



Simon Geary Ecology Services

Armada Way Public Realm, Plymouth

Preliminary Ecological Appraisal Report
incorporating a bat tree roost assessment

Final Report
December 2022



Prepared for Morgan Sindall Construction and Infrastructure Ltd



Revision Schedule

Armada Way Public Realm, Plymouth: Preliminary Ecological Appraisal Report

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Non-Technical Summary

Simon Geary Ecology Services Ltd undertook a Preliminary Ecological Appraisal including assessment of trees for bat roost potential on Armada Way, Plymouth, Devon. The survey was conducted to inform the proposed re-design of part of Armada Way Public Realm.

The site survey to inform this appraisal was conducted on 8 December 2022. The survey method was 'extended' Phase 1 Habitat Survey, which included a cursory check for protected species or their field signs, and an assessment of the potential for habitats, such as the trees, to support protected species. The habitat mapping codes used follow UKHab habitat definitions.

The dominant habitat classification within the proposed development footprint is urban, but it is a mosaic of urban habitats comprising built linear features; paths, seating areas and hard landscaping; artificial unvegetated, unsealed surfaces; modified grassland; gardens with introduced shrubs and many immature trees.

Most of the habitats on the proposed development site are of negligible ecological importance *per se* and are unlikely to support protected species (i.e. dwelling or resting places) on a permanent or long-term basis.

The trees and shrubs have higher ecological importance *per se* and provide habitat for other flora and fauna, but as a city centre area are subject to intensive management and high levels of human disturbance reducing the functionality for wildlife.

Some 15 trees planned to be felled contain potential bat roost features and further survey is required to evaluate these trees prior to felling.

Obvious bird nests (presumably disused due to time of year) were recorded.

Recommendations

- Further survey and assessment of 15 trees identified for bat roost potential prior to felling and follow up mitigation measures depending on the survey results.
- Pre-felling inspection for nesting birds.
- Ecological watching brief during felling of identified trees depending on the results of the pre-felling surveys.

The re-design will include significant areas of new planting as part of compensation and biodiversity net gain measures. These measures are not incorporated into this report as this information is available in separate documentation submitted with the planning application.



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1 Introduction

1.1 Terms of Reference

Simon Geary Ecology Services Limited was instructed by YGS Environmental Consultants on behalf of Morgan Sindall to undertake a Preliminary Ecological Appraisal (PEA) of a section of Armada Way, Plymouth, to inform the re-design of the city centre. Hereinafter referred to as the 'development zone' or the 'site'.

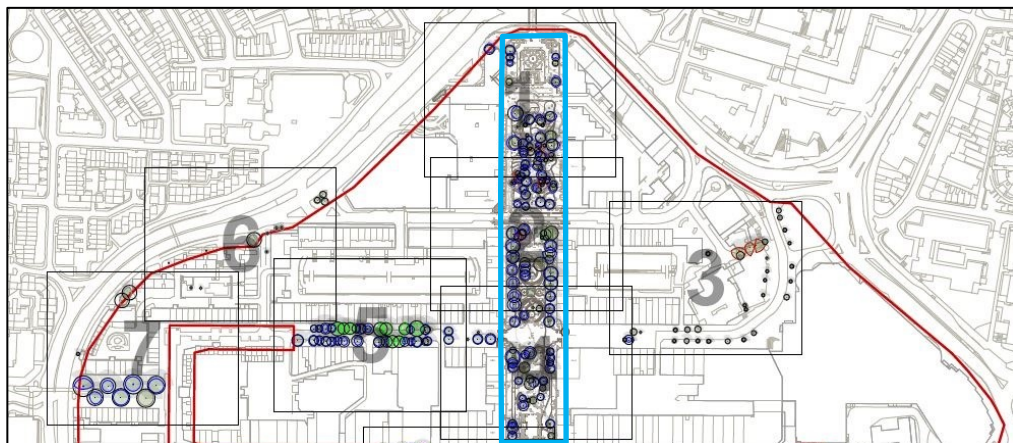
This report describes the habitats on site and assesses the potential for impacts on protected sites, ecologically important habitats and protected species. Where applicable, details of avoidance, mitigation, habitat compensation, together with recommendations for any further ecological survey or on-site support, are included in this report.

Biodiversity Net Gain for this development has been assessed and described in detail by another consultant and separate documents have been produced to guide the process. No details are therefore included in this report

1.2 Proposed Development

It is proposed to re-design part of Armada Way as part of wider city centre improvements. The survey area covered by this report is confined to Armada Way and corresponds to sheets 001, 002 and 004 contained in the Tree Survey Report (YGS Environmental Consultants, November 2021) and is shown in Figure 1. The trees assessed for bat roost potential are numbers 1 – 137 as referenced in the Tree Survey Report.

Figure 1. Site Survey Area (blue outline)



Excerpt from drawing 2140/PCC/BP/006 Courtesy of YGS Environmental Consultants

1.3 Site Location and Context

The proposed development site is situated on part of Armada Way within Plymouth City Centre and is a landscaped public area with numerous shrub beds and trees. The site is surrounded by



commercial buildings. The habitats on and surrounding the site comprise urban mosaic habitats with typically extensive paved, sealed surfaces.

1.4 Existing Ecological Information

In January 2017, Tor Ecology completed a Preliminary Ecological Appraisal of the site covered by this report as part of a larger survey area within the city centre (Tor Ecology 2017). In summary, the 2017 report did not record any significant ecological constraints but made several recommendations including ‘soft fell’ of two trees with low bat roost potential. However the two trees identified in 2017 were outside of the 2022 survey area and so are not addressed in this current report. No potential bat roost features were identified in the trees in the 2022 survey area during the 2017 survey.

1.5 Aim and Objectives of Survey

Preliminary Ecological Appraisal (PEA) is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence¹ in relation to a specific project (usually a proposed development). A PEA normally comprises a desk study and a walkover survey. Where structures or trees are affected this also includes a preliminary bat roost assessment and a nesting bird assessment.

The key objectives² of a PEA are to:

- identify the likely ecological constraints associated with a project;
- identify any mitigation measures likely to be required, following the ‘Mitigation Hierarchy’³;
- identify any additional surveys that may be required to inform an Ecological Impact Assessment (EclA); and
- identify the opportunities offered by a project to deliver biodiversity net gain.

1.6 Quality Assurance

Our ecological surveys are undertaken by suitably qualified ecologists of Simon Geary Ecology Services Ltd, who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and work in accordance with the CIEEM Code of Professional Conduct. Surveys for protected species are undertaken by appropriately experienced ecologists holding the relevant survey licences issued by the relevant Statutory Nature Conservation Organisation (e.g. in England this is Natural England).

¹ The area(s) over which ecological features may be affected by the biophysical changes caused by a proposed project and associated activities.

² These objectives are constrained to what is achievable during an initial site survey and some detail is preliminary until any recommended further survey is complete.

³ This seeks as a preference to avoid impacts then to mitigate unavoidable impacts, and, as a last resort, to compensate for unavoidable residual impacts that remain after avoidance and mitigation measures.



2 Methods

The Preliminary Ecological Appraisal method was guided by industry standard guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM 2017). Where used, Ecological Impact Assessment (EclA) terminology follows EclA guidelines published by CIEEM (2018).

2.1 Definition of the Study Area

The study area comprises the site survey area and the desk study area which is usually larger. The site survey area is defined by the site boundary provided and is shown in Figure 1. Typically, a variable sized buffer zone is also surveyed for several reasons, such as to allow for any minor deviations in the 'footprint' of the proposed development, to fully survey and assess the potential disturbance impacts on certain protected species, e.g. nearby bat roosts, badger setts or great crested newt ponds. Therefore a cursory visual assessment of immediate neighbouring habitats was undertaken in respect of their suitability to support protected species.

2.2 Desk Study

The methods comprised a web-based desk study of relevant ecological information, typically within a 1 km radius of the site. This search principally uses the Defra MAGIC and Devon County Council Environment Viewer websites, but can only make general reference to information on these websites due to copyright regulations. An internet and planning portal search is made for ecology survey reports in the immediate neighbourhood within the past 5 years for contextual information. The desk study area for European sites is not defined as this depends on the conservation objectives of the site and the potential impacts of the development.

2.3 Site Survey

The survey method applied was a combination of 'extended' Phase 1 Habitat Survey and UKHab (UKHab, 2020). The broad concept of Phase 1 Habitat Survey (JNCC 2010) provides an initial assessment of habitat presence and quality whereby blocks of land are assigned to habitat categories and marked on a Habitat Map (Appendix 1). Phase 1 Habitat Survey habitat categories and definitions are now being superseded by UKHab definitions and mapping colour codes, and the latter has been used in this report in order to match habitat definitions in Defra Biodiversity Net Gain Metrics.

Target notes are used where applicable to provide additional descriptions of features of particular ecological interest or importance (e.g. ponds, protected species field signs).

Scientific names of species recorded on site or mentioned in this report are not included in the text but are listed in Appendix 3.

Photographs of the site are provided in Appendix 4.

The 'extended' element of the survey involves a cursory check and recording of obvious protected species or their field signs (as constrained by survey date), and making an assessment of the potential of the habitats on site to support protected species. The latter element of survey



can include a preliminary bat roost assessment of structures and trees and a search for badger setts.

Invasive non-native species, i.e. those listed in schedule 9 (part 1 or part 2) to the Wildlife and Countryside Act 1981 (as amended), were also recorded if detected.

Protected Species Field Signs or Potential for Occurrence

The approach to initial assessment for protected species is described in Table 1.

Table 1. Protected Species – Approach to Preliminary Assessment

Taxa	Assessment method and information gathered
Hazel Dormouse	An assessment of the potential of hedges, scrub, shrubs or woodland habitats on site to support the species (Bright <i>et al.</i> 2006).
Bats	Where built structures or trees are present on site, a ground-based preliminary bat roost inspection and assessment, based upon the Bat Conservation Trust (BCT) Bat Survey Good Practice Guidelines (Collins 2016). Local planning guidance for the South Hams SAC greater horseshoe bat habitats regulations assessment planning consultation zone (Devon County Council 2019).
Otter and Water Vole	Where watercourses are present on site a cursory search for field signs of riparian mammals, such as otter (Chanin 2003) and water vole (Strachan and Moorhouse 2006).
Badger	A cursory search for badger setts or field signs (Mammal Society 1989).
Birds	Obvious nesting birds or their field signs are recorded. Casual records of birds are recorded during the preliminary survey. An assessment of the bird habitats to assess the potential for important nesting, migratory or wintering species (Gilbert, Gibbons and Evans 1998).
Reptiles and Amphibians	A cursory check for reptiles or amphibians, e.g. basking animals, or beneath logs, stones or debris (Gent and Gibson 2003). Ponds are evaluated for the suitability to support great crested newt (Oldham <i>et al.</i> 2000).
Invertebrates	Evaluation for potential habitats of importance to invertebrates and any obvious protected/notable species are recorded (English Nature 2005; BugLife various guidance).

A summary of legislation and policy protecting habitats and protected species is provided in Appendix 6.



3 Results

3.1 Desk Study

Statutory Protected Sites

No statutory protected sites for nature conservation will be directly impacted by the proposed development.

Non-Statutory Protected Sites and Recognised Biodiversity Areas

No non-statutory protected sites for nature conservation, or recognised biodiversity areas, will be directly impacted by the proposed development.

Habitats of Principal Importance for Biodiversity

The nearest habitats of principal importance for the conservation of biodiversity are marine and coastal habitats associated with protected sites covering or associated with Plymouth Sound. The protected marine habitats are concurrent with the mean high tide line and therefore some distance from the proposed development. Due to the separation distance between the proposed development and such habitats, the habitats and associated flora and fauna are unlikely to be directly affected.

Devon Protected Species Planning Consultation Zones

Great crested newt

The development site lies within one 5-km radius planning consultation zones for great crested newt, centred on a confirmed pond site in Central Park ca.1.5 km to the north of the proposed development site. See Section 3.2, page 8 (Protected Species Field Signs or Potential for Occurrence) for further assessment of great crested newt.

3.2 Site Survey

Habitat Survey

The habitats recorded on the site are described below, together with descriptions of their features and characteristic flora species. The habitats are listed in order of the UKHab codes including secondary codes used to qualify the primary habitat category. The Habitat Map is provided in Appendix 1.

Related observations of protected or notable species, or invasive non-native species, are described below.

u1 Built-up areas and gardens

Secondary Codes: 48 non-native, 73 bare ground, 76 recent management, 231 vegetated garden, 232 unvegetated garden, 700 open spaces around premises, 1150 flower bed, 1160 introduced shrub, 1173 tree avenue/alley, 1232 non-permeable paving



Gardens and introduced shrubs cover an extensive area (e.g. Plates 1 - 6). The shrubs are interspersed with planted trees (many of immature stature) creating a broken canopy and comprising a mix of species, as listed in the Tree Survey Report (YGS Environmental Consultants 2021).

An assumed disused wood pigeon nest was recorded in one tree. Potential bat roost features are present in some trees.

u1b Developed land; sealed surface

Secondary Codes: 111 road, 68 mortared wall, 1232 non-permeable paving

The proposed development site includes extensive paved surfaces (paths, hard landscaping, walls) (e.g. Plates 1 and 4). Hard-standing/paved habitats are typically of negligible ecological importance.

U1e Built linear features

Secondary Code: 1232 non-permeable paving

The site contains some features that fit this category such as paths (e.g. Plate 1).

g4 Modified grassland,

Secondary Code: 66 frequently mown.

There are several areas of frequently mown amenity grassland (e.g. Plate 2) comprising a low diversity of plants and heavily disturbed by footfall. These habitat are generally of low ecological importance but may occasionally be used by foraging birds.

Habitat Summary

There do not appear to have been any significant permanent changes to the habitats on site since 2017. There is a temporary site compound on part of the site and during the survey this compound was storing soil and other materials.

With the exception of the trees and shrubs, the habitats on site are of negligible or low ecological importance *per se*. The trees are of higher ecological importance *per se*. Some trees are showing signs of deterioration and/or stunted growth, although there is very limited dead wood habitat, presumably because this is regularly removed for safety. The trees provide a habitat for a limited diversity of wildlife but also serve other purposes, such as green infrastructure.

Invasive Non Native Plants and Animals

Invasive non-native animal or plant species are identified as those which cause harm to native flora, fauna and habitats. These species are formally listed in schedule 9 part 1 and part 2 respectively to the Wildlife and Countryside Act 1981 (as amended). Part 2 makes it a legal offence to cause schedule 9 plants to grow in the wild.

Cotoneaster is present on site which is a schedule 9 invasive non-native plant species. Specimens of this species must be removed and disposed of (including all propagules) following specialist guidelines in order to prevent their spread.



Protected Species Field Signs or Potential for Occurrence

There is not any significant wetland or watercourse habitat on the site of a scale or form that could support certain wetland protected species. Therefore wetland protected or notable species, such as water vole, otter, fish, white-clawed crayfish and aquatic invertebrates, can be confidently scoped out with regard to potential impacts.

The majority of the proposed development site is unsuitable or suboptimal habitat for many protected species to reside. The exceptions are species such as roosting bats or nesting birds due to the number of trees present and a further assessment of this potential is provided below.

Hazel Dormouse

Hazel dormouse principally inhabits woodland, scrub and hedgerows. The trees and shrubs have low potential to support hazel dormouse. The species is not known from the inner city area and there is poor habitat connectivity to the development site. The presence of the species is highly unlikely and no impacts are anticipated. No specific mitigation is required for this species.

Bats

There is low potential for bat roosts within 15 trees due to be felled (see details in Appendix 5 and example photographs of trees and potential bat roost features in Appendix 4).

Further survey of potential bat roost features in the listed trees is required and good practice mitigation measures for bats may be required during tree-felling depending on the results of the further survey (see Discussion and Recommendations' section).

The trees on site in general form a contiguous canopy that may provide foraging habitat or a commuting route for bats, but it is likely this would only concern a small number of bats if any due to the urban setting, the limited habitat quality/food supply and the higher level of illumination which tends to deter some bat species.

Badger

The proposed development is highly unlikely to have any impacts on badgers. There are no badger setts and very little habitat for badgers to forage on site. Whilst it is possible for a badger to occur in the city centre at night, this would likely be in a transitory capacity. Precautionary mitigation to avoid harm to badgers may be necessary depending on construction methods (see Discussion and Recommendations' section).

Birds

There is potential for nesting birds in the shrubs and trees to be removed. The main nesting season for many species is from March to August, but the city centre does support two species of pigeon that nest in trees (collared dove and woodpigeon) and which can have longer nesting seasons between February and November. A wood pigeon nest (status unknown) was recorded in a tree (Plate 18). Recommendations for mitigation are provided in the 'Discussion and Recommendations' section.

Removal of trees will result in short to medium term total habitat loss for birds until new tree plantings gain similar stature to replace the lost habitat. Based on the scheme masterplan it would also appear that fewer trees are being replanted than are being removed and these will be planted further apart, thus the tree habitat will change in the long-term. However, habitat loss



is unlikely to cause a significant adverse impact at the population level of any species affected. Both collared dove and woodpigeon have increasing population trends in the UK (Stanbury *et al.* 2021).

Great Crested Newt

The proposed development site comprises suboptimal terrestrial habitat for newts in terms of dwelling places or places of shelter. Newts migrate/disperse over land to and from breeding ponds but there are no ponds close to the development site. Given there is only one breeding pond in the city which is separated by significant urban landscape from the development, impacts on this species are highly unlikely. No specific mitigation is required for this species.

Reptiles

The proposed development site is suboptimal habitat for reptiles and is heavily disturbed due to its city centre location. There is low potential for reptiles to dwell on site and the site is isolated from suitable reptile habitat. The development is highly unlikely to impact on reptiles. No specific mitigation is required for reptiles.

Terrestrial Invertebrates

The vegetation on site are likely to support some common and widespread species of terrestrial invertebrates but these are unlikely to include any protected or notable species. No specific mitigation is required for invertebrates.

3.3 Survey and Report Limitations

This report and the conclusions drawn within are based on the state and use of the site on the date of survey (08/12/22).

The survey for bat roosts is constrained by the season. Bats are typically in hibernation in December and may use tree roosts at other times of year, thus field signs may not be present or obvious during winter.

The survey of plants is constrained by the winter season and high level of grassland habitat disturbance/damage in the locality.

This report is reliable for 24 months from the date of the site survey, after which a repeat survey would be required to comply with good practice survey methods and in order to be sure of the potential ecological impacts on protected species.

If the design plans change, this may potentially alter the assessment in relation to habitats and protected species and it is recommended that any changes are checked by an ecologist.



4 Relevant Legislation and Policy

A list of the relevant wildlife legislation and policy that applies to this proposed development is listed below. A summary of the legislation and planning policy protecting habitats and protected species is provided in Appendix 6. The details provided in this report are intended as a guide only and the specific legislation or a legal professional should be consulted for precise wording/meaning.

4.1 Legislation⁴

This report has taken into account legislation and biodiversity policy set out in national, regional and local plans. The following national conservation legislation is relevant to sites, habitats or species within, or adjacent to, the site:

- Wildlife and Countryside Act (WCA) 1981 (as amended)
- Protection of Badgers Act 1992
- Countryside & Rights of Way (CROW) Act 2000
- Natural Environmental and Rural Communities (NERC) Act 2006:
Section 40 states that all public bodies, including local planning authorities, have a duty to consider habitats and species listed in Section 41, which are of principal importance for the conservation of biodiversity, when considering a planning application.
- Conservation of Habitats and Species Regulations 2017
- Environment Act 2021

4.2 Planning Policy

The following planning policy documents contain policies to protect and enhance biodiversity and are relevant to the proposed development:

- National Planning Policy Framework 2021
The NPPF 2021 sets out Government policy on biodiversity and nature conservation and places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications. NPPF also promotes sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within the development.
- Devon County Council Policy – Detailed wildlife planning guidance is published on the DCC website.
- Local Planning Policy - Policy SPT12 Strategic approach to the natural environment and Policy DEV26 Protecting and enhancing biodiversity and geological conservation
- The following documents contain action plans or objectives to conserve biodiversity:
 - Devon Biodiversity and Geodiversity Action Plan 2009

⁴ This is a summary of relevant wildlife legislation and policy and is intended only as a basic guide. The specific legislation should be consulted for precise wording/meaning. If the client has any doubts regarding legislation protecting wildlife and its implications for their development it is recommended that professional legal advice is sought for clarification.



5 Discussion and Recommendations

This section discusses potential impacts on habitats and protected species and also includes details of mitigation and compensation where these can be established. It then provides recommendations for further survey to evaluate the presence or absence of some protected species, where these are necessary.

The majority of the proposed development site does not contain any ecologically important habitats except for the trees. Established native trees and shrubs have higher ecological importance than non-native species although both native and non-native trees and shrubs in general can support protected species.

5.1 Bats

Tree Roost Potential

The 15 trees listed in Appendix 5 will require further survey comprising a daytime inspection of identified potential roost features using an endoscope before they are felled. Depending on the results of the further survey, there are various scenarios for mitigation.

If after the pre-felling tree inspection discounts any roosts in the 15 trees then no mitigation is needed, the trees can all be felled without constraint and a bat ecologist would not need to attend site during felling.

If there are any trees for which a bat roost is not confirmed, but which still present a risk / difficult to inspect fully and cannot be confidently discounted, then a bat ecologist would need to be present during felling of the trees concerned. The felling method for these trees would need to be 'soft-fell' manually with the arborist guided by a bat ecologist.

If a bat roost is confirmed in a tree then the tree concerned would need to be licensed by Natural England prior to felling. This is because all bat roosts are legally protected from damage, destruction or obstruction, even if bats are not present at the time. This is a worst case scenario in terms of timescale and delay, as an application would not be able to be made until Natural England returns to work in early January. Therefore there would be a delay to felling the tree(s) concerned.

Foraging and Commuting Habitat

Changes to the existing outdoor lighting design, e.g. increased illumination levels above that existing, may impact bats through obstruction to commuting routes or may further deter bats from foraging habitat.

The initial loss of trees from the site would likely mean that any bats that may have used the site to feed previously will be displaced to alternative foraging habitat and although new plantings will be made these will take a number of years to develop and may not form a comparable habitat structure to that being removed. However, as urbanised landscape the site is suboptimal habitat for bats due to the existing higher level of artificial illumination and relatively poor foraging habitat that is likely to support a limited insect food supply. This means that the trees are unlikely to be an important habitat feature for bats at the population level and, for example, are unlikely to be critically important for supporting a maternity roost of bats. It is reasonably likely that, if any, the proposal would only impact upon single/very small numbers of bats, most likely light-



tolerant/urban tolerant species, such as the common pipistrelle bat. Although individual bats could be impacted through loss of habitat, there is alternative foraging habitat within a short flying distance for bats.

As a city centre location and public thoroughway, the site would be expected to continue to receive higher levels of artificial illumination from various sources. There are general principles which can be applied to external lighting in order to minimise impacts on bats. General lighting mitigation measures start with the avoidance of the illumination of bat foraging or commuting habitat through careful siting of lights wherever possible. The siting and type of lighting are important considerations and for information purposes, general good practice criteria may be applicable to the site and may be able to be adopted for outdoor lighting to minimise potential impacts on bats. These principles are as follows (Institute of Lighting Professionals and Bat Conservation Trust Guidance Note 08/18):

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white or warm amber spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.
- Column heights should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed..

5.2 Birds (nesting)

To avoid possible contravention of legislation protecting nesting birds, removal of trees and shrubs should be undertaken outside the main nesting period (i.e. remove this vegetation between November and January⁵).

If the tree-felling is delayed beyond February it is recommended that an ornithologist checks the trees for bird nests prior to felling and advice provided to the contractor as required.

5.3 Badger

It is possible for badgers or other mammals to occur in the city centre at night in a transitory capacity. To avoid potential harm and/or entrapment of animals, any deep excavations must be fenced off and covered overnight or when not being attended.

⁵ This period is when the majority of bird species, which might inhabit the site, would nest but it is a general guide. It should be noted that a few species which occur on site can have protracted nesting seasons, i.e. pigeon species. Therefore it is advisable that a check for active nests is conducted by an ornithologist ahead of felling and habitat removal.



5.4 Re-Evaluation of Recommendations in the 2017 PEA Report

In producing this report, the former PEA report (Tor Ecology 2017) has been consulted and is referred to where applicable, as mentioned in Section 1.4 above.

In order to align the two documents, the former recommendations are evaluated and the current status of these and continued relevance is provided.

Table 2. Re-Evaluation of PEA 2017 Recommendations

Project Stage	Recommendation 2017	Present Validity 2022
Pre-Planning	Plymouth City Council to undertake HRA screening for impacts on nearby Plymouth Sound and Estuaries SAC once plans for site finalised	Still valid. Competent Authority (PCC) leads on this.
	Potential for impacts on Plymouth Hoe Park and Madeira Road County Wildlife Site to be reviewed once site plans finalised.	No longer valid since scheme extent has since been reduced and now a greater separation distance to these sites.
Construction	Any required removal of vegetation suitable for nesting birds outside of the bird breeding season, or preceded by a nesting check by ecologist.	Still valid.
	If trees identified within this report as having Low bat roosting potential proposed for removal, these should be soft felled.	No longer valid for the two trees identified in 2017 as these are no longer within the current scheme. BUT note: additional trees have now been identified in 2022 (Appendix 5).
	In order to protect the retained trees at the Site during the construction period, works should be undertaken in accordance with BS 5837 'Trees in relation to construction'.	Still valid because some trees are to be retained.
	Guidance in Relation to Lighting Design	Still valid (guidance also included in this report).
Post Development	Installation of biodiversity enhancements/biodiversity net gain	This has since been fully addressed by another consultant in separate documentation.



6 Summary of Recommendations

6.1 Further Bat Survey of Specific Trees

- Further endoscopic inspection and evaluation for bat roost potential of the 15 trees listed in Appendix 5. This must be undertaken prior to the felling of these trees.

6.2 Mitigation for Protected Species

- BIRDS - Remove all vegetation during winter to avoid nesting bird constraints. This should be completed before the end of January as a general rule. If there are delays to the works and trees are to be removed between February and October, an ornithologist must first survey the vegetation for nesting birds and advise the contractor accordingly.
- BADGER – Protect against harm to badgers and other mammals by fencing off working areas and covering any deep excavations when not attended to and especially overnight.
- BATS – Depending on the results of the further survey of 15 trees, bat mitigation may be required. This could comprise 'soft-fell' method combined with an ecological watching brief by a bat ecologist during felling. If a bat roost is proven a licence must be obtained from Natural England before the tree concerned can be felled.



7 References & Bibliography

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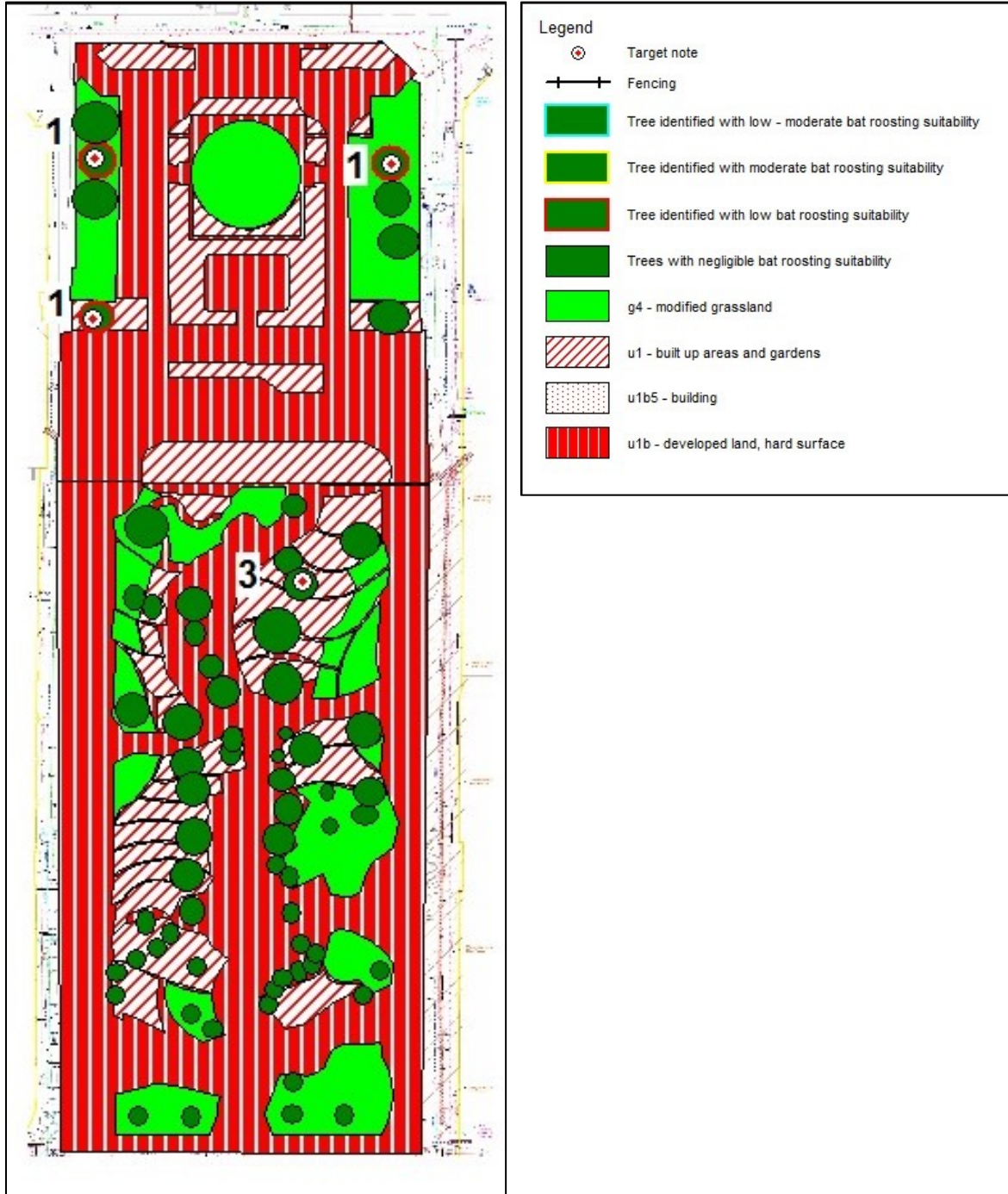
8 Appendices



8.1 Appendix 1: Phase 1 Habitat Maps with UKHab Codes

Maps correspond to tree survey sheet numbers.

Sheet 001





Sheet 002



Number codes on maps represent the following:

1. Trees assessed with low bat roosting suitability – won't be affected by the works
2. Trees assessed with low bat roosting suitability – will be affected by the works
3. Disused bird nest
4. Tree assessed with moderate bat roosting suitability
5. Tree assessed with low – moderate bat roosting suitability





8.2 Appendix 2: Phase 1 Target Notes

Target Note No.	Details	Significance
01 – 15	The only target notes relate to the 15 trees requiring further evaluation for bat roosts, these being the only significant ecological features on site (see Appendix 5 for details)	Potential for roosting bats in the trees. Bats and their roosts are protected by law. Bats are protected because their populations have significantly declined over the past century or so, and they are vulnerable to harm and roost loss during development.



8.3 Appendix 3: Fauna Species Mentioned

Flora

Common name	Scientific name	DAFOR rating
Modified grassland		
Annual meadow grass	<i>Poa annua</i>	D
Daisy	<i>Bellis perennis</i>	A
Dandelion	<i>Taraxicum agg.</i>	F
Smooth sow-thistle	<i>Sonchus oleraceus</i>	O
Perennial rey grass	<i>Lolium perenne</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
White clover	<i>Trifolium repens</i>	F
Chickweed	<i>Stellaria media</i>	O
Creeping buttercup	<i>Ranunculus acris</i>	O
Lesser celandine	<i>Ficaria verna</i>	O
Introduced shrubs		
Japanese spindle	<i>Euonymus japonica</i>	O
Wilson's honeysuckle	<i>Lonicera nitida</i>	F
Elaeagnus	<i>Elaeagnus species</i>	F
Mahonia	<i>Mahonia species</i>	F
Buddleia	<i>Buddleja davidii</i>	O
Cotoneaster species	<i>Cotoneaster species</i>	O
Paper plant	<i>Fatsia japonica</i>	F
Snowberry	<i>Symphoricarpos</i>	O
Spotted laurel	<i>Aucuba japonica</i>	O
Bamboo (occ)	<i>Dypsis lutescens</i>	O
Pampas grass	<i>Cortaderia selloana</i>	F
Stag-s-horn sumac	<i>Rhus typhina</i>	O
Lily of the Nile	<i>Agapanthus species</i>	O
Box	<i>Buxus species</i>	F
Holly	<i>Ilex aquifolium</i>	O
Butchers broom	<i>Ruscus aculeatus</i>	R
Bear's breeches	<i>Acanthus mollis</i>	R
Common ivy	<i>Hedera helix</i>	D
Hebe	<i>Hebe species</i>	O

Fauna

Common name	Scientific name
Water vole	<i>Arvicola terrestris</i>
Otter	<i>Lutra lutra</i>
Hazel dormouse	<i>Muscardinus avellanarius</i>
Collared dove	<i>Streptopelia decaocto</i>
Wood pigeon	<i>Columba palumbus</i>
White-clawed crayfish	<i>Austropotamobius pallipes</i>
Badger	<i>Meles meles</i>



8.4 Appendix 4: Site Photographs

General setting

<p>Plate 1</p>  <p>08.12.2022 14:50</p>	<p>Plate 2</p>  <p>08.12.2022 14:53</p>
<p>Typical paved paths, beds and trees</p>	<p>Typical lawn grassland with ornamental landscaping</p>
<p>Plate 3</p>  <p>08.12.2022 15:38</p>	<p>Plate 4</p>  <p>08.12.2022 15:50</p>
<p>Landscaped area at north end of Armada Way</p>	<p>Shrub beds and paths in central section of site</p>
<p>Plate 5</p>  <p>08.12.2022 11:35</p>	<p>Plate 6</p>  <p>08.12.2022 15:08</p>
<p>Temporary site compound not present in 2017 is the only real habitat change since 2017</p>	<p>Example of a group of immature trees typical of the site</p>



Tree preliminary bat roost assessment example features

<p>Plate 7</p>  <p>08.12.2022 15:36</p>	<p>Plate 8</p>  <p>08.12.2022 15:32</p>
<p>T004 split in trunk</p>	<p>T006 hole in trunk</p>
<p>Plate 9</p>  <p>08.12.2022 13:06</p>	<p>Plate 10</p>  <p>08.12.2022 14:30</p>
<p>T084 pruning cut</p>	<p>T098 dead wood furrows</p>
<p>Plate 11</p>  <p>08.12.2022</p>	<p>Plate 12</p>  <p>08.12.2022</p>
<p>T099 hole in trunk</p>	<p>T099 split in trunk</p>



<p>Plate 13</p>  <p>08.12.2022 14:09</p>	<p>Plate 14</p>  <p>08.12.2022</p>
<p>T103 pruning cut</p>	<p>T105 pruning cut</p>
<p>Plate 15</p>  <p>08.12.2022</p>	<p>Plate 16</p> 
<p>T107 pruning cut</p>	<p>T125 multiple features</p>
<p>Plate 17</p>  <p>08.12.2022 12:18</p>	<p>Plate 18</p>  <p>08.12.2022 12:06</p>
<p>T130 pruning cuts</p>	<p>Trees on east side of Armada Way (sheet 004). Note a presumed disused pigeon nest is in the right of nearest tree</p>



8.5 Appendix 5: Preliminary Bat Roost Assessment of Trees: Trees Requiring Further Survey

Site: Armada Way, Plymouth		Project: SG631YGS		Date of survey: 08/12/2022	Surveyor:		
Tree No (from Tree Constraints Map).	Species	Tree Description	Feature	Aspect	Roost potential / description	Recommendations	
Tree Survey Sheet 002							
T079 –S3	Horse chestnut	Mature pollard	Flaky bark creating crevices in the main stem and a pruning wound with gaps around it	W	Low	Inspection with endoscope and ladder	
T084-M3	Horse chestnut	Mature pollard, single stem	Wound to the main stem with cavities around	N	Low	Inspection with endoscope and ladder	
T092-S2	Sorbus sp.	Early mature, single stem	Tear out in the main stem with gaps around	S	Low	Inspection with endoscope	
T098-D1	Laburnum	Semi-mature	Wound to the stem with gaps around and dead wood branch	S & E	Low	Inspection with endoscope	
T099-D1	Laburnum	Early mature, single stem	Split in the trunk from 1.5m to ground level and signs of fungal decay	SW	Low	Inspection with endoscope	
T103-M3	Horse chestnut	Mature, historical pollard	Gaps around pruning wounds	N & S	Low	Inspection with endoscope and ladder	
T105-M3	Horse chestnut	Mature pollard, single stem	Gaps around pruning wounds in the main stem	S & E	Low	Inspection with endoscope and ladder	
T106 – M3	Horse chestnut	Mature pollard, single stem	Gaps around pruning wounds in the main stem	S	Low	Inspection with endoscope and ladder	
Tree Survey Sheet 004							
TO87-M3	Ash	Early mature, single stem	Pruning wounds with crevices around	N	Low	Inspection with endoscope and ladder	
T107-M3	Horse chestnut	Mature, lapsed pollard	Several pruning wounds with crevices round the wounds	N & NE	Low	Inspection with endoscope and ladder	
T108-Y3	Horse chestnut	Mature, lapsed pollard	Several pruning wounds with crevices round the wounds and cracks in the main stem	S	Low	Inspection with endoscope and ladder	
T113-S2	Sorbus	Mature, single stem	Several pruning wounds with crevices round the wounds, fungal	S	Low - moderate	Inspection with endoscope	



Site: Armada Way, Plymouth		Project: SG631YGS		Date of survey: 08/12/2022	Surveyor:		
Tree No (from Tree Constraints Map).	Species	Tree Description	Feature	Aspect	Roost potential / description	Recommendations	
			bodies on deadwood limbs & spilt at the base				
T125-M3	Silver maple	Early mature, single stem	Significant open wound on main stem and small pruning wounds on branches, both with gaps around both wounds single stem	N	Low to moderate	Inspection with endoscope and ladder	
T130-Y3	Cappadocian maple	Semi-mature, single stem	Split on the stem & multiple pruning wounds with crevices	NW	Low	Inspection with endoscope and ladder	
T134-M3	Horse chestnut	Early mature, single stem	Small tear on the branch with gaps around	NW	Low	Inspection with endoscope and ladder	



8.6 Appendix 6: Relevant Wildlife Legislation and Policy

Legislation	
Habitats	Habitats listed in section 41 of the NERC Act 2006 are of principal importance for the conservation of biodiversity in England. Loss of such habitats should be avoided wherever possible by careful design. Where loss is unavoidable, there is usually a requirement for compensatory measures such as replacement habitat on site or 'biodiversity offsetting' off site.
Invasive Non Native Plants and Animals	Schedule 9 parts 1 and 2 to the WCA 1981 (as amended), lists species which are damaging to native species and habitats, and there are legal requirements for their control, removal and avoiding causing their spread in the wild.
Hazel dormouse	European Protected Species. It is protected under schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 from deliberate killing, injury or disturbance and its breeding sites and resting places are protected.
Bats	European Protected Species. All bats and their roosts are protected under schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. Deliberately capturing, disturbing, injuring and killing bats is prohibited, as is damaging or destroying their breeding sites and resting places (roosts). In Devon, greater horseshoe bat, roosting, foraging and commuting habitat is protected through application of planning consultation guidelines (Devon County Council 2019).
Badger	The Protection of Badgers Act 1992 was introduced because of illegal persecution. Under the Act, it is an offence <i>inter alia</i> to: wilfully kill, injure or take a badger, or to attempt to do so; cruelly ill-treat a badger; or intentionally or recklessly interfere with a badger sett by (a) damaging a sett or any part of one; (b) destroying a sett; (c) obstructing access to or any entrance of a sett; or (d) disturbing a badger when it is occupying a sett.
Birds	The WCA 1981 (as amended) gives legal protection to all wild birds, their active nests, eggs and nestlings. It is an offence, with certain exceptions, to intentionally kill or injure any wild bird, damage or destroy the nest of any wild bird while it is in use or being built, or destroy the egg of any wild bird. Species listed in schedule 1, part 1, to the WCA are protected by special penalties at all times from reckless or intentional disturbance whilst nest building or at (or near) a nest with eggs or young; or from disturbance to dependent young of such a species.
Great crested newt	European Protected Species. The great crested newt is fully protected under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) the Conservation of Habitats and Species Regulations 2017. It is protected from deliberate killing, injury or disturbance and its breeding sites and resting places are protected with no requirement to show that their destruction was deliberate or reckless.



Reptiles	Wildlife and Countryside Act 1981 (as amended) makes it illegal to intentionally kill or injure reptiles. Proportionate mitigation and reasonable effort is expected to be undertaken to avoid committing the above offences.
Planning Policy	
National Planning Policy Framework (NPPF) 2019	NPPF sets out planning policies on the protection of biodiversity and geological conservation through the planning system. NPPF highlights that 'development proposals provide many opportunities for building-in beneficial biodiversity ... as part of good design. When considering such proposals, local planning authorities should maximise such opportunities in and around developments'.
Plymouth Planning Policy	<p><i>Plymouth and South West Devon Joint Local Plan 2014-34</i> Development should support the protection, conservation, enhancement and restoration of biodiversity and geodiversity across the Plan Area.</p> <ul style="list-style-type: none"> • Policy SPT12 Strategic approach to the natural environment • Policy DEV26 Protecting and enhancing biodiversity and geological conservation <p><i>Plymouth Local Development Framework (LDF) Core Strategy was adopted on 23 April 2007. Chapter 11 Natural Environment addresses biodiversity and nature conservation within Plymouth. Policy CS19 Wildlife seeks to promote effective stewardship of the city's wildlife through (relevant to the proposed development):</i></p> <ul style="list-style-type: none"> • Appropriate consideration being given to European and nationally protected and important species. • Maintaining a citywide network of local wildlife sites and wildlife corridors, links and stepping stones between areas of natural green space. • Ensuring that development retains, protects and enhances features of biological or geological interest, and provides for the appropriate management of these features. • Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated.
Devon Biodiversity Action Plans (BAP)	Lists actions and priorities for nature conservation within the relevant area. The Devon BAP relevant action plan in relation to the proposed development site is the <i>Cities, Towns and Villages Action Plan</i> which promotes conservation of distinctive species of urbanised areas such as hedgehog, pipistrelle bats, birds and invertebrates.