



Preliminary Ecological Appraisal and Preliminary Roost Assessment

St Joseph's Covent Prep School, Old Lane East, Gravesend, DA12 1NR

Galliard (Gravesend) Ltd

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Industry Guidelines and Standards

This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

Executive Summary

Arbtech Consulting Limited was instructed by Galliard (Gravesend) Ltd to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) at St Joseph's Covent Prep School, Old Lane East, Gravesend, DA12 1NR (hereafter referred to as “the site”). The survey was required to inform a planning application for the proposed redevelopment to provide a doctors surgery and other community facilities with new residential developments and the provision of approximately 5 flats. Creation of a formal road access onto Old Road East and potentially a secondary access onto Coombe Road (hereafter referred to as “the proposed development”).

The following is work you will need to commission to obtain planning permission and to comply with legislation. Further information, along with opportunities for biodiversity enhancement, are outlined in Table 8 of this report.

Feature	Survey Results Summary	Impact Assessment	Recommendations
Habitats and flora	Buddleia was identified on the site which is listed as an invasive plant species in London.	Construction could result in the spread of buddleia and other invasive plant species if present.	Invasive species should be dug up, including roots, and disposed of in line with appropriate controlled waste measures.
Reptiles	Based on PEA survey findings, these species cannot be discounted from the site, due to suitable habitat for foraging, basking and hibernation.	Log piles, grassland and scrub will be removed during construction. The loss of such habitats could result in a reduction in reptile habitat and could result in the fragmentation of the local landscape. Furthermore, site clearance could result in the death or injury of reptiles, if present.	A precautionary working method will be implemented during construction.
Roosting bats (building)	Building 1, 2, and 6 have low value for roosting bats based on the areas of damage to the soffit and wall structures. Building 3, 4, 5, 7, 8, 9,10 have negligible value for roosting bats due to a lack of suitable roost features.	The proposed development will result in the demolition of building 2, 6 and repairs building 1 which have low value for bats. This could result in damage and destruction of any bat roosts present and could cause disturbance, death or injury to bats.	Buildings - Low One bat emergence survey is required during the active bat season to confirm presence or likely-absence of a bat roost in the building. Infra-red cameras should be used as an aid.
Foraging and commuting bats	Scattered trees and dense scrub could be used by local bat populations for foraging and commuting.	The proposed development will include the use of lighting which could spill on to bat roosting, foraging or commuting habitat and deter bats from using these areas.	A low impact lighting strategy will be adopted for the site during and post-development.
Birds	There is a confirmed presence of breeding and nesting birds on site.	Trees and scrub will be removed during construction. The proposed renovation to Building 1 could result in the destruction or the disturbance and subsequent abandonment of active bird nests.	The renovation and any roof works carried out to building 1, and clearance or cutting of exiting trees should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the trees should be undertaken immediately, by qualified ecologist, prior to the commencement of work. All active

			nests will need to be retained until the young have fledged.
Hedgehog	The site provides suitable habitat to support a population of hedgehogs.	Site clearance is unlikely to generate a significant loss of hedgehog habitat, but construction activities could result in death or injury of hedgehogs if present.	A precautionary working method will be implemented during construction.

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1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Galliard (Gravesend) Ltd to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) at St Joseph's Covent Prep School, Old Lane East, Gravesend, DA12 1NR (hereafter referred to as “the site”). The survey was required to inform a planning application for the proposed redevelopment to provide a doctors surgery and other community facilities with new residential developments and the provision of approximately 5 flats. Creation of a formal road access onto Old Road East and potentially a secondary access onto Coombe Road (hereafter referred to as “the proposed development”). A formal plan showing the proposed development will be provided in Appendix 1 when available.

The aim of the PEA was to obtain data on existing ecological conditions, and to conduct a preliminary assessment of the likely significance of ecological impacts on the proposed development. The aim of the PRA was to determine the presence or evaluate the likelihood of the presence of roosting bats, and to gain an understanding of how bats could use the site for roosting, foraging or commuting.

No previous ecology reports have been produced for this site by Arbtech Consulting Ltd or, to the author's knowledge, by any other consultancy.

1.2 Site Location and Landscape Context

The site is located at National Grid Reference TQ 65336 72960 and has an area of approximately 1.63ha comprising buildings, hardstanding, modified grassland and introduced shrub. The site is currently vacant following the closure of the school year in July 2021. The site has a frontage of around 40m onto Old Road East. Coombe Road on the south-western boundary of the site runs up to the site but there is no access onto Coombe Road. To the west of these buildings is a tarmac school yard and associated parking. To the rear of the site is the associated playing fields. From the site visit it is clear that the site is within an established residential area with dwellings from Laurel Avenue, Hillside Avenue, Hillside Drive, Old Road East, Coombe Road and St Mary's Close all backing onto the site.

The site is identified as an area of archaeological potential but is not adjacent to any conservation areas or within the setting of any listed buildings. The wider landscape comprises urban development of residential housing, roads, schools and shops, with a large presence of parks and sports fields. To the north of the site is the river Thames and associated estuaries. A site location plan is provided in Appendix 2.

1.3 Scope of the Report

The PEA element of this report describes the baseline ecological conditions at the site, evaluates habitats within the survey area in the context of the wider environment and describes the suitability of those habitats for notable or protected species. It identifies possible ecological constraints as a result of the proposed development and summarises the requirements for further surveys and mitigation measures to inform subsequent mitigation proposals, achieve planning or other statutory consent and to comply with wildlife legislation.

The PRA element of this report provides a description of all features suitable for roosting, foraging and commuting bats and evaluates those features in the context of the site and wider environment. It further documents any physical evidence collected or recorded during the site survey that establishes the presence of roosting bats. It provides information on possible constraints to the proposed development as a result of bats and summarises the requirements for any further surveys to inform subsequent mitigation proposals, achieve planning or other statutory consent and to comply with wildlife legislation.

To achieve this, the following steps have been taken:

- A desk study has been carried out.
- A field survey has been undertaken to record baseline information on the site and surrounding area including habitat types and their suitability for notable or protected species, including roosting bats.
- Invasive plant and animal species (such as those listed on Schedule 9 of the Wildlife & Countryside Act) have been identified.
- Potential impacts on features of value, as a result of the proposed development, have been identified.
- Recommendations for further surveys and mitigation have been made.
- Opportunities for the enhancement of the site for biodiversity have been set out.

2.0 Methodology

2.1 Desk Study

The desk study included a review of the magic.gov.uk database for statutory designated sites within a 2km radius of the site. Landscape value and the presence of notable habitats as well as granted European Protected Species Licence (EPSL) and notable species records held on magic.gov.uk database has also been considered where these are within influencing distance of the site.

Biological records data have not been obtained.

2.2 Field Survey

The survey was undertaken by Emma Carter accredited on C2 Bat License 2016-22843-CLS-CLS on 16/5/23.

Preliminary Ecological Appraisal

An extended habitat survey was undertaken, following the methodology set out in *UK Habitat Classification User Manual* (UK Habitat Classification Working Group, 2018). All land parcels are described and mapped and, where appropriate, target notes provide supplementary information on habitat conditions, features too small to map to scale, species composition, structure and management. Botanical species lists were compiled with reference to the DAFOR scale (D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare).

During the survey, habitats were assessed for their suitability to support protected species, and field signs indicating their presence recorded. The assessment takes into consideration the findings of the desk study, the habitat conditions on site and in the context of the surrounding landscape, and the ecology of the protected species.

Preliminary Roost Assessment

The PRA focussed on 11 built structures and lines of mature trees which will be affected by the proposed development as well as providing an overview of the wider site and the surrounding landscape for bat roosting, foraging and commuting habitat.

For any surveyed buildings:

A non-intrusive visual appraisal was undertaken from the ground, using binoculars to inspect the external features of the building(s) for features which bats could use for roosting, including access or egress points and for signs of bat use including droppings, scratch marks, insect remains and urine smear marks. An internal inspection of the Victorian building (B1) was also made, including the living areas and any accessible roof spaces, using a torch and ladders. The surveyor paid particular attention to the floor and flat surfaces, window shutters and frames, lintels above doors and windows, and carried out a detailed search of numerous features within the roof space.

For any surveyed trees:

A visual inspection was undertaken from ground level using binoculars.

Suitability Assessment

Built structures were categorised according to the likelihood of bats being present and the types of roost that the identified features could support. This is summarised in Table 1 below. Roost suitability is classified as high, moderate, low and negligible and dictates any further surveys required before works can proceed.

Table 1: Features of a building that are correlated with use by bats

Classification	Feature of building and its context
Moderate to high	Buildings or structures with features of particular significance for larger numbers of roosting bats e.g. mines, caves, tunnels, icehouses and cellars. Habitat on site and surrounding landscape of high quality for foraging bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river and or stream valleys and hedgerows. Site is proximate to known or likely roosts (based on historical data). Buildings with high suitability could support roosts of high conservation value such as maternity or hibernation roosts.
Low	A small number of possible roost sites or features, used sporadically by individual or small numbers of bats. Potential roost features may be suboptimal for reasons such as shallow depth, poor thermal qualities or upwards orientation with exposure to inclement weather or predators. Habitat suitable for foraging in close proximity, but isolated in the landscape. Or an isolated site not connected by prominent linear features. Few features suitable for roosting, minor foraging or commuting.
Negligible	Unsuitable for use by bats.

2.3 Limitations

It should be noted that whilst every effort has been made to describe the baseline conditions within the survey area, and evaluate these features, this report does not provide a complete characterisation of the site. This assessment provides a preliminary view of the likelihood of protected species being present. This is based on suitability of the habitats on the site and in the wider landscape, the ecology and biology of species as currently understood, and the known distribution of species as recovered during the searches of historical biological records.

A biological records data search has not been undertaken. However, given the location of the site, the nature of the habitats present and the assessed suitability of the site for protected or notable species, it is not anticipated that the purchase of biological records data will add any significant weight or alter the conclusions and recommendations outlined in this report.

The wall structure and roof hip of eastern and south eastern elevations of building 1 (the Victorian building) could not be surveyed be accessed or seen from the angles available at ground level, due to the close proximity to other buildings, the neighbouring property.

Multiple aspects of building complex 2 could not be surveyed at the time of the ecological appraisal. The southern elevation of Building 2B, the north, east and southern elevations of Building 2C and the southern elevation of Building 2D could not be surveyed due to restricted access. The roof of these buildings was observed and assessed from a high angle on the top floor of Building 1.

The northern elevation of Building 3 and Building 5 could not be surveyed or inspected due to the close proximity of other buildings and restricted access. Similarly, the northern elevation of Building 8 and Building 9 could not be inspected due to the close proximity of the site boundary between the neighbouring property. Therefore, some roost features or evidence of bats (if present) may have been missed.

These limitations have been taken into account during the evaluation of the site and requirement for further surveys and mitigation.

3.0 Results and Evaluation

3.1 Designated Sites

Details of any statutory designated sites within a 2km radius of the site, including their reasons for notification, are provided in Table 2 below.

The site lies within the impact risk zone for South Thames Estuary and Marshes. The proposed redevelopment to provide a doctors surgery and other community facilities with new residential developments and the provision of approximately 5 flats. Creation of a formal road access onto Old Road East and potentially a secondary access onto Coombe Road is not listed as a possible high risk with regard to this designation.

Table 2: Statutory designated sites within 2km radius of the site

Designated site name	Distance from site	Reasons for notification from Natural England and defra MAGIC
South Thames Estuary and Marshes SSSI	1.3km north	The Thames Estuary and Marshes is located in the outer Thames Estuary on the south east coast of England which separates Kent and Essex. The site is predominantly characterised by extensive intertidal mudflats that are visible at low tide. Additionally there is saltmarsh, around the Isle of Grain, and complex channel systems. A series of disused quarry pits have been transformed to create an extensive series of ponds and lakes at Cliffe Pools. There are important habitats that lie above the highest tide, such as flooded mineral works and large areas of grazing marsh, important for birds.

3.2 Field Survey Results

The results of the field survey are illustrated in Appendix 3. The weather conditions recorded at the time of the survey are shown in Table 3.

Table 3: Weather conditions during the survey

Date:	16/05/2023
Temperature	17°C
Humidity	48%
Cloud Cover	40%
Wind	7mph
Rain	None

Habitats and Flora

The following habitats are present within and adjacent to the site:

- u1b developed land- sealed surface
- u1b5 building
- u1e built linear features
- u1 11 scattered trees
- u1 231 vegetated garden
- h3h dense scrub
- g3c other neutral grassland

A description and photographs of each habitat are provided in Table 4.

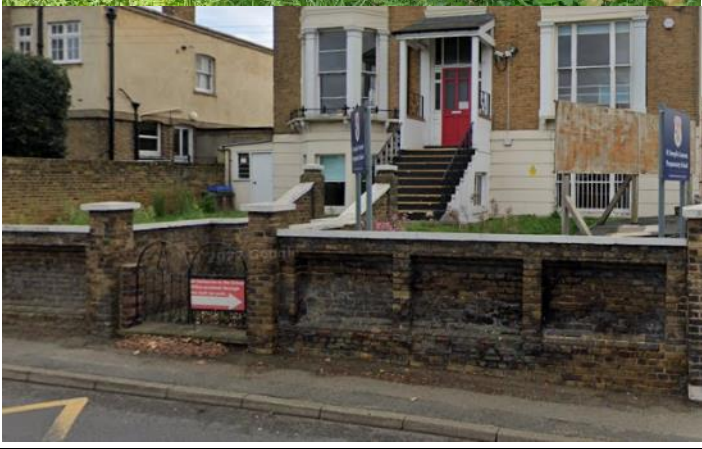
Butterfly bush *Buddleja* (a non-native invasive plant species) was recorded frequently on the site, however this is not a schedule 9 invasive species. No protected plant species under Schedule 8 or invasives under Schedule 9 were identified.

Table 4: Description and photographs of habitats within and adjacent to the site

Habitat type	Habitat description	Photograph
U1b Developed land-sealed surface	A bitumen road and associated car parking is located on the north and western side of the site. When the site was operational as a school, the hard standing areas were in frequent use. This area has now been left vacated and small patches of ruderal vegetation have begun to grow through cracks in the bitumen road.	

		
u1b5 Building	There are nine buildings located on the north western side of the site, and one garden shed located on the south western side of site. Building 1 is a three storey Victorian building, with two loft spaces and a basement. Building 2 is a two-storey red brick building with a flat roof, separated into four parts, labelled B2a,B2b,B2c,B2d, B2e. Building 3 is a single storey UPVC mobile, temporary white building with a flat roof. It is separated into three parts, B3a, B3b, B3c. Building 4 a large single storey gym building with a pool, constructed of corrugated plastic walls and flat roof. Building 5 and 6 are single storey, mobile temporary buildings with a flat roof and walls with bitumen covering. Building 7 is a single storey, unfinished, red brick building with no roof. Building 8 is a corrugated tin temporary storage container that is used for storing sports equipment. Building 9 and 10 are a single storey wooden sheds with a pitched roof, they are currently empty.	 

u1e Built linear features	A 2m tall brick wall and wooden panel fence on a concrete base encloses the entire site. It appears to be in good condition with no obvious signs of damage, such as holes within or under the wall that wildlife could exploit and enter through. A 1m wooden picket fences encloses a small playground area on the western side of the site. It appears to be in good condition with no obvious signs of damage. On the northern side of the site is a metal gate that opens for carparking. It is roughly 10cm off the ground and 2-3m tall. It appears to be in good condition with no holes or areas of damage.	 
U1 11 Scattered trees	Two mature willow trees are located in the centre of the western side of the site, on the boundary of the playground. A young oak tree is located on the southern side of the site, The trees appear to be in good health with no obvious signs of damage in the form of pruning cuts, compression forks or woodpecker holes that could be utilised as roosting features by crevice roosting bats. There were no signs of breeding birds nesting in the willow trees at the time of the survey.	

			
u1 Vegetated garden area	231	A small, vegetated garden area is located at the front of the Victorian building by the entrance to school, on the north eastern corner of the site. This area includes patches of overgrown grass and ornamental planting. Species included a young maple sapling, spurge, common gladiolus and perennial rye grass, dandelion, buttercup and daisy.	 

h3h Dense scrub	Introduced shrub is located at the edge of the grass area on south western, eastern and north eastern sides of the site. Species include bramble and nettle bushes in the southwestern, south eastern and north western corners, the patches of scrub have a large amount of ivy covering the ground, with blue bells, cleavers and young holly bushes. Trees within these sections included hazel, maple, young elm and elder tree.	
g3c neutral grassland	An area of neutral grassland is located on the southern side of the site and has previously been used as a sports field. When in use, it was maintained a consistently short sward height, of approximately 5cm in length but over the last two years has been left to grow wild. The species composition is more diverse than modified grassland habitat, including species of rye grass (d), meadow grass (d), cranesbill (a), plantain grass (a), barren broom grass (o), dandelion (o), butter cup (o), cow parsley (r) and bramble (r).	

		
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Fauna

Bats

The results of the PRA are provided in Table 5.

Table 5: Assessment of the suitability of the site for bats

Feature	Description	Photographs
Historical records	A desk based study was carried out on Defra Magic database, no bat ESPL were identified within 2km radius of the site.	

Bat foraging and commuting habitat	The scattered trees and scrub can provide value for foraging bats. The site is well connected to greenspace in the wider area by treelines, residential gardens and hedgerows which is suitable for commuting bats.	
B1 - overview	This three storey Victorian building is full of empty classrooms, school halls, a basement and two loft spaces. The external structure of the building comprises brick walls covered in cream rendering. There are multiple windows and doors that are well sealed to the UPVC frames within the brickwork. There are pipes attached to the external structure of the walls that are also well attached and do not have any obvious signs of damage that crevice dwelling bats could utilise for roosting. The roof is split into two sections, both have hipped shaped structures. Although the centre section of the roof could not be viewed from ground level, the rest of the roof appeared to be in good condition with no lifted, damaged or loose tiles that crevice dwelling bats could roost under.	

B1 – interior	The loft is constructed of timber frames that support the hipped sides, floor structure and run along the roof underneath the external tiles. In loft 1, some sections of the roof are lined with plastic that looks to be covering an area of damage, and bitumen felt lining under the wooden boards. Some areas of the floor are lined with woollen insulation. There are two small areas of damage to the lower end of the hipped roof of the southern elevation. These areas allow a small amount of sunlight into the loft. This loft space had antennas and poles for maintenance work. Birds were identified within the loft at the time of the survey, a dead pigeon was seen in the centre of the loft space next to a bird nest with eggs (circled in the second picture). No evidence of bats was identified at the time of the survey. Loft 2 had two large windows in the loft space that enabled a large amount of sunlight in. This loft is partially joined to loft space 1. The structure of the loft space included timber beams lining the roof and walls and woollen insulation on the floor. A large amount of bird droppings was identified within the loft space but no birds or nests at the time of the survey. There was no evidence of bats within loft space 2.	 
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B1 – suitability assessment	There are two areas of damage to the soffit space on the southern side, in the form of a large hole which has been used for a pipe to enter the roof and a crack in the soffit space (as seen circled in the opposite picture) which could lead into the loft space. These features are large enough for bats to access. As two areas of daylight were identified coming into the loft space, there are likely to be some loose or damaged tiles on the southern hip of the roof that leads directly into the loft space. As this elevation could not be viewed from ground level, the presence of roosting bats cannot be discounted. Therefore, this building has low value for roosting bats.	

B2 - overview	This building is separated into five sections. The buildings are constructed of redbrick, with flat roofs with bitumen felt lining. The walls and doors are well sealed to wooden frames in the brickwork structure and appeared to be in good condition with no obvious signs of damage. 2A is a single storey building which appears to be in relatively good condition. Building 2B is a two-storey building which appears to be in good condition. There are some areas of damage which are discussed below. Building 2C and 2D could not be surveyed due to restricted access. Building 2E is a single storey, red brick building with a flat roof that also appears to be in relatively good structure.	
B2 – suitability assessment	These buildings are locked and remain closed, as such no internal survey could be carried out. B2A: On the western elevation, there are four large windows that each have a large gap in the missing mortar (as seen in the second picture above) These areas of damage are large enough for bats to roost in. B2B: On the northern elevation, there is a large hole in the soffit space above the double doors and behind an external light attached to the roof on the ground floor. There is also some damage to the soffit space on the second floor (as seen in the pictures opposite) B2E: there is a large gap between the wall and soffit space that could provide direct access into further soffit space. These features could be used by roosting bats These areas of damage are located adjacent a mature tree line which is valuable habitat for foraging bats. As this building is now vacant, it is unlikely to be subject to any disturbance from noise or lighting. Therefore this building has low value to support roosting bats.	

		
B3 - overview	Building 3 is separated into three sections, known as B3A, B3B and B3C. These buildings are single storey UPVC white, mobile buildings with a flat roof. The roof is lined with bitumen felt on the external structure and appears to be in good condition, with no lifted areas or signs of damage. The wall structure appeared to be in good condition, with no signs of damage or internal access points. These buildings are locked and remain closed, as such no internal survey could be carried out. The building is constructed of corrugated material, which is suboptimal for bat roosts. The building does not have any suitable features for crevice or void dwelling species; thus, it has negligible value to support roosting bats.	

B4 - overview	This building houses a large swimming pool. The building is constructed of corrugated plastic walls and roof, with a metal beam structure. The southern wall structure appeared to be in good condition, with no signs of damage or internal access points. There were parts of the building structure that appeared to be faded and the hole in the roof and windows allowed a large amount of sunlight into the building. The building is constructed of corrugated material, which is suboptimal for bat roosts due to a lack of crevice features. From the elevations that could be accessed and surveyed, no suitable bat roosting features were identified. The main entrance to the building is locked and remains closed, as such no thorough internal survey could be carried out, the internal space was only viewed from the windows. There were no obvious signs of features that could be suitable for crevice or void dwelling bats. The roof was surveyed from the top floor of Building 1 and a large hole in the roof was identified (as seen in the third picture opposite, taken through the window of B1). This provides a large amount of daylight to enter the building and could provide access for bats and birds. However, the internal conditions and structure of the building is not suitable for roosting bats, due to a lack of suitable crevice and void dwelling features. Therefore, the building is considered to have negligible value for roosting bats.	 The first photograph shows a long, single-story building with a corrugated metal roof and walls. The building is situated on a grassy area with some weeds. The second photograph is a close-up of the entrance, which consists of a central door flanked by two windows with white frames. The third photograph shows a view of the roof from an elevated position, with a red circle highlighting a hole in the corrugated metal roof.
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B5 - overview	Building 5 (circled in the picture opposite) is a single storey, mobile building with a flat roof and walls that is constructed from UPVC covering. All elevations of this building and the roof was inspected from ground level and from the top of Building 1. This building appears to be in good condition with no obvious signs of damage. This building is locked and remains closed, as such no internal survey could be carried out. The building does not have any suitable features for crevice or void dwelling species; thus, it has negligible value to support roosting bats.	
B6 - overview	Building 6 is a single storey, mobile building with a flat roof and walls that have a brown bitumen covering. This building is locked and remains closed, as such no internal survey could be carried out. The external elevation was thoroughly inspected and an area of damage was identified in the form of a large gap between the wooden verge and wall structure on the southern elevation. This feature is large enough for crevice dwelling bats to roost in. This building is locked and remain closed, as such no internal survey could be carried out. The building does not have any suitable features for crevice or void dwelling species; thus, it has low value to support roosting bats.	

B7 - overview	Building 7 is a single storey, unfinished, red brick building with no roof. The external wall structures appeared to be in good condition, with no signs of damage or crevice spaces for roosting bats. This building is locked and remained closed, as such no internal survey could be carried out. Any features located within the internal wall structure, such as missing mortar in between the bricks would be exposed to high levels of light and weather conditions. Therefore, this building is considered to have negligible value for roosting bats.	
B8 - overview	Building 8 is a corrugated tin temporary storage container that is used for storing sports equipment. The wall structures appeared to be in good condition, with no signs of damage or internal access points. There are glass double doors that allowed a large amount of sunlight into the building. The building is constructed of corrugated material, which is suboptimal for bat roosts. The building does not have any suitable features for crevice or void dwelling species. An internal inspection was carried out and no suitable features for crevice or void dwelling species were identified. Similarly, no evidence of bats were identified within the building or on the external elevations. Therefore, this building has negligible value for roosting bats.	
B9 - overview	Building 9 is a single storey wooden shed with a pitched roof that is currently empty. An internal inspection of this shed was able to be carried out due to the door being permanently left open. The shed was exposed to high levels of daylight from the open doorway and two small windows. The internal structure did not have any additional lining on the walls or roof. The internal structural condition of the building remained in good condition and did not have any suitable roosting features. There were no signs of nesting birds at the time of the ecological survey. No evidence of bat droppings or feeding activity was identified within the shed building at the time of the ecological survey.	

B10 - overview	Building 10 is a single storey wooden shed with a pitched roof that is currently empty. This building is locked and remained closed, as such no internal survey could be carried out. An external inspection of the shed was carried out and no areas of damage to the wall or roof structure was identified. There were no signs of direct access into the building. Therefore this building has negligible value for roosting bats.	
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Other Species

An assessment of the suitability of the site for protected or notable species is provided in Table 6.

Table 7: Assessment of the suitability of the site for protected or notable species

Species	Assessment of suitability
Amphibians	Great crested newts exist in metapopulations and are known to utilise ponds and their connecting terrestrial habitat during their life cycle; great crested newts are typically found within terrestrial habitats up to 500m from breeding ponds (Langton et al. 2001). The closest pond is a pond located over 1.2km north of the site in Riverside Leisure area park. This is disconnected from the site via main roads, residential housing and sports grounds. There is no aquatic habitat for breeding or suitable terrestrial habitat on site for foraging, hibernation or shelter for amphibians. There are no records of great crested newts within a 2km radius of the site, based on a review of the Magic database.
Reptiles	The site contains a large area of grassland and pockets of dense scrub, log piles and areas of hardstanding. These habitats are suitable for foraging, basking and hibernating reptiles. The large area of grassland and scrub have been left to grow wild and have been unmanaged for two years, which provides opportunity for reptiles to move through or inhabit the site.

	The site is located on a busy main road and surrounded by residential housing. The large area of vegetation is fragmented within the urban development, which means that reptiles accessing the site will be exposed to danger from vehicles when crossing roads, and predation. The site is fully enclosed with a 2m tall red brick wall which also means that migration onto and off of the site is difficult. Although the site is not suitable for supporting an extensive population of reptiles, the presence of reptiles on the development site cannot be discounted, The site has low value for supporting reptiles.
Badgers	The habitat on site was surveyed for badgers and there was no evidence or activity of badgers on site at the time of the ecological survey. A 2m tall brick wall is dug into the ground ran along the south, east and western boundary of the site and did not have any gaps for badgers to fit through to access the site. The northern side of the site has a metal fence with gaps that are not large enough for badger to fit through or under. The site is located on a busy main road and surrounded by residential housing. The large area of vegetation is fragmented within the urban development, which means badgers accessing the site will be exposed to danger from vehicles when crossing roads. The site is difficult for badgers to access, restricting migration onto and off of the site.
Hedgehog	The scrub on site provided shelter for hedgehogs, and the grassland and other habitats across the wider site provides suitable areas of foraging habitat. The habitat on site is extensive enough to support a continuous population of hedgehogs and is suitable for hibernating hedgehogs. The gaps between the metal fencing along the northern boundary provide an opportunity for hedgehogs to access the site. However, the presence of roads all around the site isolate it from nearby greenspaces reduce the site's value to some degree as these will prevent hedgehogs from migrating on and off the site. The habitat on site is separated to other areas of greenspace such as the church yard and neighbouring residential gardens by main roads and a dug in brick wall.
Birds	The ecological survey identified a variety of bird species using the site. The buildings, trees and dense scrub on site provided a range of nesting and foraging habitats for a variety of common and widespread bird species. There were no signs of barn owls using the shed buildings on site at the time of the survey. A bird nest was identified on the southern side of the site in a hazel tree amongst the dense scrub. A bird nest and eggs were identified with Loft space 1 of Building 1.
Invertebrates	The trees and shrub onsite provide suitable habitat for invertebrates on site, however the lack of connectivity to the nearest water source and greenspace makes its unlikely for notable species to be found within the development site.
Other protected species including otter, water vole and hazel dormouse	There are no records of these protected species within the area. The development site did not provide suitable habitat for shelter, foraging and hibernation for these protected species. The site did not contain or have connections to water courses and lacked connectivity between the site and greenspace in the wider area. Therefore, the site is considered to be of negligible value to support otter, water vole and hazel dormouse.

4.0 Conclusions, Impacts and Recommendations

4.1 Informative Guidelines

A summary of the relevant legislation and planning policies is provided in Appendix 4.

Likelihood of the Presence of Protected Species

Where physical evidence of the presence of protected species is indeterminate during the survey, the habitats on site are evaluated as to their likelihood to provide sheltering, roosting, foraging, basking or nesting habitat.

Where this report supports a planning application, the ecological interest of the study area (i.e. the area covered by the desk study and field survey) and the proposed development has also been evaluated in terms of the planning policies relating to biodiversity.

4.2 Evaluation

Taking the desk study and field survey results into account, Table 8 presents an evaluation of the ecological value of the site and also details any ecological constraints identified in relation to the proposed development which will comprise redevelopment to provide a doctors surgery and other community facilities with new residential developments and the provision of approximately 5 flats.

Table 8: Evaluation of the site and any ecological constraints.

Feature	Survey Results Summary	Impact Assessment	Recommendations	Biodiversity Enhancement Opportunities ¹
Designated sites	There is a statutory Site of Special Scientific Interest within 2km of the site, South Thames Estuary and Marshes SSSI located 1.3km north from the site. The presence of non-statutory designated	No impacts to designated sites are anticipated due to the distance of the proposed development from such sites (where known) as well as the urban location of the site with surrounding physical barriers.	None.	None.

¹ The Local Planning Authority has a duty to ask for enhancements under the NPPF (2021).

	sites within 2km of the site cannot be established without data from Greenspace information Greater London.			
Habitats and flora	There are no notable habitats on the development site or within the immediate vicinity. The site contains neutral grassland, scattered trees and dense scrub which has low ecological value for wildlife. Buddleia was identified on the site which is listed as an invasive plant species in London. No other invasive species were identified at the time of the survey.	The proposed development will result in the loss of grassland, shrub and trees as the vegetated areas of the site will be cleared. This habitat will be replaced with residential development and a small, vegetated area. Construction could result in the spread of buddleia and other invasive plant species if present.	Retained trees should be protected in line with the measures outlined in the British Standard "Trees in Relation to Design, Demolition and Construction to Construction - Recommendations" (BS 5837) (2012). The proposed development should incorporate areas of landscaping including species-rich grassland, native trees and shrubs to promote biodiversity. Invasive species should be dug up, including roots, and disposed of in line with appropriate controlled waste measures.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development: • Native tree, hedgerow and shrub planting. • Creation of wildflower grassland. • Creation of a pond • A green roof on new buildings. Species-specific enhancement opportunities are detailed later in this table.
Amphibians	Based on PEA survey findings, these species are unlikely to be present due to the habitats on site being disconnected from ponds within the wider area.	No impacts are anticipated on great crested newt, as a result of the proposed development as this species is considered to be absent from the site.	None.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for amphibians: • The creation of a pond and wildlife friendly landscaping

Reptiles	Based on PEA survey findings, these species cannot be discounted from the site, due to suitable habitat for foraging, basking and hibernation.	Log piles, grassland and scrub will be removed during construction. The loss of such habitats could result in a reduction in reptile habitat and could result in the fragmentation of the local landscape. Furthermore, site clearance could result in the death or injury of reptiles, if present.	Owing to the nature of the proposed development and the low potential for impacts to reptiles, further surveys are considered to be disproportionate. A precautionary working method will be implemented during construction, including the following measures: • Site clearance will be undertaken outside of the reptile hibernation season (November to February) insofar as is possible. • A staged approach will be adopted for vegetation clearance, whereby the vegetation will be trimmed to 15cm and left overnight to allow any reptiles to disperse. The vegetation can then be cleared to ground level and must be maintained at this level for the duration of construction to deter reptiles from the working area. • Any log piles will be dismantled by hand and debris and brash will be stored on pallets or removed from the site to prevent reptiles from utilising these areas. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • In the unlikely event that a reptile is identified, works must cease and advice must be sought from a suitably qualified ecologist.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for reptiles: • The creation of wildlife friendly landscaping with grassland and scrub areas for basking. • The creation of a pond.
Roosting bats (building)	Building 1 has low value for roosting bats based on the areas of damage to the soffit space, daylight entering the loft and restricted access to the eastern roof	Bats are very unlikely to be roosting within this building 3, 4,5,8,9,10 and as such, there are not anticipated to be any impacts on roosting bats as a result of the demolition to these buildings. The proposed development will result in the demolition of building 2, and 6 and	Negligible In the unlikely event that a bat or evidence of bats is discovered during the development all work must stop and a bat licensed ecologist contacted for further advice. Buildings 1, 2, 6 - Low	Negligible The installation of 6 bat boxes at the site will provide additional roosting habitat for bats. The bat boxes will be installed on the new development buildings.

	elevation and centre of the roof, damaged tiles could have been unidentified. Building 2 has low value for roosting bats based on the holes in the mortar above the four windows. Building 3 has negligible value for roosting bats due to a lack of suitable roost features. Building 4 has negligible value for roosting bats due to restricted access, the presence of bats cannot be discounted. Building 5 has negligible value for roosting bats due to a lack of suitable roost features. Building 6 has low value for roosting bats based on the gap between the wall and wooden verge board. Building 7 has negligible value for roosting bats based on the lack of internal access to the open built structure. Building 8 has negligible value for roosting bats due to a	renovation and repairs building 1. This could result in damage and destruction of any bat roosts present and could cause disturbance, death or injury to bats.	One bat emergence or re-entry survey have been granted and all relevant wildlife-related conditions have been discharged prior to submission is required during the active bat season (optimal May to August, suboptimal September) to confirm presence or likely-absence of a bat roost in the building. Infra-red cameras should be used as an aid. Five surveyors are required to provide full coverage of the buildings. If bat roosts are confirmed in the building two additional surveys may be required to characterise the roost and to inform an EPSL application to Natural England. Surveys should be a minimum of two weeks apart. The EPSL application requires that surveys have been undertaken within the most recent active bat season and planning permission must have been granted and all relevant wildlife-related conditions have been discharged prior to submission.	Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light. Low Roost Value To be confirmed upon completion of the surveys.
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	lack of suitable roost features. Building 9 has negligible value for roosting bats due to a lack of suitable roost features. Building 10 has negligible value for roosting bats due to a lack of suitable roost features			
Foraging and commuting bats	Scattered trees and dense scrub could be used by local bat populations for foraging and commuting. These could also be used by bats dispersing from nearby roosts outside of the site.	The proposed development will result in the loss of scrub and trees (exact area being removed is unknown until further plans are provided). This could reduce the availability of foraging or commuting resources in the locality and could also disrupt dispersal corridors for bats leaving or returning to roosts in the wider area. The proposed development will include the use of lighting which could spill on to bat roosting, foraging or commuting habitat and deter bats from using these areas.	Bat activity surveys, comprising walked transects and static monitoring, will not be required to determine the usage of the site by foraging and commuting bats, due to the urban location of the site, it is surrounded by residential housing and is well lit from street lights. A low impact lighting strategy will be adopted for the site during and post-development, which will include the following measures: • Light spill on to vegetated areas should be avoided. • Use narrow spectrum light sources to lower the range of species affected by lighting. • Use light sources that emit minimal ultra-violet light. • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature <4,200 kelvin. • Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for foraging bats: • The creation of a wildlife pond. • Planting of native tree, shrub and hedgerows to increase foraging opportunities.

			• Light spill will be reduced via the use of low-level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be directional to ensure that light is directed to the intended areas only. • External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on. • Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.	
Badger	Based on PEA survey findings, these species are unlikely to be present, due to a lack of access and evidence on site.	No impacts are anticipated on badgers as a result of the proposed development.	None.	None.
Hazel dormouse	Based on PEA survey findings, these species are unlikely to be present, due to a lack of suitable habitat on site and connected to the wider greenspace.	No impacts are anticipated on hazel dormice as a result of the proposed development.	None.	None.

Hedgehog	The site provides suitable habitat to support a population of hedgehogs.	Site clearance is unlikely to generate a significant loss of hedgehog habitat, but construction activities could result in death or injury of hedgehogs if present.	A precautionary working method will be implemented during construction, including the following measures: • Site clearance will be undertaken outside of the hedgehog hibernation season (November to March) insofar as is possible. • A staged approach will be adopted for vegetation clearance, whereby the vegetation will be strimmed to 30cm and left overnight to allow any hedgehogs to disperse. The vegetation can then be cleared to ground level and must be maintained at this level for the duration of construction to deter hedgehogs from the working area. • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which hedgehogs could use. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • If any hedgehogs are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for hedgehogs: • Planting fruit bearing trees and species-rich grassland to increase foraging opportunities. • Creation of brash piles or installation of hedgehog houses in shady areas. • Installation of gaps under boundary fencing to enable hedgehogs to move freely through the site
Otter and water vole	Based on PEA survey findings, these species are unlikely to be present as no watercourses or	No impacts are anticipated on otters as a result of the proposed development.	None.	None.

	riparian habitats in the vicinity.			
Birds	There is a confirmed presence of breeding and nesting birds on site.	Trees and scrub will be removed during construction. The loss of such habitats could result in a reduction of nesting and foraging habitat. Furthermore, the proposed renovation to Building 1 could result in the destruction or the disturbance and subsequent abandonment of active bird nests.	The renovation and any roof works carried out to building 1, and clearance or cutting of exiting trees should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the trees should be undertaken immediately, by qualified ecologist, prior to the commencement of work. All active nests will need to be retained until the young have fledged.	The installation of eight bird boxes at the site will provide additional nesting habitat for birds. The bird boxes should be installed onto the residential buildings or retained mature trees scattered within the site. General purpose bird boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light. Species-specific bird boxes should be installed in line with manufacturers specifications.
Invertebrates	Based on ecological walk over survey findings, notable species are unlikely to be present in significant assemblages due to a lack of suitable habitat and water sources on site.	No impacts are anticipated on notable species or populations of invertebrates as a result of the proposed development.	None.	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for invertebrates: • Native tree, hedgerow and shrub planting. • Creation of wildflower grassland. • Creation of a pond • The addition of deadwood.

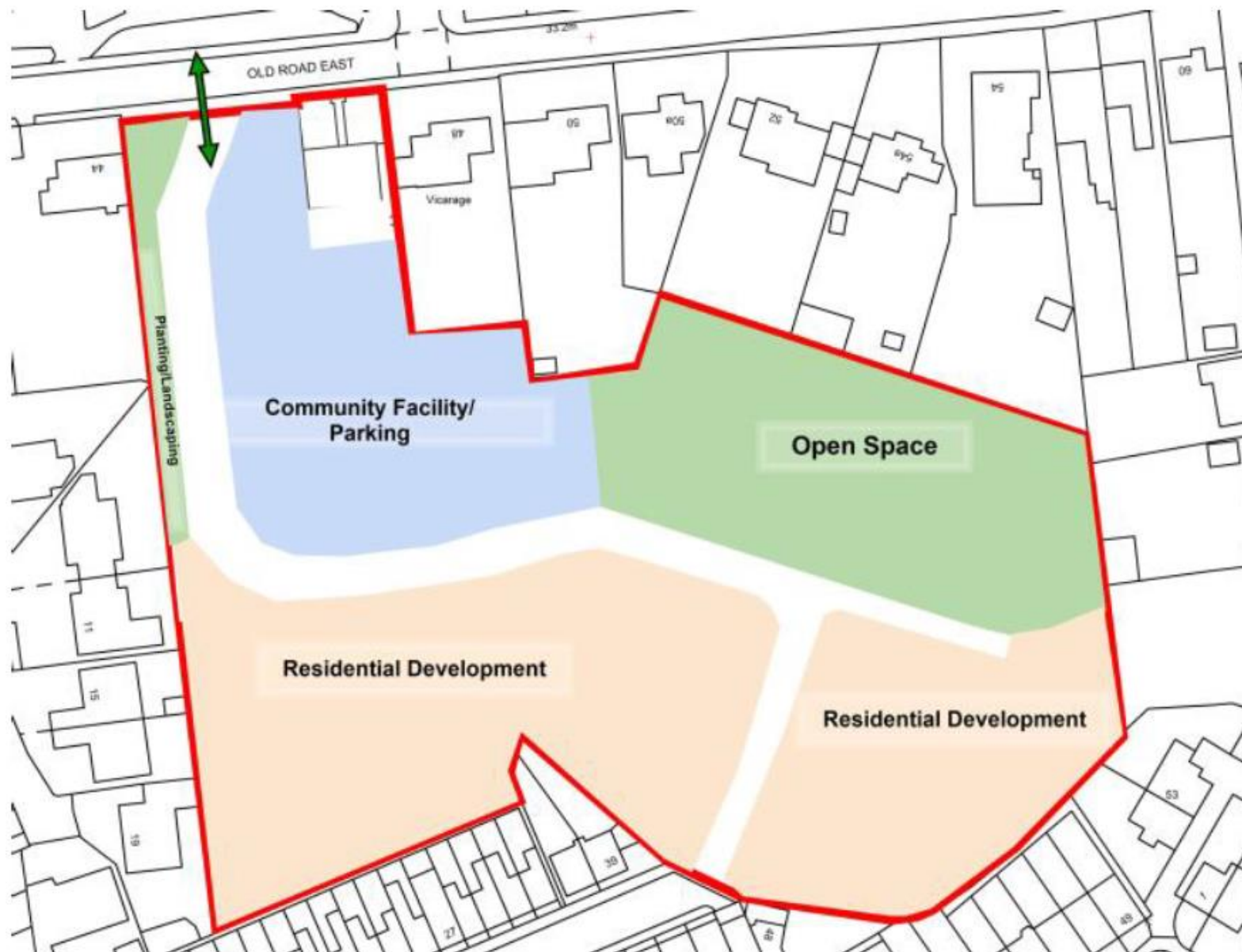
5.0 Bibliography

- Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Dejean, T., Griffiths, R., Foster, J., Wilkinson, J., Arnell, A., Brotherton, P., Williams, P. and Dunn, F. (2014). Using eDNA to Develop a National Citizen Science-based Monitoring Programme for the Great Crested Newt (*Triturus cristatus*). Biological Conservation. 183. 10.1016/j.biocon.2014.11.029.
- Bright, P., Morris, P., Mitchell-Jones, T. and Wroot, S. (2006). The Dormouse Conservation Handbook Second Edition.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- Chanin, P. (2003). Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. Natural England, Peterborough.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Defra (2007). Hedgerow Survey Handbook. A Standard Procedure for Local Surveys in the UK. Defra, London.
- Edgar, P., Foster, J. and Baker, J (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth
<http://downloads.gigl.org.uk/website/Reptile%20Habitat%20Management%20Handbook.pdf>
- Garland, L. & Markham, S. (2008) Is Important Bat Foraging and Commuting Habitat Legally Protected?
<http://biodiversitybydesign.co.uk/cmsAdmin/uploads/protection-for-bat-habitat-sep-2007.pdf>
- Gent, T. and Gibson, S. (2003). Herpetofauna Workers' Manual. JNCC, Peterborough.
- Gilbert, G., Gibbons, D.W., and Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

- Google Earth. Accessed on 22/05/23.
- Harris, S., Cresswell, P. and Jefferies, D.J. (1989). Surveying badgers. Mammal Society, London.
- HMSO: Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 <https://www.legislation.gov.uk/ukxi/2019/579/contents/made>
- HMSO: Countryside & Rights of Way Act (2000) <http://jncc.defra.gov.uk/page-1378>
- HMSO: Natural Environmental and Rural Communities Act (2006) <http://www.legislation.gov.uk/ukpga/2006/16/contents>
- HMSO: The Protection of Badgers Act 1992 (as amended) <http://www.legislation.gov.uk/ukpga/1992/51/contents>
- HMSO: Wildlife and Countryside Act 1981 (as amended 01.04.1996) <http://jncc.defra.gov.uk/page-1377>
- Institution of Lighting Professionals (2018). Guidance Note 08/18 Bats and Artificial Lighting in the UK. Bats and the Built Environment Series Publication: http://www.bats.org.uk/news.php/406/new_guidance_on_bats_and_lighting.
- JNCC (2004). Bat Workers Manual, 3rd Edition. <http://jncc.defra.gov.uk/page-2861>
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey a technique for environmental audit. http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- Langton, T., Beckett, C. and Foster, J (2001). Great Crested Newt Conservation Handbook. Froglife. Suffolk. http://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf
- Magic Database. <http://www.magic.gov.uk/MagicMap.aspx> Accessed on 22/05/23.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.
- National Planning Policy Framework (2021). <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Natural England Designated Sites View. <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx> Accessed on 22/05/23.
- Natural England (2005). Organising Surveys to Determine Site Quality for Invertebrates: A Framework Guide for Ecologists. Natural England, Peterborough.
- Natural England (2007). Badgers and Development a Guide to Best Practice and Licensing. Natural England. Bristol. <http://www.wildlifeco.co.uk/wp-content/uploads/2014/03/badgers-and-development.pdf>
- Oldham R.S., Keeble J., Swan M.J.S. and Jeffcote M. (2000). Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155. <https://www.thebhs.org/publications/the-herpetological-journal/volume-10-number-4-october-2000/1617-03-evaluating-the-suitability-of-habitat-for-the-great-crested-newt-triturus-cristatus/file>
- Panks, S., White., N., Newsome, A., Potter, J., Heydon, M., Mayhew, E., Alvarez, M., Russell, T., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2021). Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity – Technical Supplement. Natural England.

- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.
- Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook. Third Edition. Wildlife Conservation Research Unit, Oxford.
- UK Habitat Classification Working Group (2018). UK Habitat Classification User Manual at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>
- Wray, S., Wells, D., Long, E. and Mitchell-Jones, T (2010). Valuing Bats in Ecological Impact Assessment. IEEM In-Practice. Number 70 (December 2010). Pp. 23-25.

Appendix 1: Proposed Development Plan



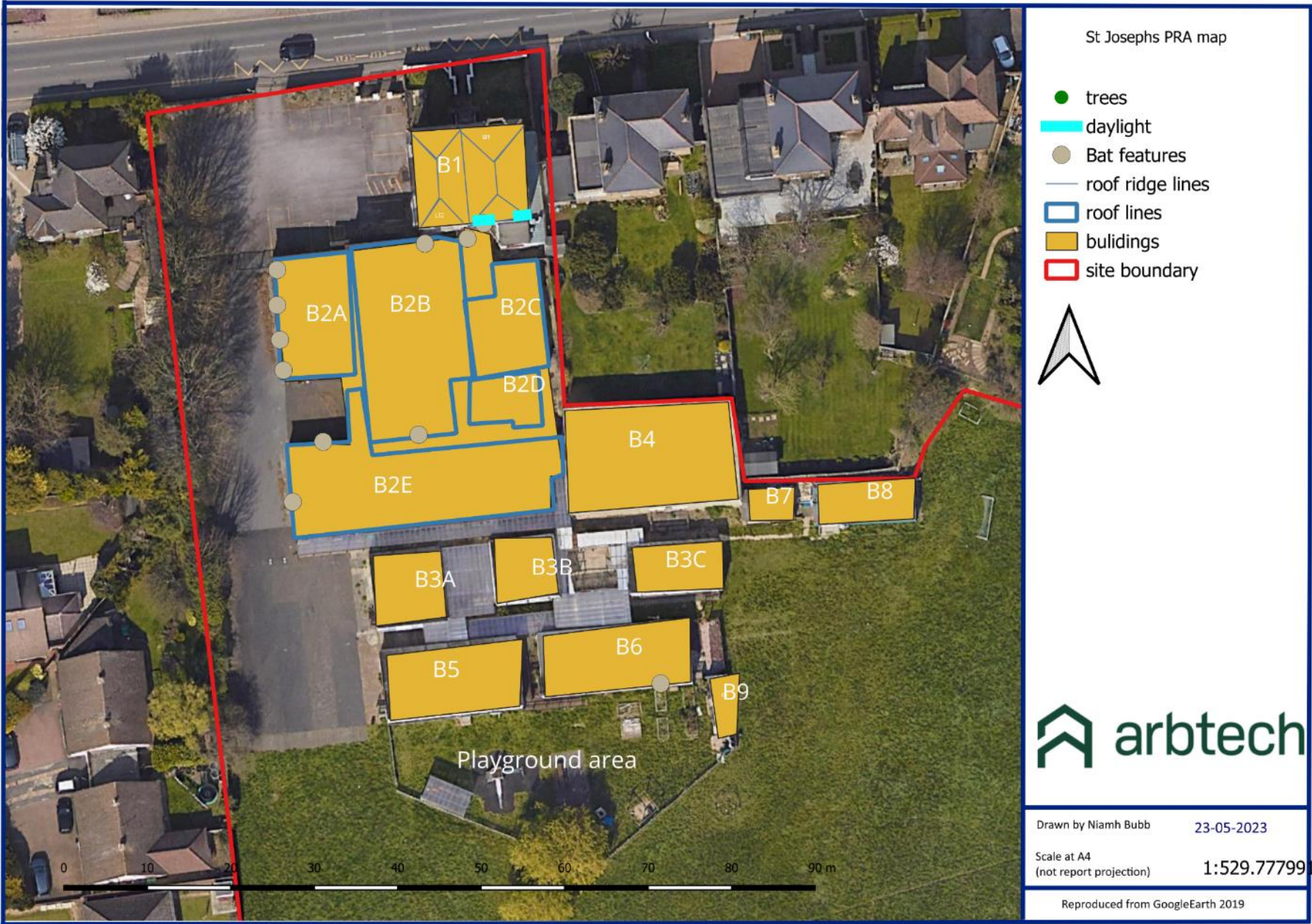
Appendix 2: Site Location Plan



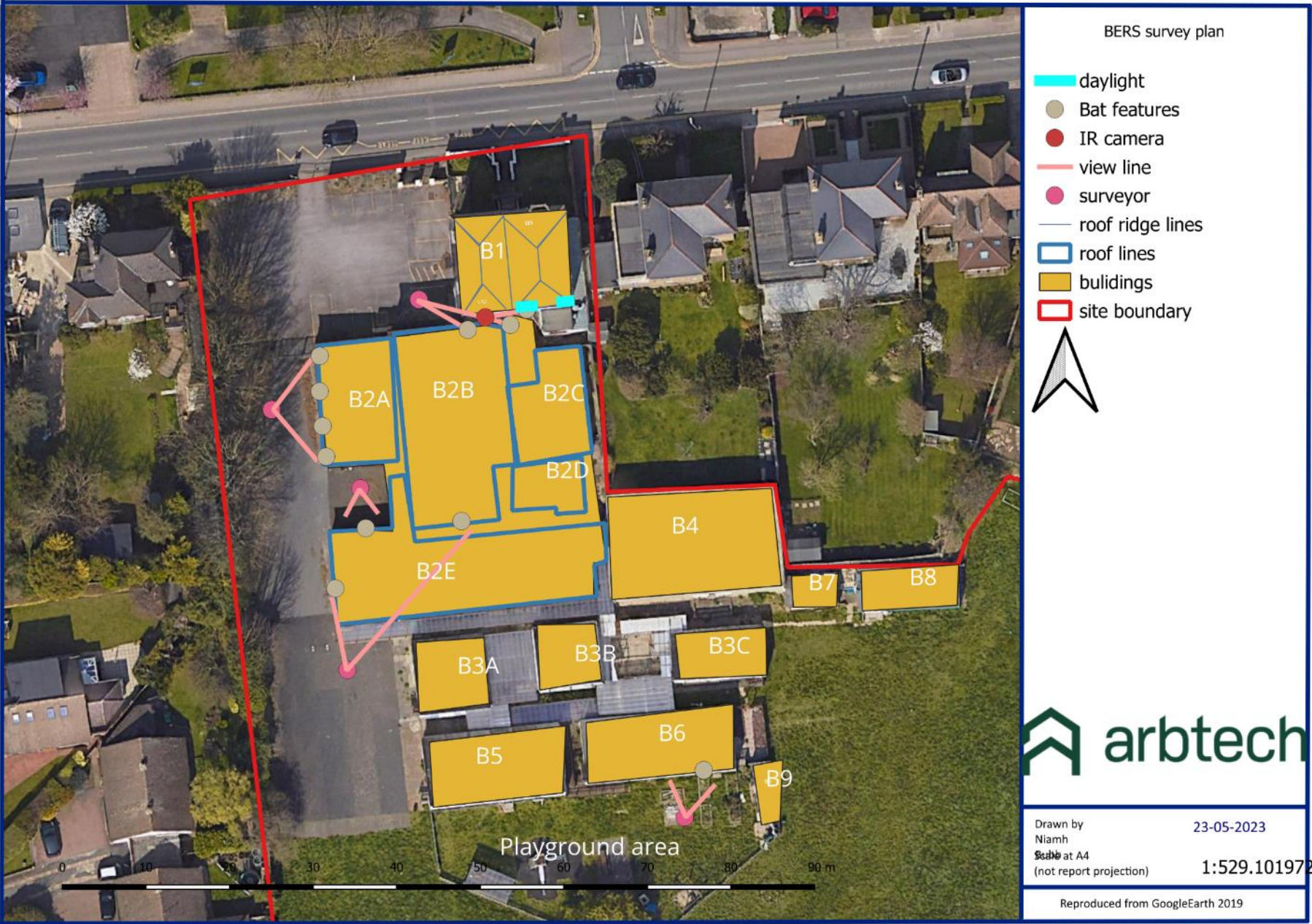
Appendix 3a: Habitat Survey Plan



Appendix 3b: PRA Plan



Appendix 3c: Proposed BERS Plan



Appendix 4: Legislation and Planning Policy

LEGAL PROTECTION

National and European Legislation Afforded to Habitats

International Statutory Designations

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sites of European importance and are designated under the EC Habitats Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) and the EC Birds Directive 2009/147/EC on the conservation of wild birds (the Wild Birds Directive) respectively. Both form part of the wider Natura 2000 network across Europe.

Under the Habitats Directive Article 3 requires the establishment of a network of important conservation sites (SACs) across Europe. Over 1000 animal and plant species, as well as 200 habitat types, listed in the directive's annexes are protected in various ways:

Annex II species (about 900): core areas of their habitat are designated as Sites of Community importance (SCIs) and included in the Natura 2000 network. These sites must be managed in accordance with the ecological needs of the species.

Annex IV species (over 400, including many Annex II species): a strict protection regime must be applied across their entire natural range, both within and outside Natura 2000 sites.

Annex V species (over 90): their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status.

SPAs are classified under Article 2 of the Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds both for rare bird species (as listed on Annex I) and for important migratory species.

The Conservation of Habitats and Species Regulations 2017 (as amended) form the legal basis for the implementation of the Habitats and Birds Directives in terrestrial areas and territorial waters out to 12 nautical miles in England and Wales (including the inshore marine area) and to a limited extent in Scotland and Northern Ireland.

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and recognises the importance of wetland ecosystems in relation to global biodiversity conservation. The Convention refers to wetlands as “*areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres*”. However, they may also include riparian and coastal zones. Ramsar sites are statutorily protected under the Wildlife & Countryside Act 1981 (as amended 01.04.1996) with further protection provided by the Countryside and Rights of Way (CROW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. The Government in England and Wales has issued policy statements which ensure that Ramsar sites are afforded the same protection as areas designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs). Further provisions for the protection and management of SSSIs have been introduced by the Nature Conservation (Scotland) Act 2004.

National Statutory Designations

Sites of Special Scientific Interest (SSSI) are designated by nature conservation agencies in order to conserve key flora, fauna, geological or physio-geographical features within the UK. The original designations were under the National Parks and Access to the Countryside Act 1949 but SSSIs were then re-designated under the Wildlife & Countryside Act 1981 (as amended). As well as reinforcing other national designations (including National Nature Reserves), the system also provides statutory protection for terrestrial and coastal sites which are important within the European Natura 2000 network and globally.

Local Statutory Designations

Local authorities in consultation with the relevant nature conservation agency can declare Local Nature Reserves (LNRs) under the National Parks and Access to the Countryside Act 1949. LNRs are designated for flora, fauna or geological interest and are managed locally to retain these features and provide research, education and recreational opportunities.

Non- Statutory Designations

All non-statutorily designated sites are referred to as Local Wildlife Sites (LWS) and can be designated by the local authority for supporting local conservation interest. Combined with statutory designation, these sites are considered within Local Development Frameworks under the Town and Country Planning system and are a material consideration during the determination of planning applications. The protection afforded to these sites varies depending on the local authority involved.

Regionally Important Geological Sites (RIGs) are the most important geological and geomorphological areas outside of statutory designations. These sites are also a material consideration during the determination of planning applications.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are designed to protect 'important' countryside hedgerows. Importance is defined by whether the hedgerow (a) has existed for 30 years or more; or (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys without the permission of the local authority. Hedgerows 'within or marking the boundary of the curtilage of a dwelling-house' are excluded.

National and European Legislation Afforded to Species

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) aims to promote the maintenance of biodiversity by requiring the Secretary of State to take measures to maintain or restore wild species listed within the Regulations at a favourable conservation status.

The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Wildlife and Countryside Act (WCA) 1981 (as amended)

The Wildlife and Countryside Act (WCA) 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979, implemented 1982) and implements the species protection requirements of EC Birds Directive 2009/147/EC on the conservation of wild birds in Great Britain (the birds Directive). The WCA 1981 has been subject to a number of amendments, the most important of which are through the Countryside and Rights of Way (CROW) Act (2000).

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Badgers

Badgers *Meles meles* are protected under The Protection of Badgers Act 1992 which makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett or any part thereof

- Intentionally or recklessly disturb a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A development licence will be required from the relevant countryside agency (i.e. Natural England) for any development works likely to affect an active badger sett, or to disturb badgers whilst they occupy a sett. Guidance has been issued by the countryside agencies to define what would constitute a licensable activity. It is no possible to obtain a licence to translocate badgers.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the WCA. Among other things, this makes it an offence to:

- Intentionally kill, injure or take any wild bird
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the WCA and are commonly referred to as “Schedule 1” birds.

This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

Works should be planned to avoid the possibility of killing or injuring any wild bird or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Schedule 1 birds are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

Amphibians and Reptiles

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita*, pool frog *Pelophylax lessonae* and great crested newt *Triturus cristatus* receive full protection under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

With the exception of the pool frog, these species are also listed on Schedule 5 of the WCA and they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of reptiles are protected solely under Schedule 5, Section 9(1) & (5) of the WCA, i.e. the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. It is prohibited to:

- Intentionally or recklessly kill or injure these species.

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England) will be required for works likely to affect the breeding sites or resting places amphibian and reptile species protected under Habitats Regulations. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation, but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the WCA.

Water Voles

The water vole *Arvicola terrestris* is fully protected under Schedule 5 of the WCA. This makes it an offence to:

- Intentionally kill, injure or take (capture) water voles
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

If development works are likely to affect habitats known to support water voles, the relevant countryside agency (i.e. Natural England) must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles may be issued by the relevant countryside agency for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

Otters

Otters *Lutra lutra* are fully protected under the Conservation Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Otters are also currently protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England) will be required for works likely to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored

Bats

All species are fully protected by Habitats Regulations 2010 as they are listed on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. All bats)
- Deliberate disturbance of bat species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Bats are afforded the following additional protection through the WCA as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England) will be required for works are likely to affect a bat roost or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSL. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Hazel Dormice

Hazel dormice *Muscardinus avellanarius* are fully protected under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Dormice are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

Works which are liable to affect a dormice habitat or an operation which are likely to result in an illegal level of disturbance to the species will require a European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England). The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

White Clawed Crayfish

There is a considerable amount of legislation in place in an attempt to protect the White-clawed crayfish *Austropotamobius pallipes*. This species is listed under the European Union's (EU) Habitat and Species Directive and is listed under Schedule 5 of the Wildlife and Countryside Act (1981). This makes it an offence to:

- Protected against intentional or reckless taking
- Protected against selling, offering or advertising for sale, possessing or transporting for the purpose of sale

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

The relevant countryside agency (i.e. Natural England) will need to be consulted about development which could impact on a watercourse or wetland known to support white clawed crayfish. Conservation licences for the capture and translocation of crayfish can be issued if it can be shown that the activity has been properly planned and

executed and thereby contributes to the conservation of the population. The licence will only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of the works.

Wild Mammals (Protection Act) 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Legislation Afforded to Plants

With certain exceptions, all wild plants are protected under the WCA. This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits any person from:

- Intentionally picking, uprooting or destruction of any wild Schedule 8 species
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
 - Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
 - Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) will be required from the relevant countryside agency (i.e. Natural England) for works which are likely to affect species of planted listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Invasive Species

Part II of Schedule 9 of the WCA lists non-native invasive plant species for which it is a criminal offence in England to plant or cause to grow in the wild due to their impact on native wildlife. Species included (but not limited to):

- Japanese knotweed *Fallopia japonica*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

It is not an offence for plants listed in Part II of Schedule 9 of the WCA 1981 to be present on the development site, however, it is an offence to cause them to spread. Therefore, if any of the species are present on site and construction activities may result in further spread (e.g. earthworks, vehicle movements) then it will be necessary to design and implement appropriate mitigation prior to construction commencing.

Injurious weeds

Under the Weeds Act 1959 any landowner or occupier may be required prevent the spread of certain 'injurious weeds' including (but not limited to):

- Spear thistle *Cirsium vulgare*
- Creeping thistle *Cirsium arvense*
- Curled dock *Rumex crispus*
- Broad-leaved dock *Rumex obtusifolius*
- Common ragwort *Senecio jacobaea*

EFFECT OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

NATIONAL PLANNING POLICY***Environment Act 2021***

The Environment Act 2021 (EA 2021) received Royal Assent on 9 November 2021 and is expected to become fully mandated within the next couple of years. The Act principally creates a post Brexit framework to protect and enhance the natural environment. Through amendments to the Town and Country Planning Act 1990, the Act will require all planning permissions in England (subject to exemptions which is likely to include householder applications) to be granted subject to a new general pre-commencement condition that requires approval of a biodiversity net gain plan. This will ensure the delivery of a minimum of 10% measurable biodiversity net gain. The principal tool to calculate this will be the Defra Biodiversity 3.0 Metric. Works to enhance habitats can be carried out either onsite or offsite or through the purchase of 'biodiversity credits' from the Secretary of State. However, this flexibility may be removed (subject to regulations) if the onsite habitat is 'irreplaceable'. Both onsite and offsite enhancements must be maintained for at least 30 years after completion of a development (which period may be amended).

National Planning Policy Framework 2021

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; measurable gains in biodiversity in and around developments are incorporated; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity'. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

LOCAL PLANNING POLICY

Objectives and targets (to be achieved by 2045)

Terrestrial habitats, ecosystems and species can be viewed here:

<https://democracy.kent.gov.uk/documents/s96710/20-00025%20-%20Kent%20Biodiversity%20Strategy%20March%202020.pdf>

The following planning policies have implications in relation to biodiversity and the proposed development:

20.84% high value semi-natural habitat (74,750 ha) well managed¹⁴ for nature¹⁵ (from the 2015 baseline of 14.6% and 54,640 ha).

- An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha)¹⁶ (from the 2015 baseline of 27% and 100,872 ha).
- 75% Sites of Special Scientific Interest restored to favourable condition, securing their wildlife value for the long term (from the 2019 baseline of 68%).
- Over half of Local Wildlife Sites in good management¹⁰, securing their local wildlife value for the long term (from the 2019 baseline of 43%).
- More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.
- New development to better provide for a greener urban environment, through increased urban tree planting, the inclusion of integral wildlife niches and green building and landscape design.
- Protect and restore existing trees and woodland, whilst increasing tree cover within the county that supports the recovery of wildlife, delivers natural climate solutions and enriches people's lives.
- Kent-specific threatened and iconic species of terrestrial animals and plants are recovering, including those that support ecosystem services (for details, see Species table below).

Local Species

The following habitats have been identified on or surrounding the site (based on the site survey and a review of the magic.gov.uk database) and are included in the plan:

- Serotine bat: widespread but declining. This indicator provides a means of monitoring population trends and can be monitored effectively and with a good degree of accuracy as part of the National Bat Monitoring Programme. Ensuring no net loss of roosts is difficult, in part as a major contributing factor in roost loss (all known serotine maternity roosts are in buildings, mainly houses) appears to be changes of temperature regimes.
- Shrill Carder Bee: one of the UKs rarest bumblebees. With bumblebees, presence alone is not necessarily a good indicator of how populations are faring and one needs to take into account effective population size (numbers of males and queens, which are the reproductive castes as opposed to the workers). Wildlife friendly landscaping needs to be incorporated into new development.
- Swift: decrease in breeding numbers. To stop the decline of swifts by ensuring that every new house built in Kent contains one swift-box or nest-brick.
- Adder: considerable decline in adder distribution. Long term monitoring in Kent that will indicate how prevailing conditions have influenced adder detectability and hence affected the potential recording rate.
- Hedgehog: population appears to be in dramatic decline. There are no official monitoring schemes for this species. KNP partners and others will continue to increase awareness of this species, to promote campaigns such as the People's Trust for Endangered Species' Hedgehog Street and to promote advice to land managers including farmers and gardeners.

EUROPEAN PROTECTED SPECIES POLICIES

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.