

Preliminary Ecological Appraisal

Atlantic Wharf

August 2021

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Atlantic Wharf

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Turner & Townsend

4th floor

Temple Point

Bristol

BS1 6NL

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Rev0	Stephen Moore	Paul Carter	Richard Schofield	14 th July 2021

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Phlorum Limited

Northern Office: Ground Floor, Adamson House, Towers Business Park, Wilmslow Road, Didsbury, Manchester, M20 2YY

T: 01619 554 250 E: info@phlorum.com W: www.phlorum.com

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Non-technical Summary

Phlorum Ltd was commissioned by Turner & Townsend to undertake a Preliminary Ecological Appraisal, including a bat roost assessment, which was carried out near Atlantic Wharf, Cardiff on the 30th June 2021 in order to determine whether any ecological constraints could affect the proposed works for the site. Consultations with the City Ecologist Matthew Harris had established that bats were thought to be present within the Council building which is located towards the north eastern corner of the site. As such, a bat activity survey and internal bat building inspection were carried out on the 30th June and 1st of July, respectively.

Current proposals are for a large urban area to undergo a contemporary transformation which will include a new arena and residential, transport and retail areas.

The proposed planning is separated in to three boundaries of development. This includes the arena boundary, the hybrid boundary and the masterplan boundary which increase in size, respectively. The survey was carried out across the largest boundary, the masterplan area which extended over approximately 22 hectares (ha).




The main findings of the surveys are as follows:

-  The closest statutory designated site is the Cardiff Bay Wetlands and Hamadryad Park Local Nature Reserve (LNR). Following this is the Severn Estuary is designated as: RAMSAR, Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protection Area (SPA), and European Marine Site (EMS).
-  Habitats to be impacted by proposals include building, amenity grassland, hardstanding, introduced shrubs, scattered trees, scrub and water body. Habitats which will not be impacted by development include the broad leaved woodland.
-  There is potential habitat for bats, birds, hedgehogs and otters.
-  Invasive plant species listed in Schedule 9 of the Wildlife and Countryside Act 1981 are present on site.
-  Bats are considered to be present within the Council building which is outside of the proposed arena boundary.
-  Further surveys are to be carried out for bats only.
-  Recommendations on how to reduce potential lighting effects from the construction of the arena are discussed in Section 5.
-  Full details of the bat activity surveys will be found in a subsequent report (Phlorum, date to be confirmed).

- Further information on precautionary working practices and additional surveys together with recommended mitigation and enhancement measures are also discussed in Section 5.

1. Introduction

Background

- 1.1 Phlorum Ltd has been commissioned by Turner & Townsend to undertake a Preliminary Ecological Appraisal, including a bat roost assessment, to inform the potential ecological constraints of proposed future development of the area to the south of Atlantic Wharf (hereafter referred to as “the site”).
- 1.2 The purpose of the Preliminary Ecological Appraisal was:
 -  to identify the major habitats present;
 -  to identify the potential for any legally protected species to be present; and
 -  to recommend any additional ecological surveys, if required.
- 1.3 As part of the assessment, a desktop review and a site visit were carried out. The results of which were used to assess the nature conservation importance of the site and the potential of the site to support protected species.
- 1.4 This report has been compiled in accordance with current guidelines (British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development, 2013 and CIEEM, 2017 and 2018).
- 1.5 It is understood that the proposed development involves a large urban area to undergo a contemporary transformation which will include a new arena and residential and retail areas.






Site Location

- 1.6 The site is located in between Cardiff City Centre and Cardiff Bay. In a rough rectangular shape, the site stretches southwards from the southern area of the Atlantic Wharf and stops in an arcing shape around the Wales Millennium Centre.
- 1.7 The National Grid Reference for the centre of the site is ST 19333 74974. The survey area extended over approximately 22 hectares (ha).



2. Methodology

Desk Study & Consultations


Database and Map Search

- 2.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites, legally protected species and features of interest within a 2km radius of the site. The database and map search was based on available information provided by the following sources:
-  South East Wales Biodiversity Records Centre (SEWBREC, 2021);
 -  Multi-Agency Geographical Information for the Countryside (MAGIC, 2021);
 -  Ordnance Survey mapping; and
 -  Aerial photography; and
 -  Wales Ancient Tree Inventory.

Review of Previous Report

- 2.2 The desk study has involved the review of the following previous reports carried out for the site:
-  Preliminary Ecological Appraisal Report (Mott MacDonald, 2020); and
 -  Bat Survey Report (Mott MacDonald, 2020).

Consultations








- 2.3 The desk study has involved consultations with the following interested parties:
-  City Ecologist (Matthew Harris).

Habitat Survey and Assessment









- 2.4 Phlorum Limited carried out an ecological survey of the site on 30th June 2021. The survey was carried out by a suitably qualified ecologist, Stephen Moore who has over seven years professional experience of undertaking ecological surveys. The weather conditions during the survey were cloudy and dry.
- 2.5 The field survey comprised a walkover inspection of the land and habitats present. The survey followed standard Phase 1 survey methodology (JNCC, 2010) and covered all accessible parts of the site, including boundary features. Habitats were described and mapped (Figure 1: AppendixA). A list of plant species was compiled, together with an estimate of abundance made according to the DAFOR scale (AppendixD).

- 2.6 This assessment provides information on the habitats in the survey area and identifies actual or potential presence of legally protected or otherwise notable species/habitats in or immediately adjacent to the site.
- 2.7 Target notes highlighting a particular feature of ecological interest are provided in Appendix B, with associated photographs.
- 2.8 Scientific names are given after the first mention of a species, thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species.

Preliminary Roost Assessment

- 2.9 The external inspection of the council building from ground level was carried out on 30th June 2021 concurrently with the initial habitat survey, in accordance with good practice guidelines (Collins, 2016). An internal inspection of the upper levels of the council building was carried out July 1st 2021. This was carried out by Paul Carter who holds a Bat Level 1 licence 2020-44978-CLS-CLS.
- 2.10 The exteriors were inspected closely with the aim of identifying the presence of bats and any secondary evidence together with any potential roost sites. Secondary evidence includes droppings, feeding remains, scratch marks and oil and urine staining.
- 2.11 External inspections comprised a detailed search of all accessible architectural features for bat droppings, urine staining, scratch marks, staining around suitable crevices and feeding remains. Internal inspections comprised an observation of the walls, floors and any surfaces where evidence may be observed.
- 2.12 In accordance with current standing advice issued by Natural England (2015), the following types of bat roosts were considered during the assessment:
 -  Day Roost - where individual bats, or small groups of males, rest or shelter in the day.
 -  Night Roost - where bats rest or shelter at night between foraging in the active period, but rarely during the day.
 -  Feeding 'Perch' Roost - where bats hang to eat or catch their prey or rest at night between feeding sessions.
 -  Hibernation Roost - where bats are found during winter. These roosts typically comprise a stable environment where bats can enter torpor; these areas are normally of a constant temperature.
 -  Transitional or Occasional Roost - where individual or small numbers of bats gather at a temporary site before and after hibernation.
 -  Maternity Roost - where female bats give birth and raise their young.
 -  Satellite Roost - an alternative roost found in close proximity to the main nursery roost colony and used by a few individual breeding females to small group of breeding females through the breeding season.

Protected Species Assessment

- 2.13 The potential for the site to provide habitat for protected species was assessed from field observations in conjunction with results of the desk study. The site was inspected for indications of the presence of protected species including:
-  Habitat considered suitable to support widespread reptile species including areas with a scrub/grassland mosaic and potential hibernation sites;
 -  On-site ponds offering potential breeding opportunities for great crested newts (*Triturus cristatus*) and the presence of suitable terrestrial habitat including hedgerows and rough grassland;
 -  The presence of features in, and on trees, indicating potential for roosting bats Chiroptera, including knot and rot holes, loose bark. Secondary evidence of bats including staining, droppings and feeding remains were also looked for;
 -  The presence of nesting habitat for breeding birds, including mature trees, dense scrub and hedgerows and direct evidence of bird nesting including bird song, old nests etc.;
 -  Habitats considered suitable to support badger (*Meles meles*) setts, and evidence in the form of hair, pathways and latrines;
 -  Presence of woodland and or hedgerows providing suitable habitat to support hazel dormice (*Muscardinus avellanarius*);
 -  Riparian habitat supporting suitable features for water voles (*Arvicola amphibius*) and otters (*Lutra lutra*); and the
 -  Presence of invasive plants.
- 2.14 The potential presence for protected species is categorised as **Negligible, Low, Moderate, High** or **Present**, based on the findings of the field survey and on the evaluation of existing data.
- 2.15 The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species or mitigation should be recommended.

Caveat

Data Search Constraints

- 2.16 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

Survey Constraints

- 2.17 Ecological surveys are limited by factors that affect presence of plants and animals such as seasonality. Whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the environment.
- 2.18 As the site covers a large urban area, not all areas of the site were accessible at the time of the survey.
- 2.19 The appraisal does not constitute a full botanical survey, or a Phase 2 pre-construction survey that would include accurate GIS mapping for invasive or protected plant species. This survey provides a preliminary view of the likelihood of protected species occurring on the site based on the suitability of the habitat, known distribution of the species in the local area and any direct evidence on the site. It is therefore used as a tool to recommend further protected species surveys (or other species of significant nature conservation interest) if on the basis of the preliminary assessment or during subsequent surveys, it is considered reasonably likely that protected species may be present.
- 2.20 It is however considered that the survey was sufficiently rigorous to assess the ecological value of the site.

Limitations

- 2.21 This appraisal also does not constitute as a full invasive species survey. All surveys are subject to the conditions on site at the time of the survey. Site surveys are non-intrusive and rely on the visual identification of aboveground growth. If parts of a site are inaccessible then these areas can often not be surveyed, unless they can be viewed from other areas. If any aboveground growth is being managed or has been disturbed or covered, or the below ground growth is dormant, then it may be impossible for us to identify invasive plants in these areas during our non-intrusive survey.

3. Baseline Conditions

Aerial Photography and OS Maps

- 3.1 Aerial photographs and OS maps show the site to be predominantly urban with large areas of car parks and retail buildings. Small areas of greenery can be seen in between these buildings and areas of hardstanding.

Statutory and Non-Statutory Designated Sites

Statutory Sites

- 3.2 The closest statutory designated site is the Cardiff Bay Wetlands and Hamadryad Park Local Nature Reserve (LNR). Following this is the Severn Estuary is designated as: RAMSAR, Special Area of Conservation (SAC), Special Protection Area (SPA), and Site of Special Scientific Interest (SSSI). The site falls within a SSSI Impact Risk Zone of the Severn Estuary. Table 1 provides further information on these statutory sites.

Table 1: Statutory Sites within 2km of the site

Site Name	Reason for Designation	Size	Distance from the Site (km)
Cardiff Bay Wetlands and Hamadryad Park, LNR	The reedbeds and other aquatic plants in these areas provide habitats for coastal birds and acts as biodiversity hot-spots within Cardiff Bay.	14 ha	0.91
Severn Estuary RAMSAR, SPA, SAC, SSSI, European Marine Site (EMS)	The Severn Estuary covers a varied assemblage of designated features, from plants to geological formations and boasts diverse marine life.	64km long	1.64

Non-statutory Sites

- 3.3 The closest non-statutory designated site is the River Taff SINC. Table 2 provides a list of the five closest Non-Statutory sites within 2km of the site.

Table 2: Non-Statutory Sites within 2km of the site

Site Name	Reason for Designation	Size	Distance from the Site (km)
River Taff	Important for migratory fish, otters, wildfowl and bankside vegetation and acts as a major wildlife corridor.	65km long	0.79
Cardiff Bay Wetland Reserve	Supports a rich diversity of plants and animals, including invertebrates, fish and other wildlife.	8 ha	1.0
Ocean Park South	Designated for the large number of plant species supported by the Neutral and Calcareous conditions.	2.5 ha	1.05
Tidal Sidings	Designated for the large number of plant species supported by the Neutral and Calcareous conditions.	3.2 ha	1.4
Beach Sidings	Designated for its population of protected flower(s).	2.9 ha	1.6

Ancient Woodland

- 3.4 The data and Wales' Ancient Woodland Inventory have returned a restored ancient woodland site which is located 2km north east of the site in Bute Park. The 'Blackweir Woods' within Bute Park SINCE has plant species which are characteristic of a native woodland.

Habitats

Site Summary

- 3.5 The site was within an urban setting and comprised of buildings, carparks and small areas of vegetation and standing water.
- 3.6 The main habitats recorded within the site are described below. Additional details are shown on the habitat survey plan in AppendixA, and the target notes are listed in AppendixB.

Buildings

- 3.7 A number of buildings were identified across the site which ranged from small security buildings to large retail outlets.

Amenity Grassland

- 3.8 Poor semi-improved amenity grassland was observed around the site, typically along roads or bounding a car park.

Hardstanding

- 3.9 Carparks, footpaths, courtyards, roads and other forms of hardstanding were observed around site.

Introduced Shrubs

- 3.10 Introduced shrubs such as Cotoneaster (*Cotoneaster horizontalis*), Wilsons honeysuckle (*Lonicera nitida*) smoketree (*Cotinus coggygia*) and cherry laurel (*Prunus laurocerasus*) were observed around the site which predominantly acted as dividing hedges between plots or areas of the carpark.

Scattered Trees

- 3.11 Scattered trees were observed around the site and typically observed bounding carparks or plots on amenity grassland. Species included but not limited to included London plane (*Platanusx hispanica*), Scots pine (*Pinus sylvestris*), Rowan (*Sorbus aucuparia*) and pedunculate oak (*Quercus robur*).

Scrub

- 3.12 Areas of scrub were identified around the site and were typically observed on the boundary of car parks or unmanaged areas and vacant plots. Species included but not limited to elder (*Sambucus nigra*), alder (*Alnus glutinosa*), bramble (*Rubus fruticosus*) and gorse (*Ulex europaeus*).

Water Bodies





- 3.13 Water bodies were identified towards the north-eastern and southern areas of the site which were areas of the Blue East Dock and potentially connected areas of the Roath basin, respectively.



Woodland

- 3.14 A small pocket of woodland was identified in the north-western area of the site. Species included but not limited to hazel (*Corylus avellana*), field maple (*Acer campestre*), ash (*Fraxinus excelsior*) and holm oak (*Quercus ilex*).

Target Note (TN)

- 3.15 The following Target Notes are recorded on the habitat plan in AppendixA:

-  TN1: Cotoneaster.
-  TN2: Bird's nest.
-  TN2: Small mammal hole.
-  TN4: Moorhen nest.

-  TN5: Missing ridge tiles (roosting feature).
-  TN6: Lifted tiles (potential roosting feature).

Preliminary Roost Assessment

Council Building

- 3.16 The council building roof was examined externally for features that could indicate use by bats.
- 3.17 The building was square in shape, with an inner building which is connected and surrounded by an outer building which comprised of gabled and multiple levels of pyramid pitched roofs at each corner. The outer roofing was made from grey slate tiles and the inner building roof was corrugated and most likely concrete.
- 3.18 Access to the upper levels of the roof was granted however an entire visual inspection of all levels and aspects of the roof was not possible because of the multiple levels, aspects and restricted views.
- 3.19 No secondary evidence was observed from the external or internal inspection of the upper floors (Photograph 10) or from the ground level external inspection.
- 3.20 During the external inspection from ground level, missing ridge tiles (Photograph 8) and raised tiles (Photograph 9) were observed.
- 3.21 During the external inspection of the upper level roof, gaps under ridge tiles were observed (Photograph 11).
- 3.22 Overall, the building's roof was in good condition however because of the amount of features and size of the building, it was considered to have **moderate** potential.

Protected Species

- 3.23 Legislation relating to the protected species referred to in this section is included in Appendix C.
- 3.24 The following paragraphs detail the suitability of the on-site habitats to support protected species and include information from the data search for protected, rare and otherwise notable species returned within a 2km radius.

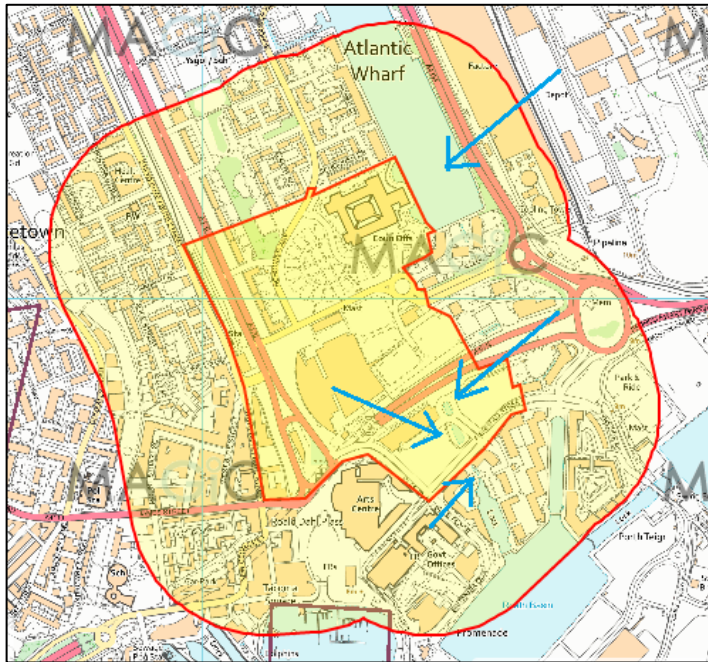
Reptiles

- 3.25 The data search showed records of slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) within 2km of the site within the past seven years.
- 3.26 During the survey no suitable habitats for reptiles were observed.
- 3.27 Overall the site was assessed as having **negligible** potential to support reptiles.

Amphibians

- 3.28 The data search did not show any record of great crested newt within 2km of the site.

- 3.29 As seen in Drawing 1 below, four standing water bodies which are likely to be freshwater are within 250m of the site.



Drawing 1. Standing water within 250m of the site.

- 3.30 As seen in Drawing 2 below, four standing water bodies which are likely to be freshwater are within 500m of the site. These were noted to be stocked with fish and had considerable waterfowl numbers present.



Drawing 2. Standing water within 500m of the site.

- 3.32 During the survey, limited features were seen that could support foraging newts. The urban environment would not be suitable for this species.
- 3.33 It was considered that the site offered **negligible** potential for breeding newts and **negligible** potential for foraging and commuting newts.

Bats

- 3.34 The data search showed records of bats including common pipistrelle (*Pipistrellus Pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius's Pipistrelle (*Pipistrellus nathusii*), Daubenton's (*Myotis daubentonii*), and noctule (*Nyctalus noctula*) occurring within the 2km search area in the past seven years.
- 3.35 During the survey potential bat roosting features were seen on the council building.
- 3.36 The council building was considered to have **moderate** potential for roosting bats.
- 3.37 Overall it was considered that the site offered **low** potential for roosting bats.
- 3.38 To date one bat emergency survey has been carried out. Further details of the bat activity on site will be covered in the bat report (Phlorum 2021, date to be confirmed).

Birds

- 3.39 Several Red or Amber listed Birds of Conservation Concern¹ (BoCC), and notable² bird species were returned by the data search that may utilise habitats within the site. Species include redwing (*Turdus iliacus*), peregrine (*Falco peregrinus*) and kestrel (*Falco tinnunculus*).
- 3.40 During the survey it was noted that the onsite buildings, water, trees, scrub and buildings provided suitable habitat for nesting birds.
- 3.41 Great black back gulls (*Larus marinus*) were noted to be nesting on the roof of the council building.
- 3.42 A bird's nest was observed within the trees on the roundabout (Photograph 3) and also two moorhen nests were observed (Photograph 5) within the basin (Bute East Dock).
- 3.43 Overall it was considered that the site had breeding birds **present**.

Badgers

- 3.44 The data search showed two records of badgers within 2km of the site within the past eight years.
- 3.45 Areas of scrub and woodland offered habitat for badgers however the busy urban environment and fragmented habitats would not be suitable for this species.

¹ Birds of Conservation Concern status is prioritised into high concern (Red), medium concern (Amber) and low concern (Green) (Eaton et al, 2009). Red-list species are those that are globally threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and have not shown a substantial recent recovery. Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations. Green-list species are those that fulfil none of the criteria.

² Notable Birds are based on a list of birds that are particularly scarce or vulnerable either at national or a regional level. The majority of these bird species are designated as Schedule 1 species, under the Wildlife and Countryside Act 1981 (as amended), or listed as red or amber-listed BoCC.

- 3.46 Overall, the site offered **negligible** potential for breeding badgers and **low** potential for foraging and commuting badgers.

Hazel Dormice

- 3.47 The data search showed one record of dormice (*Muscardinus avellanarius*) within 2km of the site from 2005.
- 3.48 The site did not contain the type or density of vegetation that would be suitable for supporting either breeding or commuting dormice.
- 3.49 Overall it was considered that the site offered **negligible** potential to support breeding dormice.

Water Voles

- 3.50 The data search did not show records of water vole within 2km search area.
- 3.51 The site did not contain the aquatic habitat and vegetation types that would support breeding, foraging or commuting water vole.
- 3.52 Overall it was considered that the site offered **negligible** potential to support breeding water voles and potential to support commuting and foraging water voles.

Otters

- 3.53 The data search showed two records of otter within 2km of the site within the past ten years.
- 3.54 The site offered aquatic habitat and offered limited vegetation of a type that would support breeding otter. The presence of water meant it could be suitable for commuting otters however it is unlikely given the urban environment.
- 3.55 Overall it was considered that the site offered **negligible** potential to support breeding otter and **low** potential to support commuting otter.

Hedgehogs

- 3.56 The data search showed six records of hedgehogs (*Erinaceus europaeus*) within 2km of the site within the past five years.
- 3.57 No direct evidence of hedgehogs was seen on the site. However, the presence of dense scrub could have provided the hibernation and foraging areas for this species.
- 3.58 Overall, the site offered **low** potential for hedgehogs.

Invasive Plants

- 3.59 The data search showed records of *Contoneaster* genus, Japanese knotweed (*Reynoutria japonica*), Japanese rose (*Rosa rugosa*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) occurring within the 2km search area in the past eight years. These plants are listed as invasive in Schedule 9 of the Wildlife and Countryside Act (1981 amended).

- 3.60 During the survey specimens of Cotoneaster (*Cotoneaster horizontalis* and *Cotoneaster simonsii*) were seen (See Target Note 1 and Photograph 2 and 6 in appendices A & B). These plants are listed as invasive in Schedule 9 of the Wildlife and Countryside Act (1981 amended).

4. Evaluation

- 4.1 On the basis of the information available from the habitat survey and desk study, the site has been evaluated in terms of its potential for biodiversity, support of protected species and habitats, and the contribution the area makes as part of the wider landscape. The nature conservation value of the site has been assessed following standard criteria developed by CIEEM (2017 and 2018) and in accordance with BS 24040:2013. This is provided below.
- 4.2 The biodiversity value of protected species within the site is a preliminary evaluation based upon the desk study records, habitat suitability and the conservation status of the species in question. It should be noted that where European Protected Species (EPS) or species of Principle Importance for the Conservation of Biodiversity are present on-site they may be valued at a lower level/scale where it is considered likely that populations would not be of sufficient importance to justify designation at a higher level. However, regardless of their biodiversity value, such species are still subject to national and/or European legislation.
- 4.3 Key aspects of relevant planning policy regarding conservation, including an explanation of species referred to as being of 'Principal Importance for Conservation of Biodiversity' and European Protected Species and habitats, are provided in the Legislation section in Appendix C.

Geographic Evaluation

Features of International Importance

- 4.4 Features of International Importance are principally sites covered by international legislation or conventions. The Conservation of Habitats and Species Regulations 2017 (as amended) implements the Natural Habitats and Wild Fauna and Flora (92/43/EC) (Habitats Directive) in England and Wales. The Regulations mainly deal with the protection of sites with certain habitats and populations of species that are important for nature conservation in a European context, i.e. Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's).
- 4.5 The site is not subject to any international statutory nature conservation designations. The closest site of International Importance is the Severn Estuary SAC/SPA/RAMSAR/EMS located 1.64 km to the south-east. The site does not provide any supporting habitat for this designated site.

Features of National Importance

- 4.6 Features of national importance include Sites of Special Scientific Interest (SSSIs) which are designated under the Wildlife and Countryside Act 1981 (as amended). The site is not subject to any national statutory nature conservation designations and it is not considered that any habitats or populations or assemblages of species within the site would meet the criteria for the designation of SSSIs at an appropriate geographic level³.
- 4.7 The closest designated site of national importance for nature conservation is also the Severn Estuary SSSI. Despite being within the impact risk zone, the site does not provide any supporting habitat for this SSSI.

Features of Regional (i.e. Glamorgan) Importance

- 4.8 The site does not include any features of value at this level neither is it likely to be selected as a site of nature conservation interest based on the results of the current survey.

Features of District (i.e. Cardiff) Importance

- 4.9 The site does not support any features that were considered to be of value at this level.

Features of Local (i.e. Atlantic Wharf) Importance

- 4.10 The site does not support any features that were considered to be of value at this level.

Features of Value Immediate Vicinity (c. 250m) of the Project

- 4.11 The on-site vegetation and buildings are of value within the immediate vicinity and provides suitable habitat to support protected species of birds and bats. It also forms part of the wider ecological network of habitats in the locality, providing wildlife corridors for mobile species to move through the landscape.

Summary












- 4.12 Overall on the basis of the survey results and the above criteria, habitats within the site are considered largely to be of ecological value within the immediate vicinity only. The site provides suitable habitat to support protected species and groups including hedgehogs, birds and bats. However, populations of these are unlikely to be locally significant.

³ JNCC Guidelines for selection of biological SSSIs (see <http://jncc.defra.gov.uk/page-2303#download>).

Local Plan Evaluation

- 4.13 It is considered that Cardiff's statutory Local Plan (Adopted 2016) contains the following nature conservation policies relevant to the site. A summary of these policies is provided below. The full text of the relevant policies is contained in the Legislation section in Appendix C and this should also be referred to.

Cardiff Local Development Plan (2006-2026)

-  KP4: MASTERPLANNING APPROACH
-  KP5: GOOD QUALITY AND SUSTAINABLE DESIGN
-  KP10: CENTRAL AND BAY BUSINESS AREAS
-  KP15: CLIMATE CHANGE
-  KP16: GREEN INFRASTRUCTURE
-  KP17: BUILT HERITAGE
-  KP18: NATURAL RESOURCES
-  EN7: PRIORITY HABITATS AND SPECIES
-  EN8: TREES, WOODLANDS AND HEDGEROWS
-  EN11: PROTECTION OF WATER RESOURCES
-  EN13: AIR, NOISE, LIGHT POLLUTION AND LAND CONTAMINATION

5. Discussion and Recommendations

Discussion

- 5.1 The survey site is located roughly in between Cardiff City Centre and Cardiff Bay. The survey area extended over approximately 22 hectares (ha). Habitats to be impacted by the development proposals include buildings, hardstanding, trees, amenity grassland, scrub and introduced shrubs.
- 5.2 Design proposals are for a large urban area to undergo a contemporary transformation which will include a new arena and residential, transport and retail areas.
- 5.3 Habitats within the proposed development area were assessed as being of value to wildlife with the local vicinity with potential to support birds, hedgehogs and bats and these species may pose a constraint to works.
- 5.4 It is recommended that targeted surveys in respect to bats undertaken in order to determine presence or likely absence.
- 5.5 In addition, a precautionary approach to site clearance in respect to breeding birds, badgers, hedgehogs and otters is recommended to minimise any adverse impacts on these species/groups.
- 5.6 Details regarding specific mitigation, including further surveys and precautionary working practices together with habitat enhancement measures are provided below.

Recommendations

Breeding Birds

- 5.7 The on-site buildings, standing water, scattered trees, introduced shrubs and scrub provide suitable nesting habitat for a range of bird species. All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended).
- 5.8 In order to avoid any potential impact on breeding birds, the clearance of any trees, introduced shrubs or scrub should be undertaken outside the main bird nesting season which runs from March to August inclusive⁴, with clearance works possible between September and February. Where this is not possible, an ecologist would need to check the vegetation for active nests and signs of bird breeding activity.
- 5.9 In the event that a nest is found, an exclusion zone around the nest would be established. Works would have to cease within this buffer area until the young birds have fledged.

⁴ It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

Bats

- 5.10 Bats receive protection under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended).
- 5.11 During consultations with the City Ecologist Matthew Ecologist, it was determined that bats are thought to be present within the council building and surveys would be required.
- 5.12 Surveys can only be undertaken during the active period for bats taken to run between May and September with at least 1 between May and August.
- 5.13 It is understood that the council building does not fall within the proposed Arena development outline.
- 5.14 To date, one bat emergence survey has been carried out and the activity indicated that a roost was likely to be present within the council building and further surveys will be carried out. Full details of the bat activity surveys will be found in the subsequent report (Phlorum, 2021, date to be confirmed).
- 5.15 As the initial phase of the proposed development (the Arena) will not impact on the council building, then this stage can be completed without a licence, using a precautionary approach to bats in the area.
- 5.16 The results of the bat surveys will be used to inform specific mitigation and enhancement measures for this species group to include a lighting scheme that is sympathetic to bats.
- 5.17 Where a roost is likely to be impacted by the works, and where avoidance is not possible, it may be necessary to obtain a European Protected Species Mitigation (EPSM) Licence before the works can proceed and to complete any necessary mitigation.
- 5.18 Such a licence would need to be obtained from Natural England once full planning permission is in place. The application will require the drafting of a detailed mitigation strategy including timing and construction methods in addition to the mitigation measures proposed. Natural England currently require 30 working days to determine a licence application.
- 5.19 If a bat roost is found for a common bat species and the roost is of low conservation value, then a Low Impact Class Licence may be obtained for the site instead. This type of licence is typically obtained within 15 days.
- 5.20 Due to the close proximity of the arena development, recommendations to minimise the effects of any potential lighting are mentioned below.

Bats and Lighting

- 5.21 Different species of bat have been found to react differently to night-time lighting however research has found that generally, all species of bats are sensitive to artificial lighting and that excessive lighting can delay bats from emerging, thus shortening the time available for foraging, as well as causing individuals to move away from suitable foraging grounds or roost sites, to alternative dark areas (Jones, 2000). Bats can also become isolated from their foraging grounds if the linear features they use for commuting are suddenly illuminated, creating a light barrier (Fure, 2006).
- 5.22 The current site is not well lit at night and therefore the development should serve to maintain the site's value for foraging bats and to minimise indirect impacts from lighting associated with the new building. This can be achieved by following accepted best practice (Institute of Ecology and Environmental Management 2006, Institute of Lighting Professionals 2018, Bat Conservation Trust, 2014):
- 5.23 The level of artificial lighting including flood lighting should be kept to a minimum, particularly around the site boundaries;
- 5.24 LED lights are a preferred option to low pressure sodium lights or high pressure sodium or mercury lamps, and lights should be directed low with minimal light spillage;
- 5.25 Ideally the site boundaries should be kept dark, preferably at bat emergence (0-1 hour after sunset) and during peak bat activity periods (e.g. 1.5 hours after sunset and 1.5 hours before sunrise); and
- 5.26 Artificial lighting should not directly illuminate any potential bat commuting areas such as boundary features particularly along the east and west of the council building. Similarly, any newly planted linear features or buffer areas around the site boundary should not be directly lit.
- 5.27 Full details of the bat surveys can be found in the subsequent Bat Survey Report (Phlorum, 2021).

Otters

- 5.28 Otters and their places of refuge are protected at a European level under the EC Habitats Directive (as amended 2010) and have full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
- 5.29 Throughout construction, all on-site contractors must be made aware of the potential presence of otters in the locality and a toolbox talk should be given by a qualified ecologist immediately prior to the start of construction works to discuss the potential for otters to pass through the site and to provide information on legislation and the ecology of this species.
- 5.30 All trenches should be covered at night or if this is not possible, ramps must be installed into the trenches to enable badgers to escape should they enter the excavations. All materials must be stored safely and lids securely fitted, particular waste and other potential food sources.

Hedgehogs

- 5.31 Hedgehogs are listed on the Natural Environment and Rural Communities (NERC) Act 2006 Section 41 as a Species of Principal Importance and a London BAP Priority Species. They are a rapidly declining species.
- 5.32 Hedgehogs need short grass areas to search for invertebrate prey. Log piles and decaying vegetation are used to forage and hibernate in. Areas of leaf litter can be collected and used in nests. Dense scrub areas are also useful to build hibernation nests during winter. Wildlife friendly corridors allow hedgehogs and other wildlife to migrate across a site. These are discussed in the Wildlife Friendly Pathways Section below.

Habitat Retention

- 5.33 All retained trees, including all adjacent off-site trees should be protected in accordance with British Standards (BS 2012) 5837:2012 Trees in Relation to Design, Demolition and Construction. The root protection areas of any retained trees must be left free from excavation and disturbance, and protected during any proposed works. Protection should be in the form of fencing and signs installed for the duration of the works.

Habitat Enhancement

- 5.34 New development offers the opportunity for habitat enhancement in accordance with national and local planning policy and some recommendations are included below.

Control of Invasive Non-Native Species (INNS)

- 5.35 Although it is not illegal to have species listed under the Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), it is illegal to permit these species to spread and grow in the wild.
- 5.36 We recommend that a member of the Property Care Association Invasive Weed Control Group (PCA IWCG), such as Phlorum is contacted to manage the invasive weeds at the site.

Bird and Bat Boxes and Bricks

- 5.37 Additional bird nesting and bat roosting provision could be incorporated into new design proposals. These could either be installed on trees or incorporated into the new building design. Some recommendations are made below as a guide.
- 5.38 Bat roosting opportunities could be provided through the installation of boxes on the outside of the walls or remaining trees, such as the Schwegler 2F, or other makes of a similar design, such as Chavenage Bat box. There are a range of bat boxes available and these can be selected to suit the development and bat species in the locality.

- 5.39 Bird boxes could be installed on the walls of the new building or in the remaining trees which could include the following Schwegler bird house or 1B makes, or similar designs from alternative suppliers. If the developer is happy for bird boxes to be installed on the walls of the new building then a Schwegler sparrow terrace 1SP could also be used.
- 5.40 Further details of the bird and bat boxes are provided in Appendix F.
- 5.41 Bat boxes should be installed at appropriate locations ideally with south-east, south, or south-west facing aspects at least 3m from ground level. Ideally they need to be exposed to 6-8 hours of direct sunlight, but sheltered from strong winds. If installed on the building, these should ideally be positioned directly below the eaves.
- 5.42 Bird Boxes should be located out of prevailing wind, rain, and strong sunlight, ideally with a clear flight path to the entrance. Ideally they should be installed two to four metres from the ground facing north or north-east.


Wildlife Friendly Pathways

- 5.43 The increase in building can result in ecological areas which are unconnected. Effectively these are ecological islands, and often there is no way for wildlife to migrate to and from these areas. One way to reduce the impact and allow wildlife, including hedgehogs, to migrate across sites is to install wildlife friendly pathways across a site. This can include a range of things such as wildlife corridors, such as hedgerows and scrub or rough grassland corridors, but also installing holes in fences. Wildlife holes, often referred to as hedgehog holes, help wildlife migrate through areas. The holes need to be at least 13cm by 13cm, at ground level.


Compensatory Planting







- 5.44 Additional tree and shrub planting could be incorporated into the landscape proposals to compensate for any removal to facilitate the works. Planting should include a high proportion of native species and be of local provenance where possible. These should be carefully selected to ensure they contain species suitable for the area. Some species of known wildlife value are listed in Appendix E.

6. Conclusions

- 6.1 The site survey revealed the following habitats: building, amenity grassland, hardstanding, introduced shrub, scattered trees, scrub, water body and broad leaved woodland.
- 6.2 The site is not subject to any statutory or non-statutory designations. The closest statutory site is located approximately 1.6km to the south east at its closest point and the survey area does not support any features that contribute to the designation of this site.
- 6.3 The following protected species surveys will continue to be carried out to determine presence or likely absence:
 -  Bats.
- 6.4 In addition, a precautionary approach to vegetation clearance in respect to breeding birds, hedgehogs and otter is recommended to minimise any adverse impacts on these species/groups.
- 6.5 It has been recommended that the site is enhanced by introducing some compensatory planting and installing bat and bird boxes.

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8. Glossary of Terms

BAP	Biodiversity Action Plan
BRC	Biological Records Centre
CIEEM	Chartered Institute of Ecology and Environmental Management
Habitats Directive	Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographical Information for the Countryside
NNR	National Nature Reserve
Nomenclature	The system of devising of names for plants
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal- formerly referred to as a Phase 1 Habitat Survey
SAC	Special Area of Conservation
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WII	Wetland of International Importance

Figures and Appendices

Appendix A

Habitat Map

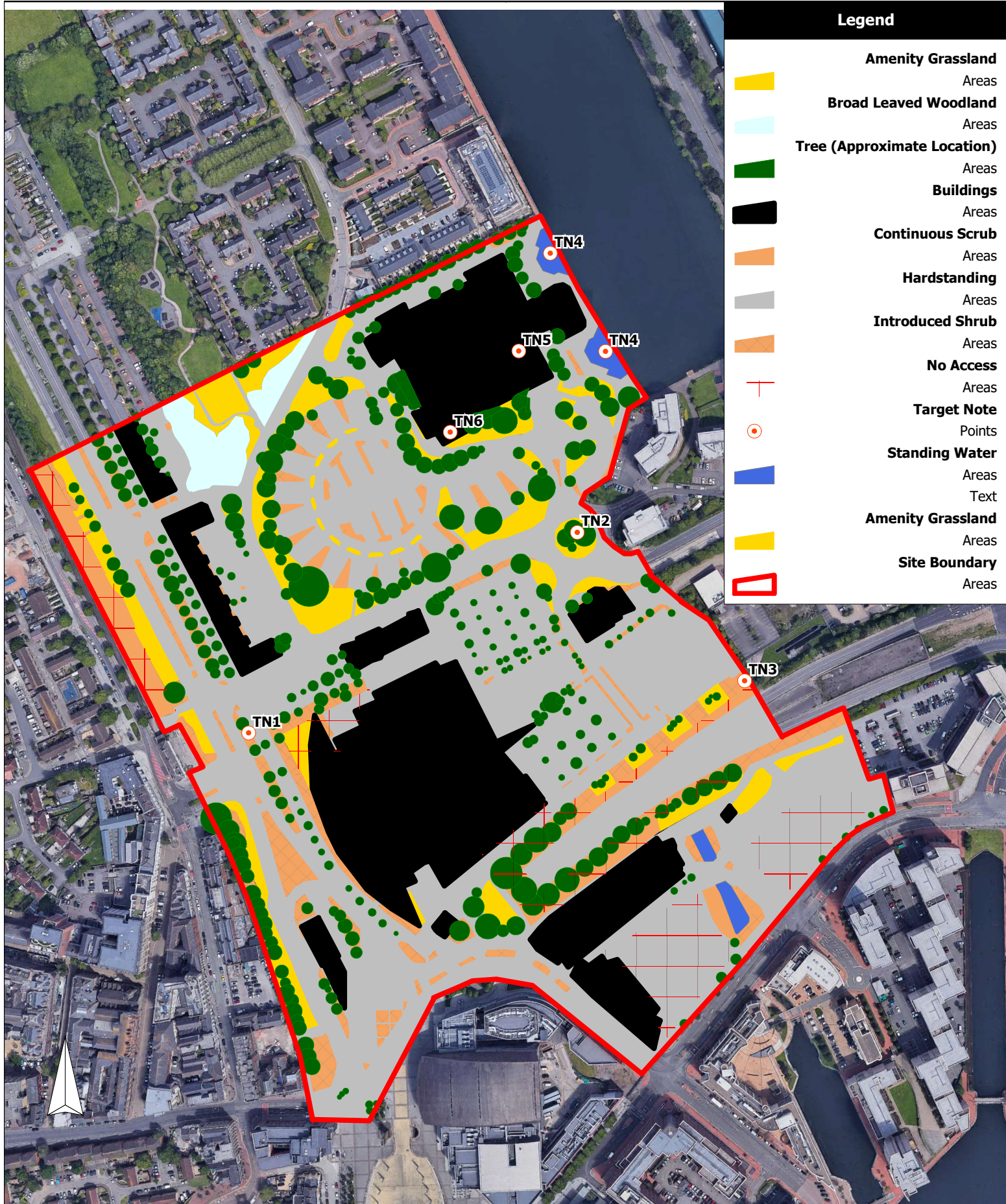


Figure 1: Cardiff Arena Habitat Survey Map

Drawn by: SM
On the: 14/07/2021
Not to Scale
Ref: 10449








Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
Web: www.phlorum.com
Email: info@phlorum.com

Appendix B

Photographs and Target Notes

Photographs and Target Notes

Photo No.	Feature (Target Note No.)	Photograph of Feature
1	The site was predominantly hardstanding from car parks and roads.	
2	TN1: Introduced shrubs were observed across the site and often acting as linear features. China rose (<i>Rosa chinensis</i>) and surrounding Cotoneaster (<i>Cotoneaster simonsii</i>) can be seen here.	

3	TN2: A bird's nest was observed (circled in red).	 A photograph of a tree with a bird's nest circled in red. The nest is located in the upper part of the tree, surrounded by green leaves.
4	TN3: mammal hole and tracks were observed in the scrub located along the eastern boundary.	 A photograph of scrub vegetation with a mammal hole and tracks. The ground is covered with dry leaves and twigs, and there is a small hole in the ground.
5	TN4: Moorhens were observed nesting in Bute East Dock.	 A photograph of a wooden post in water, likely a nesting site for Moorhens. The post is partially submerged, and there is some debris or nesting material at its base.

6

A combination of scattered trees, introduced shrubs and hardstanding was typical across the site.



7




The council building was inspected for bat roosting features from ground level.



8

TN5: Missing ridge tiles were observed on the south-eastern corner of the council building.



9	TN6: Lifted tiles and gaps under tiles were observed on the south-western corner of the council building.	
10	No signs of bats were observed during the internal inspection of the upper floors. Not all areas were accessible.	
11	Gaps under ridge tiles were observed during the external inspection of the upper floors.	

12

Bats were observed (circled in red) towards the south-eastern corner of the building during the emergence survey. Full details of the bat surveys are found in the subsequent bat report (Phlorum, 2021).



Appendix C

Legislation

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.






Species

The objective of the EC Habitats Directive⁵ is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2017 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CROW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:







-  Countryside and Rights of Way (CROW) Act 2000;
-  Deer Act 1991;
-  Natural Environment & Rural Communities (NERC) Act 2006;
-  Protection of Badgers Act 1992; and
-  Wild Mammals (Protection) Act 1996.

Badgers

Badgers and their setts are protected under the Protection of Badgers Act (1992), which consolidated and added to the previous Badger Acts of 1973 and 1991. Under this legislation it is an offence to:

-  cruelly ill-treat a badger, including use of tongs and digging;




⁵ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

-  intentionally or recklessly cause a dog to enter a badger sett;
-  intentionally or recklessly damage, destroy or obstruct access to a badger sett⁶ or any part thereof;
-  intentionally or recklessly disturb⁷ a badger when it is occupying a badger sett;
-  possess or control a dead badger or any part of a badger;
-  sell or offers for sale, possesses or has under his control, a live badger; and
-  wilfully kill, injure, take, or attempt to kill, injure or take a badger.



A Development Licence will be required from Natural England for any development works affecting an active badger sett, or to disturb badgers while individuals are occupying the sett. Depending on the nature of the works and the specifics of the sett, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. Natural England has issued guidelines on what constitutes a licensable activity. There is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

Bats

Bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This act protects individuals from:

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

In addition, all species of bat are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

-  deliberate killing, injuring or capturing of Schedule 2 species (all bats);
-  deliberate disturbance of bat species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.

⁶ A badger sett is defined in the legislation as *"any structure or place which displays signs indicating current use by a badger"*. This includes seasonally used setts. Natural England (2009) have issued guidance on what is likely to constitute current use of a badger sett: www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

⁷ For guidance on what constitutes disturbance and other licensing queries, see Natural England (2007) Badgers & Development: A Guide to Best Practice and Licensing. www.naturalengland.org.uk/Images/badgers-dev-guidance_tcm6-4057.pdf, Natural England (2009) Interpretation of 'Disturbance' in relation to badgers occupying a sett www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf, Scottish Natural Heritage (2002) Badgers & Development. www.snh.org.uk/publications/online/wildlife/badgersanddevelopment/default.asp and Countryside Council for Wales (undated) Badgers: A Guide for Developers. www.ccw.gov.uk.

- deliberate disturbance of bat species as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake activities listed above. A licence is required to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Breeding Birds

Under the Wildlife & Countryside Act, 1981 (as amended), a wild bird is defined as any bird of a species that is resident in or is a visitor to the European Territory of any member state in a wild state. Game birds, however, are not included in this definition (except for limited parts of the Act). They are covered by the Games Acts, which fully protect them during the closed season.

Under the Wildlife & Countryside Act, 1981 (as amended), all birds, their nests and eggs are protected under Sections 1-8 of the Act and it is an offence, with certain exceptions, to:

- intentionally (or recklessly in Scotland) kill, injure or take any wild bird;
- intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act;
- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act;
- use traps or similar items to kill, injure or take wild birds;
- have in one's possession or control any bird (dead or alive) unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations; and
- in Scotland only, intentionally or recklessly obstruct or prevent any wild bird from using its nest.

Certain rare species receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). 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;

- in Scotland only, intentional or reckless disturbance whilst lekking; and
- in Scotland only, intentional or reckless harassment.

The British Trust for Ornithology (BTO) has a list of birds that are Species of Conservation Concern. These birds are not legally protected but where they are found on site they should be given planning consideration. The criteria for birds listed as amber (medium conservation concern) include:

- historical population decline during 1800-1995, but recovering: population has more than doubled over last 25 years;
- moderate (25-49%) decline in UK breeding population over last 25 years;
- moderate (25-49%) contraction of UK breeding range over last 25 years;
- moderate (25-49%) decline in UK non-breeding population over last 25 years;
- species with unfavourable conservation status in Europe (Species of conservation Concern);
- five year mean of breeding pairs in the UK;
- ≥50% of UK breeding population in 10 or fewer sites;
- ≥50% of UK non-breeding population in 10 or fewer sites;
- ≥20% of European breeding population in UK; and
- ≥20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non breeding populations in UK.



Hazel Dormice

The hazel dormouse (*Muscardinus avellanarius*) is fully protected under The Conservation of Habitats and Species Regulations 2017 through its inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing;
- deliberate disturbance as to impair its ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- deliberate disturbance as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of this species.

The hazel dormouse is also currently protected under the Wildlife and Countryside Act 1981 (as amended) through its inclusion on Schedule 5. Under this Act, this species is additionally protected from:






- intentional or reckless disturbance;

-  intentional or reckless obstruction of access to any place of shelter or protection; and
-  selling, offering or exposing for sale, possession or transporting for purpose of sale.







A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect dormouse breeding or resting places (N.B. this is usually taken to mean dormouse 'habitat') or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above. The licence will allow derogation from the relevant legislation but will also to enable appropriate mitigation measures to be put in place and monitored.

Herpetofauna (Reptiles and Amphibians)



The following species receive full protection under the Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2.

-  sand lizard (*Lacerta agilis*);
-  smooth snake (*Coronella austriaca*);
-  natterjack toad (*Epidalea calamita*);
-  great crested newt (*Triturus cristatus*); and
-  pool frog (*Pelophylax lessonae*).

Under this legislation, Regulation 41 prohibits:

-  deliberate killing, injuring or capturing of species listed on Schedule 2;
-  deliberate disturbance of any Schedule 2 species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
-  deliberate disturbance of any Schedule 2 species as to affect significantly the local distribution or abundance of the species;
-  deliberate taking or destroying of the eggs of a Schedule 2 species;
-  damage or destruction of a breeding site or resting place; and
-  keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of a species.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). 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; and

- selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species include:

- adder (*Vipera berus*);
- grass snake (*Natrix natrix*);
- common lizard (*Zootoca vivipara*); and
- slow-worm (*Anguis fragilis*).

Under this legislation, for these species it is prohibited under Section 9(1) & (5) to:

- intentionally (or recklessly in Scotland) kill or injure these species; or
- sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

The following species are listed in respect to Section 9(5) of Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) which only affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale:

- common frog (*Rana temporaria*);
- common toad (*Bufo bufo*);
- smooth newt (*Lissotriton vulgaris*); and
- palmate newt (*L. helveticus*).

Water Voles

The water vole (*Arvicola amphibius*) (= *terrestris*) is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- intentionally kill, injure or take (capture) this species;
- 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; and
- sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead water vole or part of this species.

Where development works are liable to affect habitats known to support water voles, Natural England must be consulted. All alternative design options must have been explored and communicated to Natural England in order to demonstrate that works have tried to avoid contravening the legislation e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable etc. Conservation licences for the capture and translocation of water voles may be issued by Natural England 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.

Otters

Otters (*Lutra lutra*) are fully protected under The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2. Regulation 41 prohibits:

- 🌿 deliberate killing, injuring or capturing of otters;
- 🌿 deliberate disturbance as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- 🌿 deliberate disturbance as to affect significantly the local distribution or abundance of the species;
- 🌿 damage or destruction of a breeding site or resting place; and
- 🌿 keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of this species.

Otters also receive protection under the Wildlife and Countryside Act 1981 (as amended) 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; and
- 🌿 selling, offering or exposing for sale, possession or transporting for purpose of sale.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect breeding or resting places or for activities likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Wild Mammals

All wild mammals are protected against intentional acts of cruelty under the Wild Mammals (Protection) Act 1996. Under this legislation it is 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 of this legislation, due care and attention should be taken when carrying out works that have the potential to impact any wild mammal as described above.

Plants

Wild plants are protected under the Wildlife and Countryside Act 1981 (as amended) which 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.

Some rare plant species also receive full protection under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits:

- 🌿 intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only); and
- 🌿 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 parts.

In addition to the legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2017. Regulation 45 makes it an offence to:

- 🌿 deliberately pick, collect or destroy a wild Schedule 5 species; and
- 🌿 be in possession of, or control, transport, sell or exchange any wild live or dead Schedule 5 species or anything derived from it.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect species of plant listed under The Conservation of Habitat and Species Regulations 2017.

Invasive Plant Species

Certain plants are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 14(2). Species include:

- 🌿 Japanese knotweed (*Reynoutria japonica*);
- 🌿 giant hogweed (*Heracleum mantegazzianum*);
- 🌿 Himalayan balsam (*Impatiens glandulifera*);
- 🌿 certain species of rhododendron (*Rhododendron* sp.); and
- 🌿 certain species of cotoneaster (*Cotoneaster* sp.).




Species listed are non-natives whose establishment or spread in the wild may be detrimental to native wildlife. Inclusion on Part II of Schedule 9 therefore makes it an offence to:

- 🌿 plant or otherwise cause these species to grow in the wild.



This legislation makes it is an offence to cause species listed to grow in the wild. Therefore, if they are present on site and development activities have the potential to cause the further spread of these species to new areas, it will be necessary to ensure appropriate measures are in place to prevent this.

Habitats


International Statutory Designations

-  Special Protection Areas (SPAs): Terrestrial SPA's are afforded protection by The Conservation (Natural Habitats, &c. Regulations 1994 (as amended) and offshore SPA's are afforded protection under The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended). SPAs are designated under the EC Birds Directive (Council Directive 2009/147/EC on the Conservation of Wild Birds). SPAs are areas recognised as important habitat for rare and migratory birds within the European Union (rare birds as listed on Annex I of the Directive).
-  Special Areas of Conservation (SACs): These areas are designated under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), designated for the habitats and (non-bird) species listed on Annexes I and II to the Directive under the same regulations as detailed for SPA's.
-  Ramsar sites: These areas are wetlands designated under the Convention on Wetlands of International Importance (1971). Wetlands can include areas of marsh, fen, water or peatland and may be natural or artificial, permanent or temporary. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSIs) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CROW) Act 2000.



National Statutory Designations

-  Sites of Special Scientific Interest (SSSIs): These sites are designated by the countryside agencies (for example Natural England) under the Wildlife & Countryside Act 1981 (as amended). Prior to 1981 these were designated under the National Parks and Access to the Countryside Act 1949. Improved mechanisms for the protection of SSSIs have also been introduced by the Countryside and Rights of Way Act 2000 (in England and Wales).
-  National Nature Reserves: These sites are also designated by the countryside agencies under the Wildlife & Countryside Act 1981 (as amended).


Local Statutory Designations

-  1949 Local Nature Reserves (LNRs): These sites are designated by local authorities under the National Parks and Access to the Countryside Act 1949. These are sites recognised for their wildlife or geological interest at a local level and are managed for nature conservation.

Non-Statutory Designations

-  Local Wildlife Sites: Areas of local conservation interest may be designated by local authorities. The terminology for these sites varies depending on the county. They can be called Sites of Nature Conservation Importance (SNCI's), Sites of Importance for Nature Conservation (SINCs), County Wildlife Sites (CWS), Listed Wildlife Sites (LWS), Local Nature Conservation Sites (LNCS), Sites of Biological Importance (SBIs). The designation criteria may vary between counties. Local Wildlife Sites are of material consideration when planning applications are being determined.
-  The Hedgerow Regulations 1997: These have been compiled to protect 'important' countryside hedgerows from damage or removal. A hedgerow is considered important if (a) has existed for 30 years or more; and (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 certain hedgerows without permission from the local planning authority. Hedgerows covered by these regulations include those on or adjacent to common land, 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.

National Planning Policy

-  The National Planning Policy Framework (NPPF) (2019) replaces the former NPPF 2018 and 2012, and the former PPS9 document and emphasises the need for sustainable development. The Framework specifies the need to protect and enhance biodiversity and geodiversity. Identify and safeguard components of local wildlife-rich habitats and wider ecological networks including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors; and stepping that connect them. Plus partnerships for habitat management, enhancement, restoration or creation. The Framework aims to promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species. In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from adverse harm; appropriate mitigation or compensation measures are in place where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; 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.

Local Planning Policy

Cardiff Local Development Plan (2006-2026)

KP4: MASTERPLANNING APPROACH

Major development should accord with:

(i) The following Masterplanning General Principles:

1. Development schemes that are planned in a comprehensive and integrated manner reflecting partnership working and setting out the phasing of development along with a timely provision of supporting infrastructure. Masterplans will need to encompass the whole of a development area regardless of land ownership patterns, and this will require partnership working, involving all relevant parties;
2. High density residential and mixed-use development is focused along public transport corridors and in neighbourhood centres with lower densities provided elsewhere to deliver an overall range and choice to meet different needs;
3. Dedicated sustainable transport corridors including provision for public transport, cycling and walking which will form key elements of the overall master plan and effectively link into the wider network;
4. Walking, cycling and public transport will be attractive, practical and convenient travel choices for all;
5. Provision of a full range of social and community facilities will be concentrated within mixed use neighbourhood centres located along public transport corridors and easily accessed by walking and cycling;
6. The masterplanning process effectively responds to the local context and the context of climate change, to create new well designed neighbourhoods with a distinctive character which residents will be proud of;
7. New development responds to local deficiencies and provides good connectivity to adjoining areas and is informed by feedback from existing communities;
8. Multi-functional and connected green open spaces form strategically important links to the surrounding area to provide routes for people and wildlife and open spaces for sports, recreation and play;
9. Sympathetically integrate existing landscape, biodiversity and historic features of the site into the development taking opportunities to protect, enhance and manage important features along with mitigation and enhancement measures to provide satisfactory compensatory measures;
10. Innovative and creative energy, management of surface water and waste management solutions are adopted to make new developments more environmentally sustainable ;

KP5: GOOD QUALITY AND SUSTAINABLE DESIGN

To help support the development of Cardiff as a world-class European Capital City, all new development will be required to be of a high quality, sustainable design and make a positive contribution to the creation of distinctive communities, places and spaces by:

- i. Responding to the local character and context of the built and landscape setting so that layout, scale, form, massing, height, density, colour, materials, detailing and impact on the built and natural heritage are all addressed within development proposals;

- ii. Providing legible development which is easy to get around and which ensures a sense of continuity and enclosure;
- iii. Providing a diversity of land uses to create balanced communities and add vibrancy throughout the day;
- iv. Creating interconnected streets, squares and spaces as distinctive places, which are safe, accessible, vibrant and secure and incorporate public art where appropriate;
- v. Providing a healthy and convenient environment for all users that supports the principles of community safety, encourages walking and cycling, enables employment, essential services and community facilities to be accessible by sustainable transport and maximises the contribution of networks of multi-functional and connected open spaces to encourage healthier lifestyles;
- vi. Maximising renewable energy solutions;
- vii. Achieve a resource efficient and climate responsive design that provides sustainable water and waste management solutions and minimise emissions from transport, homes and industry;
- viii. Achieving an adaptable design that can respond to future social, economic, technological and environmental requirements;
- x. Promoting the efficient use of land, developing at highest practicable densities and where appropriate achieving the remediation of land contamination;
- x Ensuring no undue effect on the amenity of neighbouring occupiers and connecting positively to surrounding communities;
- x. Fostering inclusive design, ensuring buildings, streets and spaces are accessible to all users and is adaptable to future changes in lifestyle; and
- xii. Locating Tall buildings in locations which are highly accessible through walking and public transport and within an existing or proposed cluster of tall buildings.

KP15: CLIMATE CHANGE

A core function of the Plan is to ensure that all development in the city is sustainable, taking full account of the implications of reducing resource use and addressing climate change. This Policy provides a framework for sustainable growth by promoting development that mitigates the causes of climate change and which is able to adapt to its likely effects. This long-term approach is vital if Cardiff is to realise the economic, environmental and social objectives set out in the Vision.

4.167 In the first instance, a reduction in carbon emissions will be achieved by means of controlling the energy demand associated with development through maximising energy efficiency. Secondly, sustainable sources of energy should be incorporated, without reliance on fossil fuels.

4.168 Carbon sinks act as a means of off-setting carbon emissions by natural means. Trees and soils act as substantial reservoirs of carbon, sequestering atmospheric carbon, and contributing substantially to soils, which accrete carbon faster under tree cover than other forms of vegetation. This stored carbon will usually be emitted as a greenhouse gas if trees are removed or damaged, or soils removed, covered or disturbed (by compaction or contamination) during the construction process.

4.169 As far as practicable, trees should be retained and protected, and land kept as functioning vegetated soil open to the fall of organic matter, with new trees and shrubs provided by developers wherever possible. Where trees and shrubs cannot be surrounded by open soil, hard surfaces should not be used unless there is an overriding need, and areas that are not needed for pedestrian or vehicle use 4 Strategy, Key Diagram and Key Policies 106 Cardiff Local Development Plan 2006 - 2026 Adopted Plan should be retained for soft landscape. Cardiff's open spaces, trees and soils play a crucial role in mitigating the effects of climate change at the local level. Open vegetated soils absorb rainfall and runoff.

4.170 Adapting to the implications of climate change will require buildings which are able to cope with the likely increased temperature ranges, more frequent and severe flooding and increased extreme weather events. Buildings and related infrastructure should be designed to be flexible not only to climatic change but also to accommodate a variety of uses over their lifetime rather than being suitable for one sole application. Landscape will be a critical issue with trees providing protection both by shading and active cooling. This cooling will be required particularly in the city centre and District Centres, and where the young children, older people, and people with mobility impairments gather.

4.171 The Council will require high standards of energy efficiency in new development. Implementation of this Policy, which promotes incorporation of renewable energy generation, will also reduce emission of aerial pollutants, thereby offsetting increases in aerial emissions arising from implementation of other policies in the Plan. This would contribute to avoiding significant effects upon European Sites.

4.172 Avoiding unnecessary flood risk will be achieved by strictly assessing the flood risk implications of development proposals within areas susceptible to tidal or fluvial flooding and preventing development that unacceptably increases risk. In accordance with TAN15: Development and Flood Risk no highly vulnerable development will be permitted in development advice zone C2. Development will only be considered in other areas at high risk of flooding where it can be demonstrated that the site can comply with the justification and assessment requirements of TAN15 (2004 – Section 6, 7 and Appendix 1). Policy EN14 relating to Flood Risk sets out a range of criteria which will be considered when assessing development proposals in areas of high risk of flooding.

KP16: GREEN INFRASTRUCTURE

4.173 The policy aims to ensure that Cardiff's green infrastructure assets are strategically planned and delivered through a green infrastructure network. Other policies in the Plan provide more detailed guidance on aspects of these assets, together with supporting SPG.

4.174 The green infrastructure network is important for its own sake and for its contribution to the wider quality of life, including the value that people attach to it. It provides a range of economic, social and environmental benefits including reducing impacts of climate change (KP15), enhanced biodiversity habitat and species connectivity (EN5, EN6 and EN7), providing greater opportunities for sports and recreation (C4), contributing to the communities' health and wellbeing (C6) and providing visual benefits for all (KP5). 4 Strategy, Key Diagram and Key Policies 108 Cardiff Local Development Plan 2006 - 2026 Adopted Plan

4.175 Where development is permitted, planning conditions and/or obligations will be used to protect or enhance the natural heritage network. New developments should incorporate new and / or enhanced green infrastructure of an appropriate size, type and standard to ensure no fragmentation or loss of connectivity.

4.176 Where the benefits of development outweigh the conservation interest, mitigation and/or compensation measures will be required to offset adverse effects and appropriate planning obligations sought. The implementation of policies designed to provide and protect public open space throughout Cardiff would also serve to offset any increase in recreational pressure on the Cardiff Beech Woods SAC, thereby helping to avoid likely significant effect upon that site.

4.177 Management of Cardiff's green infrastructure network should be in place prior to development, and appropriate planning obligations sought. SPG on this topic will more fully outline the extent of Cardiff's green infrastructure and how this policy can be implemented in more detail.

KP17: BUILT HERITAGE

4.178 This Policy affords strategic policy protection for Cardiff's historic environment as required by legislation and PPW. The historic environment enriches people's lives and the visual appearance of the city. It reflects the diversity and culture of the communities that have formed it over time, provides evidence of Cardiff's past and helps define its present identity and character. An understanding of the historic and cultural significance of the city can provide a context for managing change and creates a backdrop for innovation in the design of new development to shape the future of the city.

4.179 There are currently 28 Scheduled Ancient Monuments in Cardiff. This Policy affords appropriate protection to these monuments and others that may be scheduled over the Plan period, as well as other important archaeological remains identified within the Historic Environment Record. SPG on Archaeologically Sensitive Areas will provide further guidance on four areas of the city where significant finds have been recorded. 109 Cardiff Local Development Plan 2006 - 2026 Adopted Plan

4.180 There are currently almost 1,000 buildings in Cardiff on the statutory List of Buildings with Special Architectural or Historic Interest, designated by Cadw on behalf of the Welsh Government. Along with the legislation referred to above, This Policy affords appropriate protection to these statutory listed buildings and others that may be added to the list by Cadw over the Plan period.

4.181 The Council also holds a Local List of Buildings of Merit. This Policy identifies the significance of these locally listed buildings (and others that may be added to the list by the Council over the Plan period) have in forming the character of the area. Welsh Office Circular 61/96 identifies the weight their designation may have in the assessment of development proposals.

4.182 There are currently 27 conservation areas in Cardiff, as identified on the Constraints Map. Along with the legislation referred to above. This Policy affords appropriate protection to these and other areas that may be designated by the Council over the Plan period. The Policy should be read in conjunction with the adopted Conservation Area Appraisal prepared for each area, including the enhancement proposals included within them.

4.183 Finally, there are currently 19 historic parks and gardens and 1 historic landscape (the Wentloog Levels) included on the Cadw/ICOMOS 'Register of Historic Landscapes Parks, and Gardens'. This Policy affords appropriate protection to these and other historic parks, gardens and landscapes that may be added to the register by Cadw/ICOMOS over the Plan period.

4.184 In seeking to respond to the presence of heritage assets, developers are encouraged to follow a sequence of investigation and assessment to identify the cultural and historic significance of a place before developing proposals for change or alteration. In this way appropriate approaches can be developed to preserve and enhance the historic environment through proposals that respond to and complement their context. The process is commended within Circular 61/96 and advice within BS Standard 7913, 2013.

KP18: NATURAL RESOURCES

4.185 The best and most versatile agricultural land (grades 1, 2 and 3a of the Agricultural Land Classification) is a finite resource. Once lost to development it is rarely practicable to return such land to best quality agricultural production.

4.186 There is no up-to-date definitive map of agricultural land quality for Cardiff as a whole but the best and most versatile agricultural land is known to exist in parts of the west, north and east of Cardiff. In meeting the needs to provide new homes and jobs in this Plan, some high quality land will be lost but taking account of all relevant factors, this loss is considered justified. Moreover, by putting in place a planned and managed approach to meeting future economic and social needs, this adds strength to the protection of good quality land outside these areas.

4.187 Cardiff's rivers, lakes, ponds and water bodies are important for a wide range of uses and users. Development has the potential to affect water quality and quantity. It is important that development is only allowed where there would be no unacceptable harm to the quality or quantity of water resources and where provision can be made for any infrastructure required to safeguard water quality and quantity. New developments should have an adequate water supply and sewerage system to serve the development. This policy, which is aimed in part at improving water resource use efficiency, will ensure adequate water supply without adverse impacts on the River Usk and River Wye SACs, thereby helping to avoid the likelihood that this LDP will have a significant effect upon European designated sites.

4.188 Poor air quality can affect people's health, quality of life and amenity and can impact on nature conservation and built heritage interests. Development has the potential to cause air pollution, or sensitive developments can be affected by existing air quality problems in an area. In Cardiff, transport emissions are one of the main contributors to poor air quality. Development will not be permitted if it would cause or result in unacceptable harm due to air pollution. Implementation of this Policy will also help to counteract any increase in atmospheric pollution as a result of the Plan, thereby helping to avoid the likelihood that this LDP will have a significant effect upon internationally designated sites.

4.189 The redevelopment of sites with land contamination allows such land to be brought back into beneficial use, prevents dereliction and reduces the need to develop greenfield sites. Developers will be required to demonstrate that any actual or potential contamination can be overcome, thereby ensuring that the land is suitable for the development proposed.

EN7: PRIORITY HABITATS AND SPECIES

5.123 This Policy is in accordance with the aims and objectives of the Plan by protecting and enhancing the features of Cardiff's natural heritage, including its biodiversity and abundance of wildlife habitats and native species. More specifically, it will help protect the current Priority Habitats and Species as defined in the Local Biodiversity Action Plan 2008. The Policy also helps to deliver Policy KP16.

5.124 The presence of a species protected under European or UK legislation is a material consideration in considering development proposals which would be likely to result in disturbance or harm to the species or its habitat. Appropriate surveys to confirm if a protected species is present and an assessment of the likely impact of the development on a protected species may therefore be required from applicants. Thereafter the development proposals will be assessed in accordance with criteria set out in sections 5.5.11 and 5.5.12 of Planning Policy Wales 2012 and Chapter 6 of Technical Advice Note (Wales) 5: Nature Conservation and Planning (2009).

5.125 Development proposals that have the potential to cause a significant adverse effect on priority habitats and species will need to be accompanied by an ecological survey and an assessment of the likely impact of the development on the protected species. The need for such assessments will be undertaken at the appropriate time of year. Further guidance will be available in the Biodiversity SPG. 145 Cardiff Local Development Plan 2006 - 2026 Adopted Plan

5.126 In considering any significant adverse effect on the Priority Habitat or Species, the Council will look at: The current distribution and status of the priority habitat or species within Cardiff as informed by the Cardiff Biological Database as well as other sources of data that may be relevant, accurate and practical to use for such purposes in the future; Whether the development proposals are likely to have a significant effect on the priority habitats/ species; and Whether effective mitigation measures have been provided.

5.127 Where planning permission is granted, the Council may attach conditions or enter into agreements that would overcome the potentially damaging effects of development on the habitats or species of conservation importance. The Council will encourage the applicant to identify and include measures that contribute to the restoration or expansion of important habitats, and these will be set out in the landscaping and planting conditions that accompany the planning permission. Any planning obligations required will be in accordance with Policy KP7.

5.128 Where there is a significant adverse effect on a significant population of the Priority Habitat or Species and where planning conditions and/ or planning obligations cannot adequately protect the interest, it may be necessary to refuse development proposals.

5.129 Priority Habitats and Species are monitored as part of the 3 yearly review of the UK and Local Biodiversity Action Plans.

EN8: TREES, WOODLANDS AND HEDGEROWS

5.130 The purpose of the Policy is to protect trees, woodlands and hedgerows with natural heritage or amenity value.

5.131 It responds to Plan objectives relating to the natural environment and climate change and accords with PPW which emphasises the protection and preservation of trees and woodlands against inappropriate development.

5.132 Trees, woodlands and hedgerows offer multiple benefits, including visual amenity, defining a sense of place, providing places for relaxation and recreation, habitats for wildlife, improved health and wellbeing and mitigating the effects of climate change. To maintain these benefits, the protection and enhancement of a sustainable urban forest is critical. A sustainable urban forest adapted to meet the challenges of climate change and exotic pest and disease outbreaks will contain a diverse age range and species mix of trees, though large, long-lived trees will be favoured for protection and planting due to the increased benefits they offer in mitigating the effects of climate change.

5.133 In order to determine unacceptable harm to trees, woodland and hedgerows within or bounding a site, applicants must assess them in accordance with the current British Standard 5837. The assessment must inform design, and in considering hedgerows, regard will be given to their landscape, historical and ecological value, as well as their function as boundaries. Further guidance and advice will be contained in SPG relating to Trees and development.

5.134 The value of trees, woodlands and hedgerows in sequestering carbon and mitigating the effects of climate change will be ascertained partly by the British Standard 5837 assessment, and partly by how effectively they are integrated into a sustainable urban forest as defined in paragraph 5.132.

5.135 To prevent damage to trees, woodlands and hedgerows during development, schemes of protection will normally be required, in accordance with the current British Standard 5837.

5.136 Trees are the largest and longest living organisms in Cardiff. When considering developments that may affect them, regard will be given to potential short and long-term impacts. Where trees are lost, new planting will be sought that is provided with sufficient usable soil volume, aeration and irrigation to ensure healthy long-term growth. Although younger trees are more easily replaced, the Council will seek to ensure that sufficient young trees survive to maturity, having regard to the number of developments that may occur during their natural lifespan. Proposals that create spaces for larger tree species to grow to maturity will be favoured over proposals for scattered smaller trees.

5.137 Ancient woodlands are irreplaceable habitats of high biodiversity value which will be protected from development that would result in significant damage. Veteran trees and ancient hedgerows cannot be recreated and developments will be expected to retain them. Where appropriate, Tree Preservation Orders will be served to protect important amenity trees from removal or harm. The amenity value of trees will be assessed in accordance with government guidance and nationally recognised systems of amenity evaluation.

EN11: PROTECTION OF WATER RESOURCES

5.162 This Policy expands on Policy KP18 and its purpose is to maintain and enhance the quality and quantity of water resources, including rivers, lakes, ponds and other water bodies, which are important for a wide range of uses and users. Poor and deteriorating water quality and compromised water quantity can affect the supply of water resources for industrial and domestic consumption, fisheries, amenity, recreation and nature conservation.

5.163 The EU Water Framework Directive (2000/60/EC) establishes a strategic approach to water management and a common means of protecting and setting environmental objectives for all ground waters and surface waters. It aims to protect and restore clean water and ensure its long-term sustainable use. PPW emphasises that planning controls should be used to prevent the location of incompatible land uses and development close to potential sources of pollution.

5.164 Development will only be allowed where provision is made for the necessary infrastructure to protect water quality and quantity. Planning permission may be granted subject to conditions to secure the necessary measures, or developers may be required to enter into planning obligations. Applications that cannot provide adequate protection of watercourses, ground and surface water will be refused. New development that: Poses an unacceptable risk to ground water or water courses; Poses an unacceptable risk of ground water pollution, depletion or obstruction; and Incorporates inappropriate measures to prevent pollution 5 Detailed Policies 152 Cardiff Local Development Plan 2006 - 2026 Adopted Plan will be refused planning permission, unless appropriate measures to prevent pollution can be incorporated into the development proposal.

5.165 Future development will be limited to areas where adequate water resources exist or they can be reasonably provided without adversely affecting existing abstractions, river flows, water quality, agriculture, fisheries, amenity or nature conservation and where provision coincides with the timing of development. Existing groundwater and river levels must be maintained, and water pollution must be avoided.

5.166 Natural Resources Wales is responsible for protecting and improving the water environment. The Council will consult NRW and Caldicot and Wentlooge Levels Internal Drainage Board, where necessary, on any proposal that is likely to affect the supply of water, the quality of water, or is likely to be affected by, or cause flooding. Levels of impact and risk will be assessed through consultation with these bodies.

5.167 Planning permission will not be granted for development that, in the opinion of the Council, following consultation with NRW and the Caldicot and Wentlooge Levels Internal Drainage Board, would adversely affect the quality, quantity or supply of surface water or groundwater as a result of: The nature of the surface or waste water discharge; or Unsatisfactory agreements for the disposal of foul sewerage, trade effluent or surface water; or The spillage or leakage of stored oil or chemicals.

5.168 Planning permission will not be granted for developments involving local abstraction of surface or ground water which, in the opinion of the Council, following consultation with Natural Resources Wales and the Caldicot and Wentlooge Levels Internal Drainage Board, would: Increase requirements for water, unless an adequate water supply already exists or would be provided in time to serve the development; or Pose an unacceptable risk to the current supply of water uses.

5.169 Developments that improve the quality of the water environment or help to prevent water pollution or flooding will be favoured. Implementation of this Policy, which is aimed in part at improving water resource use efficiency, will counteract increases in water demand arising from implementation of other policies in the Plan, thereby avoiding likely significant effect upon the River Usk and River Wye SACs.

EN13: AIR, NOISE, LIGHT POLLUTION AND LAND CONTAMINATION

5.176 The purposes of the Policy are to ensure that: Developments that would generate unacceptable levels of air, noise or light pollution are appropriately located and controlled; Incompatible land uses and development are not located close to potential sources of pollution; and Developments are suitable for the proposed end use and that any actual or potential land contamination can be overcome, thereby ensuring that there is no unacceptable harm to human health or the environment.

5.177 PPW emphasises that whilst planning controls should be used to control the above matters, they should not be used to control matters that are the proper concern of pollution control regimes.

5.178 Poor air quality can harm people's health, quality of life and amenity, as well as nature conservation and built heritage interests. Poor air quality is a problem in certain areas of Cardiff. Current air quality assessments have identified four areas of the County where statutory air quality standards are being exceeded. The Council has identified these as Air Quality Management Areas: Cardiff City Centre; Ely Bridge; Stephenson Court, Newport Road; and Cardiff Road, Llandaff.

5.179 These areas suffer from high levels of pollution caused by road traffic. As part of its statutory monitoring of air quality within the city the Council will annually review air quality and may revoke or declare additional Air Quality Management Areas as appropriate. In determining planning applications, consideration will be given to a development's likely effect in terms of air pollution it may cause directly, but also in terms of any increase or decrease in traffic it may generate.

5.180 Where a development is likely to affect air quality significantly (i.e. where air quality standards are, or are likely to be breached or a new residential development gives rise to the need for a new Air Quality Management Area to be declared by introducing residents to areas where air quality standards are already being breached) then an application may be approved subject to conditions mitigating its impact on air quality, or refused where appropriate.

5.181 Noise can have a harmful impact on people's health and quality of life. Developments such as housing, schools and hospitals can be particularly sensitive to noise, as can areas of landscape, nature or built heritage importance. Where possible, new developments that are particularly noise-sensitive should be located 5 Detailed Policies 156 Cardiff Local Development Plan 2006 - 2026 Adopted Plan away from existing or proposed sources of significant noise. This assessment can be informed by information on noise complaints being collated by the Council as part of an on-going initiative to reduce noise nuisance.

5.182 Major transport routes (road, rail and air) and some industrial and commercial activities can generate particularly high noise levels. There is specific guidance within TAN 11 that specifies Noise Exposure Categories that assists with proposed residential development near transport related noise.

5.183 In addition to this, Welsh Government as part of its statutory duties under the Environmental Noise Directive has designated areas within Cardiff Noise Action Planning Priority Action Areas. The aim of the Directive is to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The Directive defines environmental noise as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity.

5.184 Under the Regulations, the Welsh Ministers had an obligation to make strategic noise maps for: agglomerations (large urban areas with populations of more than 100,000); major roads (those with more than three million vehicle passages per year); and major railways (those with more than 30,000 train passages per year).

5.185 The noise maps have been published by the Welsh Government.

5.186 Mitigating noise issues after they have arisen can be a lot more expensive than avoiding them in the first place. It is therefore desirable to seek interventions that bring multiple benefits, such as reducing people's exposure to air pollutants, making buildings more energy-efficient, encouraging safer driving or improving the road surface for drivers and cyclists at the same time as decreasing noise levels.

5.187 A current list of Noise Action Planning Priority Areas is available on the Welsh Government website.

5.188 Special consideration is required where noise-generating development is proposed in or near special areas such as urban quiet areas, which are tranquil urban green spaces designated by the Welsh Government under the Environmental Noise Directive.

5.189 There are currently 6 quiet areas within Cardiff, namely: Heath Park; 157 Cardiff Local Development Plan 2006 - 2026 Adopted Plan Park Cae Delyn; Roath Park; Roath Park Pleasure Garden; Roath Park Recreational Ground; and Thompson Park.

5.190 There are a further 6 candidate quiet areas in Cardiff which the Welsh Government are currently consulting upon, these are: Bute Park; Fairwater Park; Insole Court; Llanishen Park; Splott Park; and Victoria Park.

5.191 Quiet Areas have been designated as part of the implementation of the Environmental Noise Directive.

5.192 Necessary new development that would give rise to high noise levels, including proposed transport schemes, should be located and designed so as to minimise their noise impact. Where noise-sensitive development needs to be located close to transport infrastructure for access reasons, it should be designed to reduce noise impact. Where necessary, developers will be required to provide an assessment of noise impact, together with proposals for mitigation.

5.193 The provision of lighting can help prevent crime and the fear of crime, enhance safety and security, and facilitate some sport and recreational activities. However, it can also be intrusive, cause glare and have a harmful impact on natural and built heritage assets, the amenity of neighbouring land uses and traffic safety.

5.194 Where new lighting constitutes development (e.g. floodlighting) it is principally controlled through the planning system. Planning permission can be refused if the design of proposed lighting systems is not considered satisfactory in order to prevent light pollution. Where necessary, planning permission will be conditioned to ensure that the design and operation of lighting systems are satisfactory and/or to prevent light pollution.

5.195 As detailed in PPW, where significant contamination is likely to be present, the local planning authority will require evidence of a detailed investigation and risk assessment prior to the determination of the application to enable beneficial use of land. Where acceptable remedial measures can overcome such contamination, planning permission may be granted subject to conditions specifying the necessary measures. If contamination cannot be overcome satisfactorily, the authority may refuse planning permission. 5 Detailed Policies 158 Cardiff Local Development Plan 2006 - 2026 Adopted Plan

5.196 The onus will remain with the developer to ensure that the development of the site will not result in designation as a site with land contamination under Part 2A of the Environmental Protection Act 1990, thus ensuring the land is suitable for its proposed use.

Appendix D

Plant Species List

Plant Species List

Scientific nomenclature follows Stace (2010) for vascular plant species and British Bryological Society (BBS) Special Volume No. 5 *English Names for British Bryophytes* for bryophyte species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk. The plant species list was generated as part of a Phase 1 Habitat survey and does not constitute a full botanical survey.

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally

Key to qualifiers: G=garden origin, P=planted, Y = young, S=seedling or sucker, T=tree, H=hedge, W=water, ? = identification uncertain.

Scientific Name	Common Name	Abundance	Qualifier
<i>Platanus x hispanica</i>	London Plane	O	T
<i>Ulex europaeus</i>	Common gorse	O	H
<i>Anthriscus sylvestris</i>	Cow's parsley	O	Y
<i>Cotinus coggygria</i>	Smoke tree	F	H
<i>Carpinus betulus</i>	Hornbeam	F	H
<i>Cotoneaster horizontalis</i>	Cotoneaster	F	H
<i>Cotoneaster simonsii</i>	Cotoneaster	F	H
<i>Buddleia davidii</i>	Buddleia	F	H
<i>Lonicera nitida</i>	Wilson's honeysuckle	F	H
<i>Vicia sativa</i>	Common vetch	O	Y
<i>Prunus laurocerasus</i>	Cherry laurel	F	H
<i>Sambucus nigra</i>	Elder	F	H
<i>Rubus fruticosus</i>	Bramble	F	H
<i>Pinus sylvestris</i>	Scots pine	O	T
<i>Sorbus aucuparia</i>	Rowan	O	T

Appendix E

Suggested Compensatory Planting

Suggested Compensatory Planting

This section provides a list of plants which are of proven value to wildlife. The list is not exhaustive and merely provides a guide for suggested planting for wildlife value. Planting should be tailored on a site by site basis. The list includes some native and ornamental species however the emphasis should always be on the use of predominantly native species.

N = Native, NN = Non-native.

This list includes species that may be harmful if handled or ingested. Schedule 9 (Part 2) of the Wildlife and Countryside Act, 1981 (as amended) includes a list of invasive plants, including aquatic species, that should always be avoided in planting schemes.

Large Shrubs

Hedge veronica/Hebe (*Veronica* spp.) NN

Hawthorn (*Crataegus monogyna*) N

Blackthorn (*Prunus spinosa*) N

Rose: dog rose (*Rosa canina*), field rose (*R. arvensis*), burnet rose (*R. pimpinellifolia*) N

California lilac (*Ceanothus* spp.), (*C. arborea*) NN

Wild privet (*Ligustrum vulgare*) N

Common holly (*Ilex aquifolium*) N

Barberry (*Berberis* spp.) (*B. darwinii*), (*B. thunbergii*), (*B. x stenophylla*) NN

Daisy Bush (*Olearia* spp.), (*O. x hastii*), (*O. macrodonta*) and (*O. traversii*) NN

Firethorn (*Pyracantha coccinea*) NN

Hazel (*Corylus avellana*) N (*C. maxima*) NN

Viburnum (*Viburnum* spp.), wayfaring tree (*V. lantana*) N, guelder rose (*V. opulus*) N, laurustinus (*V. tinus*) E Note: *V. lantana* can become invasive in more open habitats.

Dogwood (*Cornus sanguinea*) N

Broom (*Cytisus scoparius*) N

Escallonia (*Escallonia macrantha*) NN

Hardy fuchsia (*Fuchsia magellanica*) NN

Buckthorn (*Rhamnus cathartica*) N

Spindle (*Euonymus europaeus*) N

Tutsan (*Hypericum androsaemum*) N

Yew (*Taxus baccata*) N

Trees

Cherry (*Prunus* spp.), wild cherry (*P. avium*), bird cherry (*P. padus*), domestic plum (*P. domestica*) N or cherry plum (*P. cerasifera*) NN

Ash (*Fraxinus excelsior*) N

Apple (*Malus* spp.), edible apple (*M. domestica*), crab apple (*M. sylvestris*) N

Pear (*Pyrus* spp.), edible pear (*P. communis*) NN

Small-leaved lime (*Tilia cordata*) N

Silver birch (*Betula pendula*) N

Yew (*Taxus baccata*) N

Black poplar (*Populus nigra*) N

Foxglove tree (*Paulownia tomentosa*) NN

Beech (*Fagus sylvatica*) N

Climbers

Jasmine (*Jasminum* spp.), summer jasmine (*J. officinale*), winter jasmine (*J. nodiflorum*) NN

Ivy (*Hedera helix*) N

Climbing hydrangea (*Hydrangea anomala* ssp. *petiolaris*) NN

Honeysuckle (*Lonicera* spp.) (*L. periclymenum*) N

Clematis (*Clematis* spp.) NN

Hop (*Humulus lupulus*) N

Firethorn (*Pyracantha atalantioides*) NN

Bulbs

English bluebell (*Hyacinthoides non-scripta*) N

Squill species (*Scilla* spp.) N/NN

Snowdrop (*Galanthus nivalis*) N

Winter aconite (*Eranthis hyemalis*) E

Crocus species (*Crocus* spp.) NN

Wild Daffodil (*Narcissus pseudonarcissus*) N

Onion species (*Allium* spp.) N/NN. N.B. *Allium triquetrum* (three cornered leek) and *Allium paradoxum* (few-flowered leek) are Schedule 9 invasive plant species.

Wood anemone (*Anemone nemorosa*) N



Lesser celandine (*Ficaria verna*) N


Appendix F

Bird and Bat Box Designs



Bird and Bat Box Designs

Bird Boxes

Example	Type	Dimension D x W x H (cm)	Target Species	Location
	Schwegler Nest Box 1B Hole-fronted 26mm entrance hole	16 x 16 x 23	Multi-purpose, including: blue-, marsh-, coal and crested tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole.	Suitable walls or semi-mature/mature trees and shrubs; attached to a tree trunk or hung from branches. Ideal points include discrete areas away from predators, such as against walls, plant and metal supports.
	Schwegler Bird House 32mm entrance hole	15 x 21 x 33	Multi-purpose, including: great-, blue-, marsh- and coal tit, redstart, nuthatch, pied flycatcher and sparrows.	Fixed to a semi-mature/mature tree trunk, wall or fence using the hanging bracket on the back. Between 1.5 m and 3 m high, and should be sited higher if your area has a particularly high cat population.

Example	Type	Dimension D x W x H (cm)	Target Species	Location
	Schwegler Sparrow Terrace 1SP	20 x 43 x 24.5	House sparrow. It may also occasionally attract tits, redstarts and spotted flycatchers.	<p>In an elevated position such as on post/platform within dense shrub/tree planting or on top of lighting columns. Alternatively, they could be attached to the side of a building.</p> <p>The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of houses in built-up areas, and on industrial and agricultural buildings such as barns, sheds and factories. Due to its weight (15kg), it is not suitable for fences or garden sheds. Ideally place the terrace two metres or more above the ground. Either install on the surface of the wall using the plugs and screws provided, or install directly into the wall. Cleaning is not necessary. The front panel can be removed by turning the screw hook.</p>

Bat Boxes

Example	Type	Dimension D x W x H (cm)	Target Species	Location
	2F Schwegler Bat Box (General Purpose) with or without Double Front Panel	16 x 16 x 33	<p>Without panel: Particularly successful with brown long-eared bat. Also used by noctule.</p> <p>With panel: Ideal for crevice-dwelling species: pipistrelles, Myotis species (particularly Daubenton's), Leisler's and serotine.</p>	<p>On trees or buildings and at a height of 3 to 6m.</p> <p>In open sunny positions and in groups of 3 to 5 facing different directions.</p> <p>Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.</p>
	Chavenage Bat Box	10 x 18 x 38	Small crevice-dwelling bats e.g. pipistrelles.	<p>On trees in gardens or woodland and also on house walls. 2.5 - 5m high on a building, mature tree or vegetation line (trees/tall hedge) or on a feeding/flight route in partial daytime sun.</p> <p>Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.</p>



Phlorum Limited

Head Office & Registered Office:

Unit 12
Hunns Mere Way
Woodingdean
Brighton
East Sussex
BN2 6AH
T: 01273 307 167

Northern Office:

Ground Floor
Adamson House
Towers Business Park
Wilmslow Road
Didsbury
Manchester
M20 2YY
T: 0161 955 4250

Western Office:

One Caspian Point
Pierhead Street
Cardiff Bay
Cardiff
CF10 4DQ
T: 029 2092 0820

info@phlorum.com
www.phlorum.com

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