



**220-222 Elgar Road, Reading,
Berkshire RG2 0BW**

Preliminary Ecological Appraisal

September 2020

***on behalf of* Maxika Homes Group**

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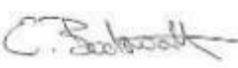
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1 Introduction

1.1 Site Description & Context

220-222 Elgar Road, referred to as the 'site' for the purposes of this report, is a former driving test centre located to the western side of Elgar Road, in Reading, Berkshire RG2 0BW. The approximate Ordnance Survey grid reference of the site is SU 715 721. The site is located approximately 1.3km south-east of the town centre of Reading.

The site is dominated by a detached building of brick construction, set within an area of hard-standing and some amenity grassland (lawn). The building has a flat roof and is arranged over a single storey. The site is bounded by timber panel fences and brick walls.

The site is set within a suburban area of Reading. To the north and south are dwellings and gardens within residential areas. To the east, beyond Elgar Road, is an industrial/commercial area. To the west of the site is an area of amenity grassland and recreational ground (known as Waterloo Meadows). The River Kennet is located approximately 100m to the west.

1.2 Proposals

There is a proposal to demolish the existing building and to redevelop the site for residential use.

1.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the potential impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

The specific aims of this study are to survey the existing building for bats and/or evidence of bats, and other protected species including nesting birds. The study assesses the overall potential of the buildings and trees to support roosting bats and other protected species, such as nesting birds. The report discusses the potential impacts of the proposed works on bats and their habitats.

The report makes recommendations for appropriate mitigation, compensation and enhancement measures, and the potential impacts are assessed in accordance with the legal protection afforded to bats under The Conservation of Habitats & Species Regulations 2017. The need for a European Protected Species (Bat) licence is also discussed in light of the impact assessment.

1.4 Bat Ecology

Bats are the only mammals to have developed the ability of true flight. At present, over 1,100 species of bat are recognised worldwide, making bats the second largest mammal group after rodents. As well as flight, bats have evolved a system of navigation and orientation using echolocation which has allowed many species to become nocturnal. There are 18 species of bat that occur within the British Isles, of which 17 are known to breed here. More species occur in the south and west of the country, with species numbers declining towards the north and into Scotland.

All bat species in the UK are nocturnal and feed exclusively on insects (they are insectivorous) which they catch in flight during their night-time activity, using echolocation to locate and home-in on their prey. Bats will roost during the daytime and seek out dark, enclosed and undisturbed places in which to do so, often using a variety of roosting sites within their home range. Different roost sites are used

for different purposes (such as mating, giving birth and hibernation) and at different periods of a bat's life cycle.

During the summer, female bats will gather together in a maternity or breeding roost. In the UK, this starts to occur towards the end of May and the females will seek out a warm and undisturbed site in which to give birth. Because maternity roosts require a particular set of environmental attributes (such as location, temperature, orientation and size), breeding bats tend to return to roost and breed in the same locations year after year. Given that bats live a relatively long time (anywhere from 10-20 years), and only give birth to one pup a year, maternity colonies are crucial to the reproduction and survival of the local population and can be very sensitive to environmental change.

Relatively little is known about hibernation roosts, as tracking and locating hibernating bats is very difficult. However, many species (particularly those within the genera *Myotis* and *Rhinolophus*) have been found within underground sites such as caves, mines and cellars, where the temperature remains constant and low throughout the winter allowing the bats to remain in a state of torpor. The spring and autumn are periods of transition and bats can use a number of different locations on a temporary basis, often moving between roosts as environmental conditions change and temperatures fluctuate. In the autumn, bats will mate, and it has been shown that male and female bats will gather at particular locations (such as a building, cave or tree) to meet, socialise and mate.

Bats choose to roost in a number of different locations, depending on the species, their activity pattern and the period of their lifecycle. Certain species, such as the pipistrelles, favour crevices and small cavities for roosting and will use features such as cracks, crevices and small rot holes in the boughs and trunks of trees and within certain features of buildings such as boxed eaves, gaps under roof tiles, hanging tiles and soffit boards. Other species favour large, uncluttered roof spaces and lofts within buildings where they can hang up on the underside of the roof and use the interior space for flying prior to emergence. Hollow trees, cellars, caves, barns, churches and cavity walls can also all be used for roosting, given suitable access. Certain species, such as the noctule, favour roosting sites within trees whilst others tend to favour buildings. Roost sites may be used by only a very small number of bats, such as solitary males, or may offer shelter to tens or hundreds of bats within maternity and hibernation roost sites.

The suitability of roosting sites is also highly influenced by the location or context of a tree, building or cave. Roost sites are most often favoured when they are within close proximity to foraging habitats and where those habitats are connected to one another within the landscape by features such as hedgerows, woodlands, rivers or sunken lanes along which bats disperse and 'commute' from place to place. Suitable foraging habitats are any places where insect prey is diverse and abundant such as woodlands, ponds, lakes, rivers, scrub, hedgerows and unimproved grassland or pasture. Thus, the ecological context of a site is very important for determining if bats may be present within a roost and the potential for a roost to be present tends to be much higher within rural or village locations.

2 Methodology

2.1 Desk Study

The Thames Valley Environmental Records Centre (TVERC) was contacted in September 2020 to gather records that it holds for protected and notable species, and non-statutory sites of nature conservation importance from within a 1km radius of the site.

The Multi-Agency Geographic Information for the Countryside (www.magic.gov.uk) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the survey area and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius of the site. Other Internet resources interrogated as part of the desk study include:

- Bing Maps - www.bing.com/maps
- Google Earth - www.earth.google.co.uk
- Google maps - www.google.co.uk/maps

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and the local Biodiversity Action Plan (BAP) were also consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation is used to place the site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

2.2 Field Surveys

2.2.1 *Extended Phase 1 Habitat Survey*

An extended Phase 1 Habitat Survey was undertaken on 17th August 2020 by Jan-Piet Stuursma on behalf of Windrush Ecology Ltd. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC, 2010).

Target notes were also prepared on features of particular ecological interest and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006).

2.2.2 *Initial Bat Survey & Preliminary Roost Assessment*

A detailed internal and external survey of the building was undertaken using a 1 million candle-power torch and close-focusing binoculars in order to look for bats and/or evidence of bats and to assess the potential of the building to support roosting bats.

The survey was undertaken on 17th August 2020 by Jan-Piet Stuursma (Natural England Bat Survey Licence No. Level 2 CL18 2019-44236-CLS-CLS)

The external elevations of the building were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

Notes were made on the relative freshness, shape and size of bat droppings and the location and quantity of any feeding remains. 'Clean' gaps and crevices within the structure of the building was looked for as this can indicate where bats may have gained access the fabric of the building. The survey was undertaken according to the best practice guidelines published by the Bat Conservation Trust in 2016 (Collins, 2016).

The study also takes into account the structure of the building and ecological context of the site, including the following factors which may increase the likelihood of roosting bats being present:

- Age of the building (pre-20th Century or early 20th Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortise joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool.

- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting

The building was assessed for its potential to offer shelter to roosting bats in accordance with best practice guidelines published by the Bat Conservation Trust (Collins, 2016) and according to the criteria shown in Table 1.

Table 1. Criteria for the assessment of buildings and trees for roosting bats (Collins, 2016)

Potential	Features
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation significance.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

2.3 Limitations

Whilst it is considered that a thorough habitat survey has been undertaken, and robust data and conclusions have been delivered within the assessment, the study provides only a snapshot of the species present at the time of the survey and should be considered with this in mind.

There were no constraints with regard to access.

3 Results & Evaluation

3.1 Ecological Context

3.1.1 Sites of Nature Conservation Importance

3.1.1.1 Statutory Sites

There are no statutory sites of nature conservation importance within a 5km radius of the site.

3.1.1.2 Non-Statutory Sites

There are four non-statutory sites of nature conservation importance within a 1km radius of the site and one Biodiversity Opportunity Area (BOA).

The non-statutory sites are Holy Brook Local Wildlife Site (LWS), Fobney & Kennet Valley Meadows LWS, River Kennet/Kennet & Avon Canal LWS and Whitely Park Farm/ St Patrick's Hall LWS. Please see Figure 1.

Holly Brook LWS

Holly Brook LWS is a branch of the River Kennet that carries water from, and back to, its parent river. Alder and willows line much of the banks with other wetland species such as reed sweet-grass, hemlock, water dropwort and occasional water dock. Water crowfoots, and water vole have been recorded within the brook. Holly Brook is located approximately 810m north-west of the site at its closest extent.

Fobney & Kennet Valley Meadows LWS

Fobney and Kennet Valley Meadows LWS is a large area of permanent pasture with some wet grassland and patches of swamp vegetation. The site also features ditches, scrub, woodland and a backwater of the River Kennet. The site is important for its aquatic invertebrates, overwintering wildfowl and aquatic plants, particularly in the ditches and the backwater of the River Kennet where water dropwort, fennel pondweed, flowering rush and spiked water milfoil have been recorded. Fobney and Kennet Valley Meadows LWS is located approximately 315m south-west of the site at its closest point.

River Kennet/Kennet Avon Canal

The River Kennet and Avon Canal LWS covers a section of the River Kennet and Avon Canal that runs approximately 90m north-west of the site at its closest point. The River Kennet is a nationally important chalk stream and this section of the canal and river is similarly calcareous in nature.

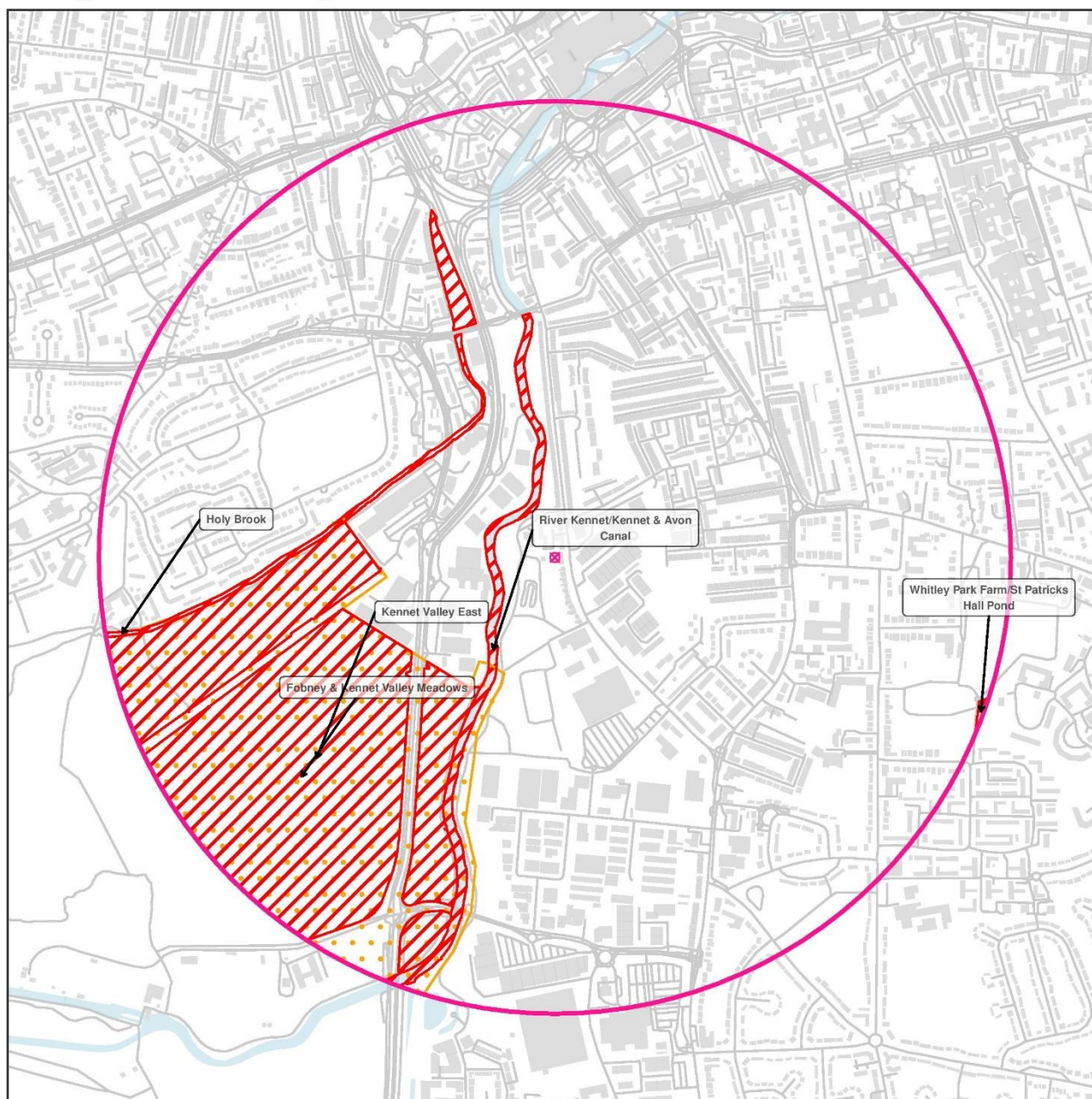
Whitely Park Farm/St Patrick's Hall

Whitely Park Farm/St Patrick's Hall LWS is an area of mixed broadleaved semi-natural woodland dominated by oak, ash, elm, sycamore and willow. The wood features two ponds and is notable for its recorded bird life. The LWS is situated approximately 950m south-east of the site.

Kennet Valley East BOA

Much of the area to the south-west of the site is situated within the Kennet Valley East BOA. This includes much of the LWS areas described above. The BOA includes the Kennet Valley from Newbury to Reading. This area is notable for the River Kennet, a chalk river as well as areas of reedbed, fen, wet woodland, wet grassland and standing water. The BOA is located approximately 250m south-west of the site at its closest point.

Elgar Road Designated Sites Map



 Berkshire Local Wildlife Site  Biodiversity Opportunity Area

Map produced by Thames Valley Environmental Records Centre in 2020
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Figure 1. Non-statutory designated sites within a 1km radius of the site.

3.1.2 Species Records

The following sections summarise the protected/notable species records provided by the Thames Valley Environmental Records Centre for the 1km search radius around the site.

3.1.2.1 Plants

The TVERC holds a number of plant records from within a 1km radius of the site; with records dating from 1997 to 2015. Records include bluebell *Hyacinthoides non-scripta*, one record of corn mint *Mentha arvensis* and one record of English whitebeam *Sorbus anglica*.

3.1.2.2 Invertebrates

The TVERC holds a number of invertebrate records from a 1km radius of the site. These records date from 1985 to 2018.

Recorded species since 2000 are limited to stag beetle *Lucanus cervus*. Stag beetle records are scattered across the surrounding areas of Reading, the closest being approximately 400m to the east of the site. Stag beetle larvae feed off dead wood, and the species is associated with ancient woodland and parkland habitats.

3.1.2.3 Amphibians

The TVERC holds one amphibian record from a 1km radius of the site. This record pertains to a smooth newt *Lissotriton vulgaris* recorded approximately 850m south-east of the site in 2011.

There are no records of the great crested newt *Triturus cristatus* from within the 1km search radius.

3.1.2.4 Reptiles

Reptile records held by the TVERC are limited to three record of grass snake *Natrix natrix helvetica*; two in 2007 and one in 2009. The records all stem from Fobney Meadows, approximately 1km to the west of the site.

3.1.2.5 Birds

The TVERC holds records of a variety of bird species from a 1km radius of the site. The bird records date from 1997-2017.

Bird species recorded since 2000 include species suited to grassland and wetland habitats such as barn owl *Tyto alba*, black-headed gull *Chroicocephalus ridibundus*, bullfinch *Pyrrhula pyrrhula*, Cetti's warbler *Cettia cetti*, fieldfare *Turdus pilaris*, gadwall *Anas strepera*, lapwing *Vanellus vanellus*, lesser black-backed gull *Larus fuscus*, little egret *Egretta garzetta*, mallard *Anas platyrhynchos*, meadow pipit *Anthus pratensis* and pintail *Anas acuta*. These species have largely been recorded within the habitats to the east of the site.

Other species recorded within a 1km radius of the site are more adapted to urban environments such as house martin *Delichon urbicum*, house sparrow *Passer domesticus*, peregrine *Falco peregrinus* and swift *Apus apus*.

3.1.2.6 Bats

Bat records held by the TVERC for the search radius are limited to common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus* and soprano pipistrelle *Pipistrellus pygmaeus*. Bat records date from 2000 to 2018.

There are no bat records within a 500m radius of the site.

3.1.2.7 Other Mammals

The TVERC holds records of European hedgehog *Erinaceus europaeus*, Eurasian badger *Meles meles* and European water vole *Arvicola amphibius* from the area surrounding the site. The records date from 1998 to 2018.

3.1.2.8 Other Species

Other protected and notable species recorded include a number of fish recorded from the River Kennet and associated waterways. This includes European eel *Anguilla anguilla*, barbel *Barbus barbus*, brown trout *Salmo trutta* and Atlantic salmon *Salmo salar*.

3.2 Habitats

Photographs of the site are presented in Appendix 1. Appendix 2 illustrates the location of the site and provides an aerial photograph of the site within the surrounding landscape.

3.2.1 Building

220-222 Elgar Road is a single-storey, brick building which occupies a roughly rectangular footprint. The building has concrete foundations which form a small terrace to the south-west. The roof is uniformly flat and topped with bitumen and mineral roofing felt; there is no loft space.

The external walls are in a good state of repair, with no cracks, crevices or cavities within the brickwork that could offer shelter to roosting bats. The roofing material is tight-fitting and intact with no gaps or crevices under the material or into the fabric of the roof. An area of timber barge board is present on south-western elevations. This barge board is tight-fitting and intact.

The building is assessed as having 'negligible' potential (Collins, 2016) to offer shelter to roosting bats.

3.2.2 Amenity Grassland (Lawn)

A relatively small area of amenity grassland (lawn) is present to the eastern boundary of the site, separating it from Elgar Road. The grassland appears to be managed through regular mowing and has a short sward. A butterfly bush *Buddleia davidii* is also present within the amenity grassland.

The habitat does not meet the criteria for a grassland 'habitat of principal importance' as listed within Section 41 of the NERC Act 2006 and is considered to be of negligible ecological value.

3.2.3 Hard-standing

Areas of hard-standing are present in the form of a tarmac parking area, and driveway to the north and west of the building as well as limited areas of concrete hard-standing.

Areas of hard-standing are of negligible ecological value.

3.2.4 Boundaries

The boundaries are limited to timber panel fencing and brick walls. These are of negligible ecological value.

3.3 Species

3.3.1 Plants

No rare or scarce plants were noted within the site.

3.3.2 *Amphibians*

There are no ponds, shown on Ordnance Survey maps, within a 500m radius of the site. The hard-standing and amenity grassland offer no suitable habitat to amphibians. Amphibians are considered to be absent.

3.3.3 *Reptiles*

The hard-standing and amenity grassland offer no suitable habitat to reptiles. Reptiles are considered to be absent.

3.3.4 *Birds*

There is no evidence that birds are using the building for nesting, and the building is not suitable for barn owls or swallows. The buddleia shrub and amenity grassland are not considered to offer any habitat to nesting birds.

3.3.5 *Bats*

No bats or evidence of bats were observed during the survey. The building is assessed as having 'negligible' potential to offer shelter to roosting bats (Collins, 2016).

There are no trees or other features within the site that could offer shelter to roosting bats and roosting bats are considered to be absent.

3.3.6 *Other Mammals*

No badger setts or other evidence of badgers was noted during the survey. The site is considered unsuitable for badgers due to lack of suitable habitats.

The site lacks suitable foraging habitat or refugia for hedgehogs. Hedgehogs are considered to be absent.

There are no waterbodies or watercourses within or immediately adjacent to the site. Water voles are absent from the site.

3.3.7 *Other Species*

The habitats are considered to be unsuitable for other protected or notable species such as invertebrates, reptiles and fish.

3.4 **Relevant Legislation & Policy Guidance**

3.4.1 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

There are no habitats or species listed within Section 41 of the NERC Act 2006 that are considered to be relevant to the site.

3.4.2 National Planning Policy Framework (NPPF)

The revised National Planning Policy Framework was updated in February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, and revised in July 2018.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the

special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- ❖ Potential Special Protection Areas and possible Special Areas of Conservation;
- ❖ Listed or proposed Ramsar sites; and
- ❖ Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

4 Impact Assessment

4.1 Habitats

All of the habitats are assessed as having negligible ecological value, and so there are no foreseeable ecological impacts as a result of the proposed redevelopment of the site.

The NPPF (as revised February 2019) states that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts to existing habitats and providing net gains for biodiversity.

It is considered that the proposed redevelopment of the site offers an opportunity to enhance the biodiversity of the site, and to result in a biodiversity net gain. This could be achieved through native planting, new gardens and through species-specific measure such as bird boxes.

4.2 Species

4.2.1 Bats

There is no evidence to indicate that the building is being used as a place of shelter/protection by roosting bats, and the building is considered to be unsuitable for bats.

The proposed works are unlikely to result in any significant impacts on bats or the places that they use for breeding, shelter and/or protection (roosts) and no specific compensation measures are considered necessary (Mitchell-Jones 2004).

Since no significant impacts on bats are predicted under The Conservation of Habitats and Species Regulations 2017, a European Protected Species (bat) licence will not be required for the proposed works to proceed. Since there are no predicted impacts on bats or their habitats, it is not necessary to consider the 'three tests' of The Conservation of Habitats and Species Regulations 2017 in this instance.

4.2.2 Other Species

There are no foreseeable impacts on other species, including nesting birds, badgers, amphibians and reptiles.

5 Recommendations

5.1 Further Survey

No further surveys are considered necessary at this time.

5.2 Habitats

It is recommended that new areas of landscape or ornamental planting associated with the proposals are designed, planted and managed to maximise their value to wildlife. One key element of this would be the species used within the planting, which should comprise native species where possible, as well as ornamental plants of known value to wildlife. The key will be to provide a variety of flowers and fruits throughout the year in order to provide food for insects and birds, as well as providing potential nest sites through the planting of trees and shrubs.

Appendix 3 recommends a number of suitable species for landscape and garden planting schemes, including non-native species for more formal areas, although the species mix should by no means be limited to this list. Planting should aim to provide ground cover for animals such as hedgehogs and invertebrates, and so low-growing ground cover should be encouraged. Native species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable for formal areas of ornamental planting. A diversity of structure should also be encouraged through the planting of small trees, with shrubs and herbaceous plants species established below.

Planting such as this is likely to result in a net gain in biodiversity.

5.3 Species

5.3.1 Bats

5.3.1.1 Timing

No timing constraints are considered necessary with regard to bats.

5.3.1.2 Careful Work Practices

Works should proceed in a careful and controlled manner. In the unlikely event that bats, or evidence of bats are encountered, works should stop, and advice sought from a suitably qualified and experienced ecologist.

5.3.1.3 Lighting

Where external lighting is required, it should be kept at low level and a low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust 2018, Emery 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust 2018).

The key principals for choosing a suitable type of lamp are:

- Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.
- Avoid lights with high UV content: (e.g. metal halide or mercury light sources) or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting the proposed parking and turning area. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

5.3.2 Birds

The erection of bird nest boxes is recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows.

The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds. Boxes can either be integrated into new buildings or placed on the exterior of buildings and trees.

Recommended integrated boxes are:

- Vivara Pro WoodStone House Sparrow Nest Box
- Bird Brick Houses Standard Box or Starling Box

- Schwegler Brick Box Type 24

Other recommended boxes are:

- 1B Schwegler Nest Box
- 2H Schwegler Robin Box
- Schwegler Avianex Bird Box

It is considered that the erection of bird boxes would contribute towards biodiversity gain.

6 References

Bat Conservation Trust, 2018. *Bats and artificial lighting in the UK: Bats and the Built Environment series*. The Bat Conservation Trust, London.

CIEEM, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

Emery, M., 2008. Effect of Street Lighting on Bats. Urbis Lighting Ltd., Anglia.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 2010.

7 Appendix 1. Photographs



Photograph 1. The building (former driving test centre) at Elgar Road, Reading, viewed from the north-east.



Photograph 2. The building viewed from the south-west.



Photograph 3. The western face of the building and tarmac hard-standing car park

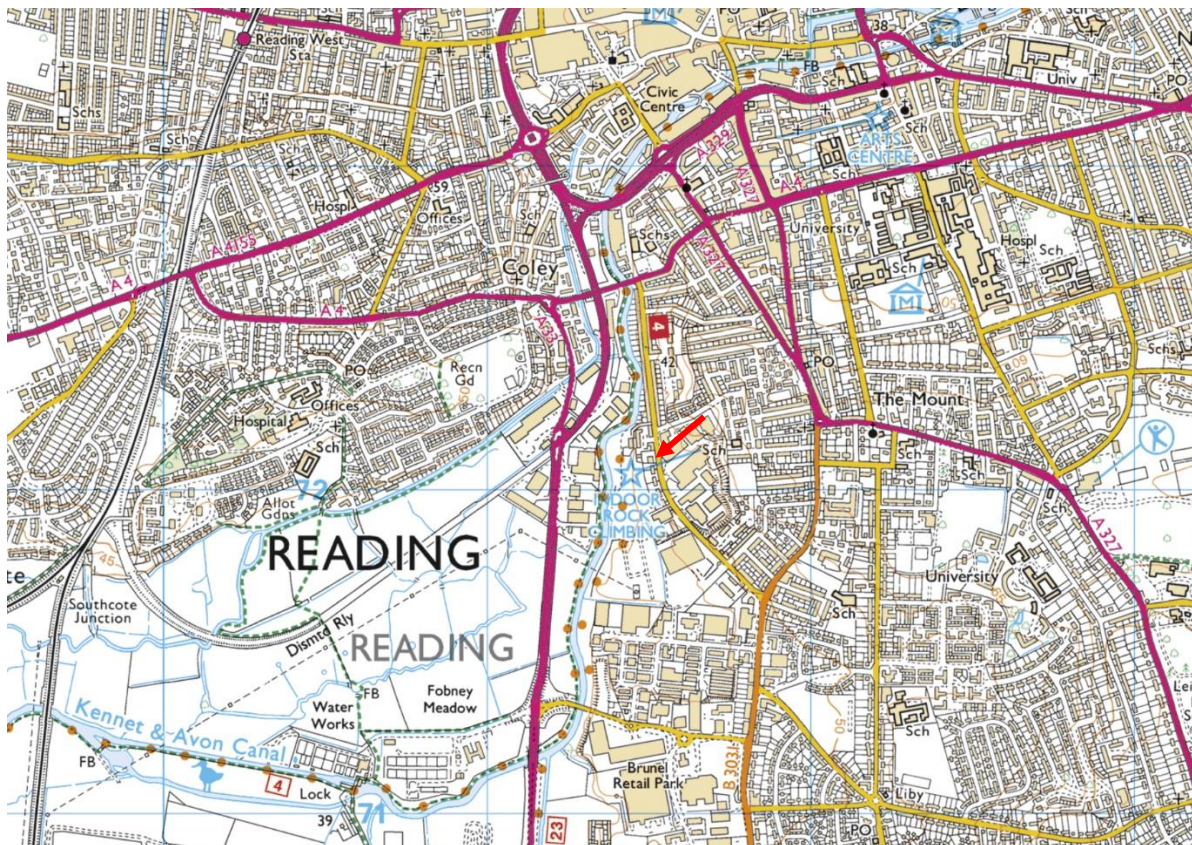


Photograph 4. Amenity grassland and buddleia shrub within the east of the site.

8 Appendix 2. Site Location Plans



Aerial photograph showing the location of the site at Elgar Road, Reading.



Ordnance Survey map showing the approximate location of the site (indicated by the red arrow) within the local area.

9 Appendix 3. Species for Landscape and Ornamental Planting

Common Name	Botanical Name
Trees	
Field maple*	<i>Acer campestre</i>
Beech*	<i>Fagus sylvatica</i>
Hornbeam*	<i>Carpinus betulus</i>
Willow*	<i>Salix sp.</i>
Silver birch*	<i>Betula pendula</i>
Rowan*	<i>Sorbus aucuparia</i>
Whitebeam*	<i>Sorbus aria</i>
Alder*	<i>Alnus glutinosa</i>
Wild cherry*	<i>Prunus avium</i>
Flowering cherry	<i>Prunus sp.</i>
Flowering pear	<i>Pyrus calleryana</i>
Crab apple*	<i>Malus sylvestris</i>
Fruiting apple	<i>Malus sp.</i>
English oak*	<i>Quercus robur</i>
Elm*	<i>Ulmus sp.</i>
Small-leaved lime*	<i>Tilia cordata</i>
Shrubs	
Holly*	<i>Ilex aquifolium</i>
Hazel*	<i>Corylus avellana</i>
Wayfaring tree*	<i>Viburnum lantana</i>
Wild service tree*	<i>Sorbus torminalis</i>
Buckthorn*	<i>Rhamnus cathartica</i>
Guelder rose*	<i>Viburnum opulus</i>
Hawthorn*	<i>Crataegus monogyna</i>
Hebe	<i>Hebe sp.</i>
Rosemary	<i>Rosmarinus</i>
Ceanothus	<i>Ceanothus sp.</i>
Weigela	<i>Weigela sp.</i>
Dog rose	<i>Rosa canina</i>
Dogwood*	<i>Cornus sanguinea/alba</i>
Rose (single flowered varieties)	<i>Rosa sp.</i>
Wild privet*	<i>Ligustrum vulgare</i>
Garden privet	<i>Ligustrum ovalifolium</i>
Lilac	<i>Syringa vulgaris</i>
Escallonia	<i>Escallonia sp.</i>
Lavender	<i>Lavandula sp.</i>
Flowering currant	<i>Ribes sp.</i>
Honeysuckle*	<i>Lonicera periclymenum</i>
Mexican orange blossom	<i>Choisya sp.</i>
Spiraea	<i>Spiraea sp.</i>
Amelanchier	<i>Amelanchier lamarckii/canadensis</i>
Cotoneaster	<i>Cotoneaster sp.</i>
Yew*	<i>Taxus baccata</i>
Broom	<i>Cytisus sp.</i>

Common Name	Botanical Name
Rose of Sharon	<i>Hypericum calycinum</i>
Firethorn	<i>Pyracantha</i> sp.
Butterfly bush	<i>Buddleia davidii</i>
Clematis	<i>Clematis</i> sp.
Perennials	
Elephant's ears	<i>Bergenia cordifolia</i>
Sage	<i>Salvia</i> sp.
Lamb's ears	<i>Stachys byzantia</i>
Periwinkle*	<i>Vinca major</i> & <i>Vinca minor</i>
Ivy*	<i>Hedera helix</i>
Bugle*	<i>Ajuga reptans</i>
Lady's mantle	<i>Alchemilla mollis</i>
Geraniums	<i>Geranium</i> sp.
Globe thistle	<i>Echinops ritro</i>
Monk's hood	<i>Aconitum</i> sp.
Yarrow*	<i>Achillea millefolium</i>
Teasel*	<i>Dipsacus fullonum</i>
Oriental poppy	<i>Papaver orientalis</i>
Michaelmas daisy	<i>Aster</i> sp.
Bear's breeches	<i>Acanthus spinosus</i>
Montbretia	<i>Crocasmia</i> sp.
Purple coneflower	<i>Echinacea purpurea</i>
Ornamental onion	<i>Allium</i> sp.
Catmint	<i>Nepeta</i> sp.
Verbena	<i>Verbena</i> sp., <i>Verbena bonariensis</i>
Marjoram	<i>Origanum majorana</i>
Thyme	<i>Thymus</i> sp.
Crocus	<i>Crocus</i> sp.
Daffodil	<i>Narcissus</i> sp.
Snowdrop	<i>Galanthus nivalis</i>
Winter aconite	<i>Eranthis</i> sp.
Bluebell*	<i>Hyacinthoides non-scripta</i>
Primrose*	<i>Primula veris</i>
Forget-me-not*	<i>Myosotis</i> sp.
Grape hyacinth	<i>Muscari botryoides</i>
Hollyhock	<i>Althaea rosea</i>
Lenten rose	<i>Helleborus orientalis</i>
Foxglove*	<i>Digitalis purpurea</i>
Greater knapweed*	<i>Centaurea scabiosa</i>
Great mullein*	<i>Verbascum thapsus</i>
Toadflax*	<i>Linaria vulgaris</i>
Meadow crane's-bill*	<i>Geranium pratense</i>
*indicates native species	

10 Appendix 4. Data Search Results

Please refer to separate biodiversity report prepared by the Thames Valley Environmental Records Centre.