 The 2021 update walkover survey was undertaken at a time of the year when breeding birds were not present. However, the site was predominantly bare earth and an active development site at the time of survey offering limited suitable habitat for nesting birds. With no shrubs, trees or buildings present, the site only has potential to support ground nesting birds or specialist reed bed or aquatic birds. Any suitable habitat would be limited to the ruderal habitat to the south of the site or within the marginal vegetation within the drainage ditches, with the bare earth offering no cover from predation. Vegetation is currently under management to keep it short to discourage nesting birds such as skylark, this is scheduled to be undertaken prior to nesting bird season and throughout the nesting season which runs from March – September inclusive.

6.4 With the site largely cleared, there is no significant habitat for wintering or estuarine birds at the time of writing. The site may provide roosting habitat for species such as gull and

lapwing or specialist bird species such as teal, snipe or Jack snipe within the newly created drainage ditches, which have been previously recorded on site by The Ash Partnership. This habitat is to be retained and protected throughout the development process.

Pre-Construction

6.5 Breeding birds are protected under the Wildlife and Countryside Act 1981 and amendments, and in accordance with the CROW Act 2000. This legislation makes it necessary to ensure that breeding birds are not disturbed or harmed during the nesting season.

6.6 Although the site has been recently cleared, if any further scrub clearance within the site is required, this will need to ensure that breeding birds are not disturbed or harmed. The same applies to reed bed and marginal vegetation which has been installed within the two new waterbodies running through the site as part of the approved hybrid planning application for the wider site. Breeding and foraging birds will be anticipated during the breeding season that runs between mid-March and the end of August. It is therefore recommended that any disturbing work is restricted to the autumn and winter months.

6.7 If this is not possible for any reason, then any breeding bird habitat clearance must be undertaken under the supervision of a suitably qualified and experienced Ecologist, surveying for nesting behaviour prior to any clearance work. However, the clearance work would be at risk as, should nesting birds be observed, all work would need to halt until the chicks had fledged the nest.

6.8 Grassland / ruderal habitat clearance during the spring / summer should be checked for ground nesting birds prior to clearance. Prior to any winter vegetation clearance, low-lying ground, watercourses and rank grassland areas should be walked over to disturb sensitive winter visitors such as Snipe and Teal, or estuarine birds such as Lapwing, so to displace them from the site.

6.9 A sensitive lighting scheme should be designed to minimise impacts of artificial light on the habitats sensitive to bird species, in particular the drainage ditches that run through and adjacent to the site as well as the wider adjacent Country Park.

During Construction

6.10 All site workers should be informed that, if active bird nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest. A buffer zone of at least 5m should be left around active bird nests.

6.11 During construction work any temporary lighting should be angled away from retained nesting bird habitat such as the retained ditch network and adjacent country park.

6.12 This land parcel is to be developed as a residential housing scheme and therefore does not include designated areas of habitat suitable for nesting birds, apart from the waterbodies that are present on site, which will provide reed bed habitat. However, the principal of development of the site is approved as part of the wider New Monks Farm development which incorporates the creation of an array of new habitats on the site to the east. This includes open grassland and hedgerow, wetland habitat and carr woodland, providing new high-quality habitat for the three main assemblages of birds on site:

- Estuarine Birds
- Wetland Birds
- Open Grassland / Arable Landscape Assemblage

6.13 Integral bird boxes are recommended to be installed in some of the new builds in the development during construction, as part of proposals for mitigation and enhancement (Appendix 1). They should be installed beneath the apex of the roof, at least 3m from the ground, on east and north facing aspects of the building, as shown in Appendix 1. The final locations of the boxes should be agreed on the ground with a suitably qualified ecologist to ensure they are cited in the best possible location for successful uptake by nesting birds. With consideration to the species of birds identified in wintering bird surveys, it is recommended that the following integral bird boxes are installed:

- Standard Integral Bird Box (28mm entrance) made by Sussex based company Bird Brick Houses. Integrated box with brick shaped design and entrance hole suitable for blue tit and great tit, both of which have been recorded on site.
- Standard Integral Bird Box (34mm entrance) made by Sussex based company Bird Brick Houses. Integrated box with brick shaped design and entrance hole suitable for house sparrows which have been recorded on site.

- Ecosurv Integral Starling Box has a 45mm entrance hole and large internal space to suit this species. Starlings are Conservation Concern (SoCC) Red List species and were recorded on site during wintering bird surveys. This comes in a range to match building materials.
- NHBS Terraced Sparrow Box has multiple chambers and entrances which provides the ideal nesting location for house sparrows which are extremely social and prefer to nest near to other pairs. House sparrows were amongst the most abundant species to be found on site and are a Conservation Concern (SoCC) Red List species.

  Note: the specification of the boxes used in the scheme may vary dependent on product availability.

6.14 It is recommended that any new residents moving into the properties with integral bird bricks are provided with an information leaflet to explain the purpose of the bricks. This will prevent the new residents from mistaking the gaps as damage to the brickwork and sealing them up.

Monitoring and Management

6.15 Erected bird boxes will be integrated into the walls or placed on walls of new residential buildings therefore will not require monitoring or maintenance.

7.0 Barn Owl Mitigation

Summary of Previous Work

7.1 With the exclusion of the tenanted cottages situated around the western site boundary, all of the buildings within the wider New Monks Farm development site were initially surveyed in March 2015 by The Ash Partnership Ltd. A roost was detected within a western compartment of the southern barn in Daniel's Barn complex, consisting of a horizontal steel beam on a vertical corrugated tin wall with faecal streaks beneath, and the floor covered by faeces and approximately 20 relatively fresh pellets (within 6 months old - based on colour).

7.2 Update surveys, including building inspections of Daniel's Barn and North Barn building complexes, and numbers 1-3 New Monk's Farm Cottages (located on the western site boundary), as well as pellet inspections and field surveys were carried out in October and November 2016 by The Ash Partnership Ltd. The southern barn in Daniel's barn complex bore no fresh evidence of barn owl. However, a second roost was recorded within the western building. It consisted of a horizontal steel beam set beneath corrugated asbestos sheeting, beneath which were faecal splashes and three pellets. These were difficult to age as, although relatively dark, they were exposed to rainfall, but post-dated the March 2015 survey. However, thereafter there have been no sightings or evidence of Barn Owl within the site. All buildings have since been demolished on site under the guidance of The Ash Partnership.

7.3 None of the mature trees within the site and along Mash Barn Lane were found to have roosting potential.

Pre-Construction

7.4 It is understood the buildings on site and several buildings in the neighbouring land parcel have now been demolished. There are no trees or suitable features for barn owls present on site. If a barn owl is discovered roosting on site, then the site ecologist should be contacted for advice on how to proceed.

During Construction

7.5 All site workers should be informed that if an active barn owl nest is identified, works in the vicinity of the nest must cease until the birds have fledged the nest. An appropriate buffer zone around the site will be agreed with a suitably qualified ecologist.

7.6 As the site is located within close proximity to an active airport, railway line and the very busy A27, it is not recommended that a barn owl box is erected on site. It is considered that setting up a permanent nest site may attract the species from surrounding areas and being based on site may increase the chance of bird collision with traffic, planes or trains. Barn owls are a particularly low flying species and are subject to collision with traffic.

8.0 Deer Mitigation

Summary of Previous Work

8.1 During the walkover surveys for the Lancing Training Ground between 2011 to 2013, a small herd of Roe Deer *Capreolus* was noted within the northern half of the New Monks Farm Site.

8.2 In October 2016 a search was undertaken across the New Monks Farm development and its surrounding area for evidence of deer, camera and sand traps were also set up either side of Marsh Barn Lane for two consecutive nights. The various survey techniques revealed the movement of a single Roe Deer, and this from sightings of this individual during the surveys it would appear to be a male (buck).

8.3 No deer were noted on site during the walkover survey undertaken by The Ecology Partnership in October 2021.

Pre-Construction

8.4 Habitat on site has been cleared with the site largely unsuitable for deer at the time of writing this document. Any more suitable areas, such as the ruderal habitat to the south are regularly disturbed by construction activities from neighbouring development. If longer vegetation is allowed to grow up on site an early morning drive will be necessary to displace any deer using a line of persons. Long vegetation should be checked for the presence of fawns prior to clearance.

During Construction

8.5 All deer receive protection against injury or killing under the Deer Act 1991. In the case that any deer can enter the site, any trenches or excavations on site should be either covered over at night, or a plank of wood placed in to allow any animals to escape if they were to accidentally fall in. Any open pipes or conduits laid should be blocked off each night to prevent small deer from entering them.

8.6 If deer are present on-site during works, an appropriate strategy of how to humanely remove or manage the species from site and prevent them becoming harmed and isolated will be devised with a specialist trained in deer conservation issues.

Monitoring and Management

8.7 This land parcel is to be developed as a residential housing scheme and therefore does not incorporate any suitable habitat which can be managed for deer. However, the wider New Monks Farm development, particularly land to the east, includes created areas of green space which offer opportunities for deer to forage and move across the local landscape.

8.8 No monitoring is recommended.

9.0 Fish including European Eel Mitigation

Summary of Previous Work

9.1 A large European Eel population was recorded from sampling stations within the drainage ditch network within the wider New Monks Farm area of the application site; along the two drainage systems running south and east from Honeyman's Hole, respectively.

9.2 By analysing the length frequency of the combined catch this would suggest a good population structure indicating recruitment into a number of year classes. However, recent recruitment has clearly been poor, and this is consistent with a dramatic national decline in European Eel stocks.

9.3 European Eel are clearly capable of passing through the existing tidal flaps and have successfully colonised the catchment. The results suggest that the drainage network is an effective nursery for European Eel, but the adult migration back to their spawning grounds might be challenging due to the convoluted connectivity of the system.

9.4 European eel as well as other fish species have been removed from the ditch network throughout the wider site prior to works by APEM Ltd under relevant licences / permits. The fish removal was undertaken by electo-fishing techniques with fish held in an agreed area outside the development area. Mitigation measures for the approved waterbody

network across the wider New Monks Farm including the two drainage ditches within the red line boundary have been approved as part of the hybrid planning application.

Pre-Construction

9.5 It should be established prior to works whether European eel have been allowed to colonise the waterbodies within the catchment, particularly if the works surrounding the site have been completed. If works are required to the onsite ditches APEM Ltd or another suitably qualified aquatic or fisheries ecologist contacted for advice on how to legally proceed. If required, a suitable mitigation strategy will need to be devised and agreed with required licences and permits agreed to legalise the works. Protection measures of the waterbodies on site should be agreed as part of a CEMP document.

During Construction

9.6 As part of the wider site mitigation a new pumping station will be fitted linking the site to the Adur estuary. This will be designed with fish friendly features to maintain linkages for fish including eels. This feature however lies further to the east and lies outside the scope of this EMMP. Full details of this feature are given within the relevant EMMP document.

9.7 No specific mitigation features will be required as part of the development as these have been agreed as part of the hybrid application.

9.8 Pollution control measures should be put in place around the adjacent watercourses to the development area to ensure that the water quality of these features is unimpacted by construction work.

Monitoring and Management

9.9 Maintaining hydrological controls within the re-designed drainage network of the wider New Monks Farm will require passes for European Eel to ensure they can re-establish through the drainage network. The enhanced structure within new watercourses will include the following advantages for eel populations:

- Deepened sections - to provide winter torpor areas, and summer holes during low flow conditions.

- Structurally diverse channel profiles – to include berms to encourage bankside edge emergent vegetation, overhanging roots etc.
- Balancing ponds where nutrients and sediment will settle out and eel prey items will concentrate.

9.10 The monitoring of, and adjustment for, sufficient water flow through the drainage system will be carried out, along with maintenance of the hydrological controls and an integrated dredging strategy. The wider drainage strategy including the newly engineered waterbodies of site have been fully approved under planning permission

9.11 The European eel removal has been undertaken under Environment Agency permit, with whom a detailed monitoring programme will be agreed post development.

10.0 General Site Enhancements

Habitat Creation

10.1 The site itself offers little in the way of retained habitat. The residential development will provide greenspace in the form of private gardens as well as soft landscaping around communal areas and the provision of small accessible areas of open green amenity space. This site however is a section of the much wider site development site and received outline approval for a residential development within the same site as part of the original hybrid planning application. As part of the wider New Monks Farm landscape strategy, and to mitigate for the loss of green space on site, a high-quality habitat creation scheme has been developed for the adjacent land parcel to the east. Much of this is formed within the Country Park area of the site which forms a sizeable network of green open space to be managed for the benefit of wildlife, with public access via a network of public footpaths.

10.2 Habitat creation on this neighbouring land parcel is aimed at forming diverse sustainable native habitats. Wildflower grassland mixes will be used and sown across the landscaped areas on site, this will aim to produce diverse flowering grasslands, providing different niches for wildlife. The following mixes are to be use sourced from the www.wildseed.co.uk:

- Species Rich Grasslands – EC22c Turfgrass Mixture with Clover (Grasses 80%)

- Tussock/Wildflower Grassland – EM10 – Tussock Mixture (Wildflower 20%, Grasses 80%)
- Wildflower Meadow Mix RE1 – Bespoke Meadow Mix (Wildflower 20%, Grasses 80%)
- Water Edge Mix – EP1 -Pond Edge Mix (Wildflower 20%, Grasses 80%)
- Native Hedgerow – EH1 – Hedgerow Mixture (Wildflower 20%, Grasses 80%)

10.3 Before sowing any of the seed mixtures, the ground needs to be prepared by removing weeds through ploughing or rotovating. Seeds are best sown in March-April or August-September.

10.4 New native fruit bearing hedgerow will be planted across site comprising the following sourced from www.ashridgetrees.co.uk:

- Native Hedgerow – Native Hedging Barefoot Mix (6 species)

10.5 Carr woodland otherwise known as wet woodland will also be planted on the neighbouring land parcel next to waterbodies on site comprising native species. These shrubs will be sourced from www.ashridgetrees.co.uk:

- Carr Mix – Bespoke Mix (12 Species)

10.6 A widespread tree planting schedule will be undertaken across the wider site, with over 450 specimens planted will be planted this will include planting:

- 31 x English Oak *Quercus robur*
- 37 x Holm oak *Quercus ilex*
- 24 x 'Sapporo Autumn Gold' *Ulmus*
- 23 x Weeping willow *Salix alba 'Tristis'*
- 14 x White willow *Salix alba L.*
- 26 x Scots Pine *Pinus sylvestris L.*
- 22 x Monterey pine *Pinus radiata*
- 25 x Common hornbeam *Carpinus betulus*
- 30 x Field maple *Acer Campestre*
- 40 x Red maple *Acer rubrum*
- 40 x Black poplar *Populus nigra*
- 14 x French tamarisk *Tamarix gallica*

- 52 x Wild Cherry *Prunus avium*
- 22 x Common alder *Alnus*
- 50 x Common alder *Alnus glutinosa*

10.7 The full grassland, shrub and tree planting schedule can be found within the separate Main New Monks Farm site EMMP document and its appendices.

10.8 The following should be considered when planting:

- The tree supplier should be approved by the landscape architect prior to ordering stock.
- All trees should be planted within the first available growing season as root balled stock unless otherwise specified.
- All tree pits should be dug 24 hours before delivery to minimise the length of time that the specimen trees are out of the ground. All tree pits should be dug in favourable conditions, with the size of the pit subject to soil conditions. This will be agreed with the landscape architect following tests from an agronomist.
- All trees should be planted at the correct depth following specifications, the root collar must be visible.
- All tree pits are to have a suitable irrigation tubes, end cap and aeration tubes, if required. These are only required for the first two years after which they are superfluous.
- The tree pit and any earth reservoir will be back-filled with bark mulch to avoid soil glazing on the surface and prevent growing competition from weeds.
- Tree guards and stakes should be used when appropriate.

Monitoring and Management

10.9 As the habitat creation scheme will be located on the neighbouring land parcel to the east, no monitoring or management is applicable for this site. The landscape management scheme for the wider site post development can be found in a detailed Strategy and Specification For Landscape Maintenance Rev 02 drawn up by Hyland Edgar Driver, dated 20/12/2019. This document has been reviewed by The Ecology Partnership and is accepted with regards to its suitability to develop and significantly enhance the habitats on site with regards to value to wildlife and biodiversity. This document should be referred to with

regards to a management of hedgerow, native shrubs, trees, and wildflower meadow and tussocky grassland and waterways with all other landscapes on site and will be passed onto the management contractors.

11.0 Conclusions

11.1 The site has undergone robust surveying effort to establish the presence of protected species on site and how such species utilise the site. These surveys provide sufficient baseline to provide a mitigation strategy.

11.2 The proposed mitigation will ensure that protected species are not harmed during works and that legal responsibilities are met. The extensive mitigation and enhancement programme as part of the development is aimed at increasing the quality and diversity of wildlife on site post development.

Appendix 1: Landscaping, Habitat Protection Measures and Ecological Enhancements

Protected and Enhanced Habitats



Client: CALA Homes
Site: New Monks Farm
Date of Drawing: 10.03.22
Author: AB

the ecology partnership

Thorncroft Manor, Thorncroft Drive, Leatherhead, KT22 8JB
t: 01372 364 133 w: ecologypartnership.com

Ecological Enhancements



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The Ecology Partnership Ltd

Thorncroft Manor

Thorncroft Drive

Leatherhead

KT22 8JB

Tel. 01372 364 133

www.ecologypartnership.com

Approved by: Alexia Tamblyn MA (Oxon) MSc CEnv MCIEEM FRGS,

Managing Director

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