

Great George Street Developments
Ltd.

Great George Street

Preliminary Ecological Appraisal

Issue 3 | 23 September 2019

This report takes into account the particular
instructions and requirements of our client.




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Drawing 4.1 Phase 1 Habitat Survey Map.

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Desktop Study Records

Executive Summary

This report details the results of the Preliminary Ecological Appraisal undertaken at Great George Street. The key results are as follows:

- One statutory designated site was identified within a 2km radius of the site boundary; Liverpool Bay Special Protection Area. Due to the lack of complimentary habitat, connectivity and distance, it is not anticipated that there will be any impacts on the statutory designated site and HRA screening information is not considered to be required.
- Two non-statutory designated sites were identified within a 2km radius of the site boundary; Princes Park Local Wildlife Site and Everton Park and Nature Garden Local Wildlife Site.
- The prevalent habitat in the northern area of the site is ephemeral/short perennial vegetation. In the southern area, the prevalent habitat is poor semi-improved grassland. Scattered trees and dense/scattered scrub is present throughout the site.
- It is recommended that any removal of trees or scrub on site are replaced using species of local provenance, where practicable.
- Two buildings were identified to have bat roost suitability. One building has moderate bat roost suitability and the second with low bat roost suitability. The habitat on site was identified to provide low suitability to foraging bats. Further surveys on these buildings and habitat on site are recommended.
- Suitable habitat for common breeding birds exists within the site.

1 Introduction

Ove Arup and Partners Ltd. (Arup) have been commissioned by Great George Street Developments Ltd. to undertake a Preliminary Ecological Appraisal (PEA) in relation to the proposed development of a site at Great George Street, Liverpool, Merseyside.

The PEA encompasses both a Phase 1 Habitat survey and protected species scoping study in line with CIEEM guidance.¹ The PEA also conforms to the British Standard BS42020:2013 Biodiversity Code of Practice for Planning & Development.

1.1 Site and Scheme Description

The Great George Street site is located within central Liverpool (SJ3516389308) and is surrounded by urban developments, residential housing and student accommodation. The site is located approximately 200m to the west of Liverpool Cathedral and 600m to the east of the Docks.

It is proposed that mixed-use redevelopment of the site is undertaken in a phased manner.

1.2 Report Objective

The purpose of this report is to identify the habitats within the site, assess the potential for, or presence of, any protected or notable species, determine ecological impacts, specify additional survey requirements, and to outline mitigation/enhancement options, as appropriate.

1.3 Report Structure

The report includes:

- Section 2: Legal and Policy Context.
- Section 3: Methodology.
- Section 4: Results.
- Section 5: Discussion and Recommendations.
- Section 6: Summary.

¹ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

2 Legal and Policy Context

There is a comprehensive system of legislation, both domestic and international, which aims to protect biodiversity at the landscape, habitat and species level. Much of the legislation pertaining to biodiversity exists within, and also independently of, the planning process.

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

This is the primary legislation covering endangered species in England and sets out the framework for the designation of Sites of Special Scientific Interest (SSSIs). It confers differing levels of protection on species themselves, their habitats, or both, depending on their conservation status. Species offered protection by the Act are listed in a series of schedules. These Schedules are subject to a rolling review on a five-yearly basis. Protected species are listed under Schedule 1 (birds), Schedule 5 (animals other than birds and invertebrates) and Schedule 8 (plants).

2.2 Countryside and Rights of Way Act 2000

This Act affords a greater level of protection to Sites of Special Scientific Interest (SSSIs), provides enhanced management arrangements for Areas of Outstanding Natural Beauty (AONBs), and strengthens wildlife enforcement legislation. This Act has amended the Wildlife and Countryside Act by the addition of the term ‘recklessly’ to Section 1(5) and Section 9(4) which has resulted in additional obligations with respect to protected species. As such, it is now an offence to intentionally or recklessly disturb protected species listed on the relevant Schedules of the WCA.

2.3 Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006, is designed to help achieve a rich and diverse natural environment and thriving rural communities. Under Section 40 there is a Duty to conserve biodiversity; specifically Subsection (1) states “Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.”

Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40.

2.4 The Protection of Badgers Act 1992

This Act brings together all the legislation that is specific to badger *Meles meles*, with the exception of their inclusion on Schedule 6 of the Wildlife and Countryside Act 1981, (which prohibits certain methods of taking or capture). The Act makes it an offence to intentionally kill or ill-treat a badger, and destroy, disturb or obstruct a sett. Specifically, it imposes restrictions on works carried out within certain distances of badger setts. Any works that will directly impact on an existing sett are only permitted subject to approval through the issue of a licence from Natural England.

2.5 EC Directive Conservation of Natural Habitats & Flora (92/43/EEC)

The Conservation of Habitats and Species Regulations 2010 (as amended) are the British response to the Habitats & Species Directive 1992 issued by the European Community (EC) (which is now the European Union (EU)). They offer protection to a number of plant and animal species throughout the EC via the designation of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In the United Kingdom these regulations are implemented through the Wildlife and Countryside Act 1981 (as amended).

The Regulations for the protection of European Protected Species (EPS) have been amended and consolidated with key changes including the removal of most of the defences from regulation 40 and regulation 43 including the removal of the ‘incidental result of an otherwise lawful operation’ defence, and the increase in the threshold for the offence of deliberately disturbing an EPS. Proposals that will affect European Protected Species may require a licence from Natural England to allow an otherwise unlawful act. In 2009 a new offence of ‘breaching condition of an EPS licence’ was added to the regulations. The licensing process is separate from the planning process. European protected species include all species of bats, great crested newt *Triturus cristatus* and European otter *Lutra lutra*.

2.6 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was revised and published in July 2018 and is a material consideration in all planning decisions. NPPF refers to the responsibilities of the local authorities to conserve the natural environment with respect to the use of the ‘Circular 6/2005: Biodiversity and Geological Conservation – Statutory Obligation and their Impact within the Planning System’ as guidance in this process. All public bodies including local planning authorities are required to consider habitats and species of Principal Importance listed in Section 41 of the NERC Act and Priority Species/Habitats within Biodiversity Action Plans when considering a planning application.

2.7 Non-Statutory Local Sites

Non-statutory local sites are referred to as Local Wildlife Sites (LWS) within the region. These sites are of county importance for their wildlife value. They have no

statutory protection but are recognised by Local Authorities and statutory agencies and their presence is fully considered when determining planning applications.

3 Methodology

3.1 Desk Study

Protected species records were requested from Merseyside Biobank within a 2km radius around the site boundary. A small area to the west of the search radius falls within a second local record centre boundary (Record). However the records from Merseyside Biobank were deemed sufficient coverage in relation to species and habitats likely to be found on the site and within the surrounding 2km radius.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website² was consulted for:

- Statutory designated site information within 2km of the site.
- Previous granted European Protected Species (EPS) licences within 2km of the site.
- Section 41 Habitats of Principal Importance (NERC Act 2006) within the site.
- SSSI Impact Risk Zones which extend onto the site. The Risk Zones have been developed to guide planners on whether a development would impact on a SSSI/SAC/SPA/Ramsar site.

Ordnance Survey maps were examined for the presence of mapped waterbodies within a 250m radius of the proposed site area.

The following historical reports of the site were utilised for reference:

- Wardell-Armstrong (2015) Preliminary Ecological Appraisal, New Chinatown, Liverpool. [Issued to China Town Development Co. Ltd].
- Wardell-Armstrong (2015) Bat Roost Assessment Survey, New Chinatown, Liverpool. [Issued to China Town Development Co. Ltd].

3.2 Field Survey

A field survey of the site was undertaken in July 2018. Habitats were identified using the standard Phase 1 Habitat survey methodology (JNCC, 2010).³ As part of the field survey, the potential for the site to support any legally protected or notable faunal species was also assessed. Unless otherwise specified, detailed faunal surveys were not undertaken at this stage; rather the potential for the site to support each species or species group was assessed based on the known range of each species or species group, and the suitability of the habitats within the site. Field signs or sightings of such species were recorded as observed.

The survey was led by a suitably qualified ecologist with 3.5 years' experience, which includes undertaking vegetation surveys such as Phase 1 habitat surveys, River Habitat Surveys and protected species surveys (bat, great crested newt,

² www.magic.gov.uk. Accessed 03/08/18.

³ Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey. A technique for environmental audit. Revised re-print. JNCC: Peterborough.

water vole, otter, badger, dormouse and common reptile). The lead surveyor is also an active member of the Botanical Society of Britain & Ireland. The second surveyor is an ecologist with two years' experience, specialising in bird surveys and providing support on Phase 1 habitat surveys and protected species surveys. Both surveyors are members of CIEEM and are bound by the Code of Professional Conduct. The report was reviewed internally and signed off by an Associate ecologist with over 15 years' experience and who is a chartered environmentalist with CIEEM.

3.2.1 Invasive Species

The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The survey checked, in particular, for the presence of Japanese knotweed *Fallopia japonica*, giant knotweed *Fallopia sachalinensis*, *Fallopia japonica* x *Fallopia sachalinensis* (a hybrid knotweed) giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera*.

3.2.2 Bat Roost Suitability Assessment

An external bat roost suitability assessment of all structures within the site was undertaken to determine their suitability for supporting bat roosts. The survey followed the standard methodology detailed within the Bat Conservation Trust (BCT) Good Practice Guidelines.⁴ Each structure on site was inspected externally for signs of bat presence including:

- bat droppings,
- scratch and grease marks,
- live or dead bats, and
- noises of bats calling from within the roost.

In addition, features searched for on structures and walls included:

- cracked, missing or lifted roof tiles,
- missing mortar in walls,
- presence of a cavity wall, and
- any cracks or gaps at least 10mm in size.

Trees of a sufficient age and size to provide potential roost features were observed and features searched for including:

- cavities or splits in trunks/branches,
- woodpecker holes,

⁴ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

- loose bark, and
- dense ivy covering (may be covering up potential roosting opportunities).

Structures and trees were then awarded a level of suitability to support roosting bats at different times of the year (Table 3.1).

In addition, the habitats on site were assessed for their suitability to support commuting and foraging bats in accordance with the categories in Table 3.1.

Table 3.1: Bat habitat suitability categories.

Habitat Value (adapted from BCT Guidelines) ⁴	Roosting habitats	Commuting and foraging habitats
High suitability	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions (temp, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate suitability	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low suitability	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Habitat Value (adapted from BCT Guidelines) ⁴	Roosting habitats	Commuting and foraging habitats
	the ground or features seen with only very limited roosting suitability.	
Negligible suitability	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

3.2.3 Habitat Suitability Index (HSI)

In compliance with current guidance⁵ suitable waterbodies within a 250m radius of the site were assessed as to their potential to support a breeding population of great crested newts. This assessment was undertaken using the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000)⁶ which considers several habitat / ecological parameters. Habitat variables measured include location, desiccation, water quality, macrophyte cover, terrestrial habitat quality, etc. A value is recorded for each parameter and combined to determine an index of breeding suitability for great crested newts. The HSI is represented by a value from 0 to 1, the higher the value the more likely it is that the waterbody may support breeding great crested newt.

3.3 Survey Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. Therefore, the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, professional judgement allows for the likely presence of these species to be predicted with sufficient certainty so as to not significantly limit the validity of these findings.

Any grid references provided within this report are approximate (obtained through handheld GPS devices) and are to be used as a guide only.

⁵ English Nature (now Natural England), 2001, Great Crested Newt Mitigation Guidelines. English Nature. Peterborough.

⁶ Oldham, R.S., Keeble, J., Swan, M.J., and Jeffcote, M., (2000) Evaluating the suitability of habitats for great crested newt (*Triturus cristatus*) Herpetological Journal 10: 143-15.

4 Results

4.1 Desk Study

The full results of the data search provided by Merseyside Biobank are provided within Appendix A; a summary is outlined below.

4.1.1 Statutory Designated Sites

One statutory designated site was identified within 2km of the site boundary, Liverpool Bay Special Protection Area (SPA) located approximately 0.9km west of the site (Table 4.1).

Table 4.1: Statutory designated site identified within 2km of the site.

Designation	Reason for designation	Approximate location from site
Liverpool Bay SPA	Designated for the protection of red-throated diver <i>Gavia stellata</i> , common scoter <i>Melanitta nigra</i> , and little gull <i>Hydrocoloeus minutus</i> in the non-breeding season; common tern <i>Sterna hirundo</i> and little tern <i>Sterna albifrons</i> in the breeding season, and an internationally important waterbird assemblage. The marine areas support large aggregations of wintering red-throated diver and common scoter as well as important marine foraging areas of little terns breeding within The Dee Estuary SPA, and foraging areas of common terns breeding at the Mersey Narrows & North Wirral Foreshore SPA.	0.9km west

The site is located within the SSSI Impact Risk Zone for the Mersey Narrows SSSI located approximately 2.6km north-west, Mersey Estuary SPA/SSSI, which is located approximately 2.7km south and New Ferry SSSI located approximately 2.7km south-west. Under the development types for which the Local Planning Authority (LPA) should consult with Natural England, residential developments of 50 or more houses outside existing settlements/urban areas are included. The Great George Street site is located within an existing settlement/urban area therefore consultation with Natural England is not required at this location in relation to designated sites.

No Section 41 (S41) Priority Habitat was identified within the site or adjacent to the site. The closest priority habitat is deciduous woodland located approximately 0.2km east.

4.1.2 Non-Statutory Designated Sites

Two non-statutory designated sites are located within 2km of the site (Table 4.2).

Table 4.2: Non-statutory designated sites recorded within 2km of the site.

Designated site	Description ⁷	Approximate location from site
Princes Park, LWS	Green open space including a lake, wooded areas and amenity grassland.	1.6km south-east
Everton Park and Nature Garden, LWS	Green open space including woodland, meadows, lakes and amenity grassland.	1.9km north

4.1.3 Species Records

No records of protected/notable or invasive species were recorded within the site. Table 4.3 details legally protected/notable species and Table 4.4 details invasive species recorded within 2km of the site. Records over ten years old have been omitted from the table as these are not considered to reflect the current species assemblage present.

Table 4.3: Records of legally protected or notable species within 2km of the site.

Group	Common name	Scientific name	No. of records	Approximate closest record from site
Amphibian	Common frog	<i>Rana temporaria</i>	3	Insufficient information ⁸
Fish	European eel	<i>Anguilla anguilla</i>	8	0.8km west
	Atlantic cod	<i>Gadus morhua</i>	35	Insufficient information
	Whiting	<i>Merlangius merlangus</i>	102	Insufficient information
	Dover sole	<i>Solea solea</i>	3	Insufficient information
	Box	<i>Buxus sempervirens</i>	1	0.8km west
	Medlar	<i>Mespilus germanica</i>		1.1km south-east
	Cornflower	<i>Centaurea cyanus</i>	1	1.3km north
	Large-flowered hemp-nettle	<i>Galeopsis speciosa</i>	2	2km north
Insect	White-letter hairstreak	<i>Satyrrium w-album</i>	1	1.1km north
	Banded demoiselle	<i>Calopteryx splendens</i>	4	Insufficient information
	Black-tailed skimmer	<i>Orthetrum cancellatum</i>	6	Insufficient information
	Blue-tailed damselfly	<i>Ischnura elegans</i>	23	Insufficient information
	Broad-bodied chaser	<i>Libellula depressa</i>	2	Insufficient information
	Brown hawker	<i>Aeshna grandis</i>	8	Insufficient information
	Common blue damselfly	<i>Enallagma cyathigerum</i>	2	Insufficient information
	Common darter	<i>Sympetrum striolatum</i>	13	Insufficient information

⁷ No citations available for non-statutory designated sites. Information gathered from www.friendsofprincespark18.org.uk and www.evertonpark.org.uk [Accessed 06/08/18].

⁸ Only species records with a 6-figure grid reference or more were included in the analysis of distance and direction, due to limitations in accuracy.

Group	Common name	Scientific name	No. of records	Approximate closest record from site
	Emperor dragonfly	<i>Anax imperator</i>	5	Insufficient information
	Migrant hawker	<i>Aeshna mixta</i>	6	Insufficient information
	Southern hawker	<i>Aeshna cyanea</i>	4	Insufficient information
	Polydrusus (Chrysophis) formosus	<i>Polydrusus (Chrysophis) formosus</i>	2	Insufficient information
Mammal	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	9	0.1km west
	West European hedgehog	<i>Erinaceus europaeus</i>	14	1.2km east
	Common porpoise	<i>Phocoena phocoena</i>	3	1.9km north-west
	Grey seal	<i>Halichoerus grypus</i>	1	2km west
	Noctule	<i>Nyctalus noctula</i>	1	Insufficient information

Table 4.4: Records of invasive species within 2km of the site.

Group	Common name	Scientific name	Records	Approximate closest record from site
Bird	Canada goose	<i>Branta canadensis</i>	1	Insufficient information
Crustacean	Chinese mitten crab	<i>Eriocheir sinensis</i>	3	1.3km south-west
Flowering plant	Rhododendron	<i>Rhododendron ponticum</i>	3	0.2km east
	Japanese knotweed	<i>Fallopia japonica</i>	5	0.2km east
	Three-cornered garlic	<i>Allium triquetrum</i>	1	0.3km east
	Japanese rose	<i>Rosa rugosa</i>	2	1.9km south-east
Mammal	Eastern grey squirrel	<i>Sciurus carolinensis</i>	24	0.2km east

One EPS licence has been granted within 2km of the site. The licence is for destruction of a resting place for common pipistrelle *Pipistrellus pipistrellus*, located approximately 1.4km south-east (2016-2021).

4.2 Field Survey

Phase 1 Habitat Survey

4.2.1 Habitats

The Phase 1 Habitat survey map is presented in Drawing 4.1. This graphically represents the habitats recorded within the site and denotes the location of Target Notes (TN). The following habitat types were recorded within the site boundary:

- Poor semi-improved grassland.

- Ephemeral / short perennial.
- Tall ruderal vegetation.
- Scattered broadleaved trees.
- Dense and scattered scrub.
- Other: buildings and hardstanding.

4.2.1.1 Poor Semi-Improved Grassland

The site is split into two areas by a public right of way. The prevalent habitat in the southern area is poor semi-improved grassland. Species present include cocksfoot *Dactylus glomerata*, false oat grass *Arrhenatherum elatius*, Yorkshire fog *Holcus lanatus*, bush vetch *Vicia sepium*, rosebay willowherb *Chamerion angustifolium*, common hogweed *Heracleum sphondylium*, creeping buttercup *Ranunculus repens*, common ragwort *Senecio jacobaea*, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense* and teasel *Dipsacus fullonum*.

The northern part of the site has two areas of poor semi-improved grassland with a similar species mix as the southern area.

4.2.1.2 Ephemeral / Short Perennial

The northern part of the site is dominated by ephemeral/short perennial vegetation. Species present include mugwort *Artemisia vulgaris*, redshank *Persicaria maculosa*, wall barley *Hordeum murinum*, common nettle *Urtica dioica*, common ragwort, common dandelion, cocksfoot, rosebay willowherb, horsetail *Equisetum* sp., bird's foot trefoil *Lotus corniculatus*, herb robert *Geranium robertianum* and yarrow *Archillea millefolium*.

A mound of artificial material including concrete and rubble was recorded in the northern part of the site. The mound was approximately 4m high and has become colonised by ephemeral/short perennial vegetation (TN4; Drawing 4.1).

4.2.1.3 Scattered Broadleaved Trees

Scattered broadleaved trees were recorded throughout the site. The majority were immature with a few identified as semi-mature. Species present include rowan *Sorbus aucuparia*, Norway maple *Acer platanoides*, ash *Fraxinus excelsior*, cherry *Prunus* sp., and elder *Sambucus nigra*.

An immature rowan was noted to have been recently felled adjacent to the mound of concrete and rubble (TN4; Drawing 4.1).

4.2.1.4 Dense and Scattered Scrub

An area of dense scrub was recorded in the southern part of the site. Scattered scrub was also recorded throughout the site adjacent to buildings and within the

old car park in the southern part of the site. Species present include bramble *Rubus fruticosus* agg. and butterfly bush *Buddleja davidii*.

4.2.1.5 Buildings and Hardstanding

Five buildings were identified within the site. Areas of hardstanding exist in both the north and south area. An area to the south has previously been used as a car park.

4.2.2 Fauna

4.2.2.1 Bats

Scattered broadleaved trees were identified through the site. The majority were immature with a few identified as semi-mature. However, none provided any potential roost features for bats, *i.e.* no rot holes/fissures or peeling bark providing potential roost features.

Five buildings (B1-B5; Drawing 4.1) were identified within the site. A description and identification of the bat roost suitability of each building is detailed in Table 4.5.

Table 4.5: Bat roost suitability assessment of buildings on site.

Building	Description	Target note	Bat roost suitability assessment
B1	Two storey red brick terrace with pitched slate roof. The western aspect of the roof is in good condition with no potential roost features. The doors and windows facing Upper Pitt Street and Cookson Street are boarded by metal sheeting which sits flush against the building. Slight gaps were observed in some of the windows between the metal sheeting and the window frame, however these do not lead anywhere. One door (TN1) on Upper Pitt Street contained a gap of approximately 5cm wide which provides access into the house. In addition, a hole in the external brick wall located approximately 5m high on the building may provide potential access into the wall cavity (TN1). A gap of approximately 30cm long and 5cm wide was recorded in the soffit on the northern facing side of the building along Cookson Street (TN2). The eastern aspect of the roof had approximately eight large holes ranging from approximately 50cm to 150cm. Feral pigeon <i>Columba livia domestica</i> were observed entering the building through the holes. A further ten missing or slipped tiles were also observed in the eastern facing roof.	TN1, TN2 and TN3	Moderate
B2	Red brick building with a flat roof. Corrugated plastic sheet roofing in one section. Windows have been bricked up on the western side. The building is well sealed however a chimney on the northern corner was identified to have potential bat roost suitability through potential obscured features such as access into an adjoining building.	n/a	Low

Building	Description	Target note	Bat roost suitability assessment
B3	Red brick, two storey building with flat roof. No potential roost features.	n/a	Negligible
B4	Substation building with flat roof. No potential roost features.	n/a	Negligible
B5	Portakabin building. Flat corrugated metal roof. No potential roost features.	n/a	Negligible

Building 1 and building 2 were previously identified as having the same bat roost suitability identified by Arup in 2018 as the bat roost suitability identified in 2015 (Wardell-Armstrong 2015).⁹ Subsequent bat activity surveys were undertaken in 2015 and no roosts were identified in either building.¹⁰ Building 1 contains three potential bat roost features. Due to the large holes in the roof (TN3; Drawing 4.1) there is potential for large numbers of bats to roost within the building. However, it is deemed suitable to assign building 1 with moderate bat roost suitability due to the presence of feral pigeon and potential disturbance associated with this and the likelihood of potential roosting sites having become damp and draughty. In addition, it was deemed suitable to assign the same suitability (low bat roost suitability) to building 2 due to no obvious change in potential roost features of the chimney, its size and location in context with the wider area.

The scattered trees, dense and scattered scrub and poor semi-improved grassland on site are suitable for use by foraging bats and were assessed to have low habitat suitability. The site is located within an urban environment and although there is no connective complementary habitat, there is the potential the site is of value to foraging bats. The previous transect survey of the site identified “a number of common pipistrelle foraging over the grassland”.¹⁰

4.2.2.2 Riparian Mammals

No watercourses or waterbodies exist on site, therefore there is no suitable habitat to support water vole *Arvicola amphibius* or otter. These species are not considered further within the assessment.

4.2.2.3 Breeding Birds

The scattered trees and dense scrub on site provide suitable habitat for common nesting birds. In addition, feral pigeon were identified to be entering building 1 (B1; Drawing 4.1).

4.2.2.4 Badger

No evidence of badger (e.g. latrines, snuffle holes, paths or footprints) was recorded during the field survey. The poor semi-improved grassland and area of scrub provide suitable foraging habitat for badger. However, due to the small area

⁹ Wardell-Armstrong (2015) Preliminary Ecological Appraisal, New Chinatown, Liverpool.

¹⁰ Wardell-Armstrong (2015) Bat Roost Assessment Survey, New Chinatown, Liverpool.

and location of the site within an urban setting and limited suitable habitat connectivity, badger are not considered further within the assessment.

4.2.2.5 Reptiles

The poor semi-improved grassland and scrub provide suitable habitat for common reptiles. However, there is suitable habitat connectivity off site, nor were any records identified within the record search (Table 4.3). Therefore reptiles are not considered further within the assessment.

4.2.2.6 Amphibians

Suitable terrestrial habitat for amphibians including great crested newt, was recorded on site in the form of grassland and scrub. However, no waterbodies were identified within 250m, nor is there suitable habitat connectivity off site. Therefore, great crested newt are not considered further within the assessment.

4.2.2.7 Invertebrates

The habitat mosaic of bare ground and ephemeral/short perennial vegetation on site will provide suitable habitat for terrestrial invertebrates. However, the extent of this habitat is small and it has only recently become colonised with low botanical diversity, as identified by comparing with a previous survey undertaken in 2015.⁹ It is therefore concluded that the site is likely to provide only local value to a common invertebrate assemblage. Invertebrates are therefore not considered further within the assessment.

5 Discussion and Recommendations

5.1 Designations

One statutory designated site was identified within a 2km radius of the site boundary; Liverpool Bay SPA located approximately 0.9km west. Liverpool Bay is designated for supporting wintering red-throated diver and common scoter and providing important foraging areas for little terns. The habitats within the site do not provide corresponding suitable habitat, nor is there suitable habitat connectivity from the designated site to the Great George Street site. In addition, due to the distance and lack of pollution pathways (e.g. through connective complementary habitat, hydrology etc.) it is anticipated that there will be no likely impacts on Liverpool Bay SPA from the proposed works. Habitat Regulations Assessment (HRA) screening information is therefore not considered to be required as there are no likely significant effects.

The site falls within the SSSI Impact Risk Zones of the Mersey Narrows SSSI, Mersey Estuary SPA/SSSI, and New Ferry SSSI. However, the development type does not fall within the categories the LPA is required to consult Natural England on as the site is within an existing settlement/urban area.

Two non-statutory designated sites were identified within a 2km radius of the site boundary: Princes Park LWS located approximately 1.6km south-east and Everton Park and Nature Garden LWS located approximately 1.9km north. Due to the distance of the designated sites and the lack of pollution pathways (e.g. through connective complementary habitat, hydrology etc.), it is anticipated that there will be no likely impacts on these designated sites from the proposed works.

5.2 Habitats

The northern part of the site is dominated by ephemeral/short perennial vegetation with two areas of poor semi-improved grassland. The southern area is dominated by poor semi-improved grassland with areas of dense and scattered scrub. Scattered broadleaved trees were recorded throughout the site. No S41 priority habitat was identified on site or adjacent to the site.

The scattered trees and scrub on site should be retained where possible. Where the loss of any trees or scrub is unavoidable, it is recommended that these habitat types are replaced using species of local provenance, where practicable.

It is recommended that any new landscaped areas utilise native species beneficial to pollinating species. Alternatively, nectar producing ornamental species which are also beneficial to pollinating invertebrates may be utilised.

5.3 Fauna

5.3.1 Bats

Two buildings (B1 and B2; Drawing 4.1) were identified to have suitability for roosting bats. Building 1 was identified to have moderate bat roost suitability and building 2 was identified to have low bat roost suitability. The habitat on site was identified to provide low suitability to foraging bats.

British bat species are fully protected through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended). Under the legislation, it is an offence to intentionally kill, injure or take a bat as well as intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat or disturb an animal while it is occupying a structure or place which it uses for that purpose.

5.3.1.1 Dusk Emergence/Dawn Return Surveys

According to current guidelines⁴ structures with low bat roost suitability require one survey visit (either dusk emergence or dawn return) undertaken between May and August. Structures with moderate bat roost suitability require two survey visits (one dusk emergence and one dawn return) undertaken between May and September, with at least one survey between May and August. It is recommended that surveys are spaced at least two weeks apart.

Dusk emergence surveys commence 15 minutes before sunset and continue for 1.5 to 2 hours after sunset or until it is considered that all bats will have emerged. Dawn re-entry surveys commence 1.5 to 2 hours before sunrise and continue until 15 minutes after sunrise, or until it is considered that all bats will have entered their roosts.

If a bat roost is identified and will be disturbed by the proposed works, then a bat mitigation licence will be required from Natural England prior to the commencement of works. Natural England take a minimum of 30 working days to process a licence application. In order to obtain a bat licence, appropriate mitigation will need to be developed and implemented; works may also be seasonally restricted.

5.3.1.2 Bat Transect Survey

Bat transect surveys involve ecologists walking a predetermined transect route in order to observe, listen for and record bats utilising the site. The transect route should incorporate the different habitats identified on site. Due to the small size of the site, low habitat suitability and the previous survey data,¹⁰ it is deemed suitable to undertake a single transect survey of the site. The aim of the survey will be to determine whether the use of the site by foraging bats remains the same.

5.3.2 Breeding Birds

The scattered trees and scrub provide suitable nesting opportunities for common breeding bird species. In addition, building 1 (B1; Drawing 4.1) is likely to support breeding feral pigeon.

Wild birds are protected under Part 1 Section 1 of the Wildlife and Countryside Act 1981 (as amended); they are protected from being killed, injured or captured, while their nests and eggs are protected from being damaged, destroyed or taken.

Any works which are likely to damage a breeding bird nest, for example vegetation clearance or building demolition, should be carried out outside of the bird nesting season (bird nesting season runs March – August inclusive). If works during bird nesting season are unavoidable then areas of suitable habitat must be surveyed by a qualified ornithologist immediately prior to the clearance taking place. If the survey confirms the absence of nesting birds in the working area then works can proceed, providing they are implemented within three days of the survey.

6 Summary

- One statutory designated sites were identified within a 2km radius of the site boundary, Liverpool Bay SPA located approximately 0.9km west. However due to the lack of complimentary habitat, connectivity and distance, it is not anticipated that there will be any impacts on the statutory designated site and HRA screening information is not considered to be required.
- The site is located within the impact risk zones for Mersey Narrows SSSI, Mersey Estuary SPA/SSSI, and New Ferry SSSI. However, based on the associated guidance, the LPA is not required to consult Natural England in relation to the proposed development of the site.
- Two non-statutory designated sites were identified within a 2km radius of the site boundary: Princes Park LWS located approximately 1.6km south-east, and Everton Park and Nature Garden LWS located approximately 1.9km north. However, due to the distance and lack of pollution pathways, it is not anticipated that there will be any impacts on the non-statutory designated sites.
- The northern part of the site is dominated by ephemeral/short perennial vegetation with areas of poor semi-improved grassland. The southern area is dominated by poor semi-improved grassland. Scattered trees, and dense/scattered scrub were identified throughout the site.
- It is recommended that any removal or trees or scrub on site are replaced using species of local provenance, where practicable.
- Two buildings were identified to have bat roost suitability; one moderate and one low. It is recommended that dusk emergence/dawn re-entry surveys are undertaken in order to confirm the presence/likely absence of roosts. In addition, the site was identified to have low suitability to foraging bats. One transect survey of the site is recommended to assess the usage of the site by bats.
- The scattered trees and scrub provide suitable nesting opportunities for common breeding bird species. Building 2 was also observed to support feral pigeon. Any works which are likely to damage a breeding bird nest, for example vegetation clearance or building demolition, should be carried out outside of the bird nesting season (bird nesting season runs March – August inclusive).

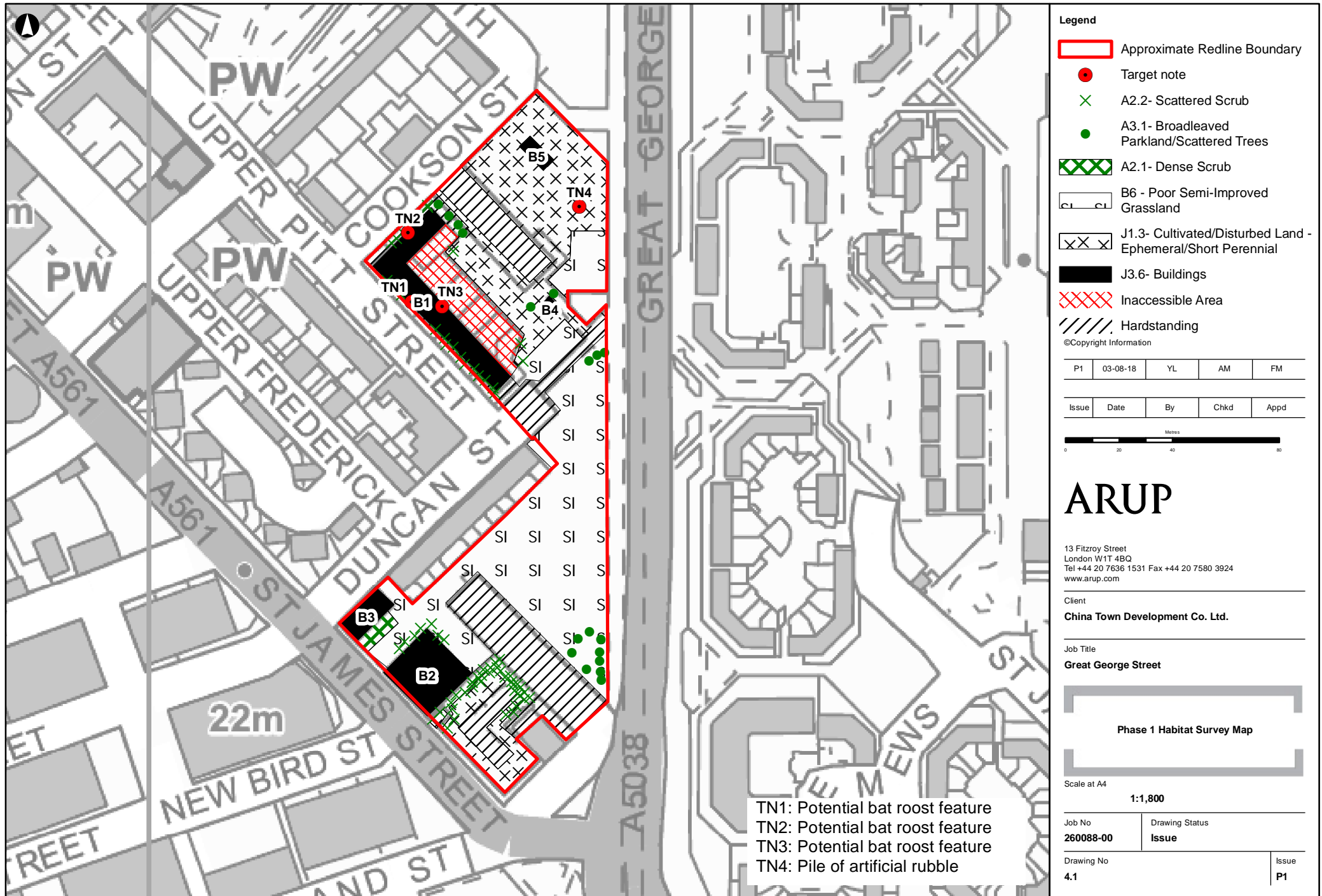
Disclaimer

This report is the result of survey work undertaken in July 2018. This report refers, within the limitations stated, to the condition or proposed development of the site at the time of the inspections. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. It is also advised that if there is a delay of over a year in undertaking the works, a re-survey may be required. No warranty is given as to the possibility of future changes in the condition of the site.

This report is produced solely for the benefit of Great George Street Developments Ltd. and no liability is accepted for any reliance placed on it by any other party. This report is prepared for the proposed uses stated in the report and should not be used in a different context.

Drawings

Drawing 4.1 Phase 1 Habitat Survey Map.



Appendix A

Desktop Study Records

A1



Biodiversity Information Report 13/07/2018

**MBB reference: 2610-ARUP
Site: Great George Street**

Your Ref: None supplied
Your contact: Joseph Shepherdson

MBB Ref: 2610-ARUP
MBB Contact: Ben Deed

Date: 13/07/2018

Merseyside BioBank biodiversity information report

These are the results of your data request relating to **an area at Great George Street defined by a buffer of 2000 metres around a site described by a boundary you supplied to us (at SJ3515589415).**

You have been supplied with the following:

- records of **protected** taxa that intersect the search area
- records of **BAP** taxa that intersect the search area
- records of **Red Listed** taxa that intersect the search area
- records of other '**notable**' taxa that intersect the search area
- records of WCA schedule 9 taxa (including '**invasive plants**') that intersect the search area
- a map showing the location of monad and tetrad references that overlap the search area
- a list of all **designated sites** that intersect your search area
- citations, where available, for intersecting Local Wildlife Sites
- a list of **other sites of interest** (e.g. Ancient Woodlands) that intersect your search area
- a map showing such sites
- a list of all **BAP habitats** which intersect the search area
- a map showing BAP habitats
- a summary of the area for all available mapped **Phase 1 and/or NVC habitats** found within 500m of your site
- a map showing such habitats

Merseyside BioBank (MBB) is the Local Environmental Records Centre (LERC) for North Merseyside. We collect and collate biological and environmental information and make it available to people and organisations that have need to access such information in North Merseyside. We promote the North Merseyside Biodiversity Action Plan and wider participation in biological recording and conservation through education, community involvement and by supporting the biological recording community of North Merseyside.

Merseyside BioBank is an information node of the National Biodiversity Network (NBN) and integrate records from our own databases with those of the NBN Atlas.

The product charge for this data request is not a charge for the data themselves, but rather a fixed rate that enables us to cover a portion of our running costs. Our annual income from data requests is something less than 20% of our total running costs.

Species records

The biological records held by Merseyside BioBank come from a variety of sources; from large organisations to individual amateur naturalists. Merseyside BioBank operates as managers or custodians of these records but the individuals and groups, who provide their records free of charge, retain copyright on their data. Without their contribution, we would not be able to provide the records included in this report. Their efforts, expertise and goodwill make a substantial contribution to the protection of North Merseyside's biodiversity.

You may only use the records in this document subject to our access terms and conditions which can be found in Appendix 1. Non-adherence to these terms and conditions will be viewed as a breach of contract, which may result in legal redress being sought.

This report also integrates records from the NBN Atlas. Some NBN data providers give us permission to download and integrate their records at a higher resolution than available through public access in order to contribute to the protection of North Merseyside's biodiversity.

Details of the biological records summarised in the following tables, and the sources from which they are derived, are included in appendix 2 of this report. Note that the date ranges in the summary tables (headed 'Dates') show the earliest and latest years for which records have been summarised for each taxon.

UK Protected Species

'UK Protected species' are those taxa specifically identified by UK legislation including: Wildlife & Countryside Act 1981 (as amended); Protection of Badgers Act 1992; Conservation of Habitats and Species Regulations 2017. The latter regulations enact the European Union's (EU) Habitats Directive (92/43/EEC) in the UK and supercede The Conservation Regulations 1994 and 2010. In our list of protected species, you may see designations that refer to schedules in the 1994 and 2010 regulations, but these remain unchanged under the 2017 regulations.

Some protected species may not be legally disturbed unless you are in possession of an appropriate license. If you are in any doubt as to whether or not a license is required, you should contact Natural England.

The following tables detail the protected species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
amphibian	Common Frog	<i>Rana temporaria</i>	5	2000-2015	WCA5/9.5a
	Smooth Newt	<i>Lissotriton vulgaris</i>	1	1959	WCA5/9.5a
bird	Black Redstart	<i>Phoenicurus ochruros</i>	5	1979-1999	WCA1i
	Greylag Goose	<i>Anser anser</i>	1	1997	WCA1ii
	Little Ringed Plover	<i>Charadrius dubius</i>	2	2002-2003	WCA1i
	Peregrine	<i>Falco peregrinus</i>	1	2001	WCA1i
bony fish (Actinopterygii)	Atlantic Salmon	<i>Salmo salar</i>	2	1962	HabRegs4
flowering plant	Bluebell	<i>Hyacinthoides non-scripta</i>	7	1983-1997	WCA8
insect - butterfly	White-letter Hairstreak	<i>Satyrrium w-album</i>	1	2017	WCA5/9.5a
marine mammal	Bottle-Nosed Dolphin	<i>Tursiops truncatus</i>	1	2000	HabRegs2,WCA5/9.5a
	Common Porpoise	<i>Phocoena phocoena</i>	6	2004-2012	HabRegs2,WCA5/9.5a
	Grey Seal	<i>Halichoerus grypus</i>	3	1996-2010	HabRegs4
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1903	WCA5/9.1k/l,WCA5/9.5a
terrestrial mammal	Bats	<i>Chiroptera</i>	4	1985-1993	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Brown Long-eared Bat	<i>Plecotus auritus</i>	5	1986-1991	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	12	1974-2017	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.4c

Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	1	1970	WCA5/9.1k/l, WCA5/9.1t, WCA5/9.2, WCA5/9.4.a, WCA5/9.4b, WCA5/9.5a
European Water Vole	<i>Arvicola amphibius</i>	1	1994	WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c
Noctule Bat	<i>Nyctalus noctula</i>	1	2015	HabRegs2, WCA5/9.4b, WCA5/9.5a, WCA5/9.4c
Pipistrelle Bat species	<i>Pipistrellus</i>	16	1980-2017	HabRegs2, WCA5/9.4b, WCA5/9.5a, WCA5/9.4c
Unidentified Bat	<i>Myotis</i>	1	1992	HabRegs2, WCA5/9.4b, WCA5/9.5a, WCA5/9.4c

Desig. Code	Desig. Name	Designation Description
WCA5/9.5a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a)	Section 9.5 Animals which are protected from being sold, offered for sale or being held or transported for sale either live or dead, whole or part.
WCA1i	Wildlife and Countryside Act 1981 (Schedule 1 Part 1)	Birds and their young, for which it is an offence to intentionally or recklessly disturb at, on or near an active nest. They are protected by special penalties at all times.
WCA1ii	Wildlife and Countryside Act 1981 (Schedule 1 Part 2)	Birds afforded special protection during the close season but which may be killed or taken outside this period. They are protected by special penalties during the close season.
HabRegs4	The Conservation (Natural Habitats, &c.) Regulations 2010 (Schedule 4)	Schedule 4- Animals which may not be taken or killed in certain ways
WCA8	Wildlife and Countryside Act 1981 (Schedule 8)	Plants which are protected from intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
HabRegs2	The Conservation (Natural Habitats, &c.) Regulations 2017 (Schedule 2)	Schedule 2- European protected species of animals.
WCA5/9.1k/l	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring))	Section 9.1. Animals which are protected from intentional killing or injuring.
WCA5/9.4b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4b)	Section 9.4 Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection.
WCA5/9.4c	Wildlife and Countryside Act 1981 (Schedule 5)	Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.
WCA5/9.1t	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (taking))	Section 9.1 Animals which are protected from taking.
WCA5/9.2	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.2)	Section 9.2 Animals which are protected from being possessed or controlled (live or dead).
WCA5/9.4.a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4, subdivision a)	Section 9.4 subdivision a - Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection.

North Merseyside BAP Species

The North Merseyside Biodiversity Action Plan (NM BAP) was published in September 2001 and last reviewed in 2008. Like other Local Biodiversity Action Plans (LBAPs) its purpose is to focus local conservation on national priority species and habitats. However, LBAPs also embrace the idea of 'local distinctiveness' and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance. Such is the case with the NM BAP which currently names 74 species of which 57 are not conservation priority species but are included because their conservation is considered to be a priority in North Merseyside.

The following tables detail the North Merseyside BAP species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
bird	Grey Partridge	<i>Perdix perdix</i>	2	1997-2001	LBAP
	House Martin	<i>Delichon urbicum</i>	4	1997-2007	LBAP
	House Sparrow	<i>Passer domesticus</i>	19	1997-2006	LBAP
	Lapwing	<i>Vanellus vanellus</i>	6	1997-2002	LBAP

	Skylark	<i>Alauda arvensis</i>	4	1997-2003	LBAP
	Song Thrush	<i>Turdus philomelos</i>	10	1997-2001	LBAP
	Starling	<i>Sturnus vulgaris</i>	9	1997-2003	LBAP
	Swift	<i>Apus apus</i>	5	1997-1999	LBAP
flowering plant	Bluebell	<i>Hyacinthoides non-scripta</i>	7	1983-1997	LBAP
	Willow	<i>Salix viminalis x repens = S. x friesiana</i>	1	1981	LBAP
insect - dragonfly (Odonata)	Banded Demoiselle	<i>Calopteryx splendens</i>	5	1940-2009	LBAP
	Black-tailed Skimmer	<i>Orthetrum cancellatum</i>	12	2001-2016	LBAP
	Blue-tailed Damselfly	<i>Ischnura elegans</i>	26	2006-2011	LBAP
	Broad-bodied Chaser	<i>Libellula depressa</i>	2	2009	LBAP
	Brown Hawker	<i>Aeshna grandis</i>	14	1940-2011	LBAP
	Common Blue Damselfly	<i>Enallagma cyathigerum</i>	3	2006-2010	LBAP
	Common Darter	<i>Sympetrum striolatum</i>	19	1999-2011	LBAP
	Emperor Dragonfly	<i>Anax imperator</i>	6	2006-2010	LBAP
	Migrant Hawker	<i>Aeshna mixta</i>	6	2008-2010	LBAP
	Southern Hawker	<i>Aeshna cyanea</i>	7	2006-2010	LBAP
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1903	LBAP
terrestrial mammal	Bats	<i>Chiroptera</i>	4	1985-1993	LBAP
	Brown Long-eared Bat	<i>Plecotus auritus</i>	5	1986-1991	LBAP
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	12	1974-2017	LBAP
	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	1	1970	LBAP
	European Water Vole	<i>Arvicola amphibius</i>	1	1994	LBAP
	Noctule Bat	<i>Nyctalus noctula</i>	1	2015	LBAP
	Pipistrelle Bat species	<i>Pipistrellus</i>	16	1980-2017	LBAP
	Unidentified Bat	<i>Myotis</i>	1	1992	LBAP

Desig. Code	Desig. Name	Designation Description
LBAP	North Merseyside BAP	Species that are incorporated within the North Merseyside Biodiversity Action Plan. These species may or may not also be UK BAP species. Some species have their own action plans within the NM BAP, others are members of group species action plans.

NM BAP species: Grey Partridge (*Perdix perdix*)

The UK population of Grey Partridge declined by 88% between 1970 and 2005 and though still widespread shows distinct variation according to agricultural practices. In North Merseyside there were an estimated 300 pairs in 1997-99 and they are present in all suitable habitat.

Loss of suitable habitat is the main cause of decline in this species, with changes in agricultural practices being particularly detrimental. The amalgamation of small fields into a larger ones and the removal of hedgerows, ditches and other field margins have destroyed potential nesting sites. Changes in sowing, harvesting and crop type have removed essential winter food sources.

NM BAP species: Urban Birds (*Delichon urbicum*; *Passer domesticus*; *Sturnus vulgaris*; *Apus apus*)

The four species covered by the NM BAP Urban Birds Species Action Plan (House Martin, Swift, House Sparrow and Starling) are considered to be in significant decline across the UK. In North Merseyside House Sparrows and Starlings currently breed in all urban areas, while House Martins are restricted to areas nearer sources of mud for nest-building. Swifts occurred in only 55 tetrads during 1997-2000.

Urban bird numbers are thought to relate strongly to the availability of prey species, and nesting opportunities.

Declines are most likely caused by the reduction in the diversity and abundance of invertebrate prey species resulting from increased 'tidiness' in our parks and gardens, the use of pesticides and other changes in farm practices. The exclusion of urban birds from breeding in or around modern buildings reduces nesting opportunities for urban birds.

NM BAP species: Lapwing (*Vanellus vanellus*)

Between 1987 and 1998 Lapwing declined by 48% in England and Wales with Wales and the SW of England showing greatest loss. Two thirds of the population is now resident in the N and NW of England.

Locally this species continues to breed in all suitable habitats and the 2002-03 surveys indicated a population of around 1,500 pairs with arable farmland and pockets of grassland being particularly favoured.

Local threats are thought to include development in nesting areas, increasing recreation and disturbance, scrub encroachments on coastal grassland and changes in farm practice towards silage production, livestock and agricultural intensification.

NM BAP species: Skylark (*Alauda arvensis*)

Although Skylark is widespread throughout Europe and large numbers are thought to breed in the UK, it is in significant decline with a fall in the population of 75% between 1972 and 1996 on lowland farms and an overall fall in the UK population of 53% between 1970 and 2005.

Locally Skylark breeds in all remaining suitable habitat and in 1997-2000 there were 750 breeding pairs but declines are thought to reflect the national trend.

This species relies heavily on traditional arable farming and so declines have largely been due to changes in farming practices in recent decades. Conversion to silage production, changes in sowing times and general agricultural intensification have all been particularly detrimental by reducing nesting habitat and sources of food.

Other causes of decline include overgrazing, disturbance during the breeding season and loss of grassland to development and tree planting.

NM BAP species: Song Thrush (*Turdus philomelos*)

Although still widespread, Song Thrush declined sharply by around 73% in farmland (mid 1970s) and 49% in woodland (1968-1993), while overall UK numbers fell by 50% between 1970 and 2005. The North of the UK is thought to have been hit hardest.

In North Merseyside, though thinly distributed, Song Thrush still breed in most areas with an estimated 500 pairs during 1997-2000. Highest breeding concentrations were found to occur in suburban areas where abundant garden and parkland habitats were present.

Song Thrush are reliant on a variety of habitats to meet their needs at different times of the year and loss of these habitats causes a reduction in numbers.

Local factors in the decline of the species include changes in farm practices that remove nesting habitat (hedgerows and dense scrub), limit the abundance of winter food (changes in sowing, cropping and use of herbicides/molluscicides) or cause the loss of feeding habitat (use of pesticides/herbicides and monocropping).

NM BAP species: Bluebell (*Hyacinthoides non-scripta*)

British Bluebells make up about 20% of the global population of *Hyacinthoides non-scripta* and are often found in humid woodland habitat, along hedgerows and on occasion along the coast. Locally there are a number of good colonies.

Local threats to the species include possible over-shading in un-managed woodlands, localised trampling by the public in popular areas and hybridisation with the Spanish Bluebell. On a national scale declines are caused by the loss of woodland habitat, grazing by introduced Muntjac, collection of plants and hybridisation with Spanish Bluebell.

NM BAP species: Sefton Coast Rare Plants (*Salix viminalis x repens* = *S. x friesiana*)

A number of rare plants of the Sefton Coast are recognised as declining on a national scale, with some found in very few other locations. They are all rare locally and in some cases declining. Threats include development causing loss of habitat and destruction of populations, encroachment of scrub which both outcompetes species and reduces suitable habitat. In some cases rabbit grazing, sand-blow and other changes in the local conditions have detrimental effects.

Due to the small size of many of the populations they are highly vulnerable to any damage or disturbance.

NM BAP species: Dragonflies (*Calopteryx splendens*; *Orthetrum cancellatum*; *Ischnura elegans*; *Libellula depressa*; *Aeshna grandis*; *Enallagma cyathigerum*; *Sympetrum striolatum*; *Anax imperator*; *Aeshna mixta*; *Aeshna cyanea*)

Twentyone species of dragonfly and damselfly are included in the NM BAP Dragonflies Species Action Plan. These include vagrant species and some which are thought to be undergoing range expansions in the UK. Eighteen of these species are known to breed in our local area, with significant breeding sites in St Helens and Sefton.

Local causes of decline in this include the destruction or damage of essential wetland habitat through development, waste-tipping and agricultural run-off. Removal of nearby feeding habitats such as woodlands, hedgerows and tall vegetation is also detrimental.

NM BAP species: Common Lizard (*Zootoca vivipara*)

Populations of the Common Lizard are highly localised in Britain. In North Merseyside this species remains relatively common on the Sefton Coast dune and heath, where it is thought to be stable. Inland it is much less common. There are occasional records from Knowsley where the species is thought to be extremely vulnerable.

Declines are primarily due to the loss and fragmentation of suitable habitat, usually caused by changes in land use, urban expansion and increased forestry and scrub encroachment. Predation by cats and the gassing of rabbit burrows may also be having a detrimental effect.

NM BAP species: Bats (*Plecotus auritus*; *Pipistrellus pipistrellus*; *Nyctalus noctula*)

The NM BAP Bats Species Action Plan covers all species found in North Merseyside since all are considered to be locally threatened.

Bat Species are found throughout North Merseyside, with Pipistrelles (Common/Soprano) most often encountered and Brown Long-eared and Noctules less common. Daubenton's are also frequently encountered in suitable wetland habitat. Whiskered, Brandt's and Natterers are considered rare locally.

Bat species will roost in many locations that are warm, dark, sheltered and little undisturbed. Such places can include derelict buildings, barns, roof spaces and tree hollows.

Factors causing declines in these species include the loss of prey insects due to the increased use of pesticides and general park/garden 'tidiness', loss and fragmentation of habitat mosaics, loss of winter roosts in old trees and buildings and intentional exclusion from buildings by people.

NM BAP species: Red Squirrel (*Sciurus vulgaris*)

Over the last 100 years the UK range Red Squirrel has contracted massively. In most areas the species of Britain it has vanished and most populations are now restricted to areas of Scotland and North England. North Merseyside has a relatively stable population on the Sefton Coast with small numbers across Knowsley and St Helens.

Threats include the Grey Squirrel which carries the squirrel pox virus that appears to have been the main cause of the red squirrel decline in Britain. In addition the fragmentation of woodland has reduced suitable habitat and increased road mortality as individuals try to move between pockets of habitats. Locally, over-maturation of trees will soon greatly reduce the Red Squirrels food source.

NM BAP species: Water Vole (*Arvicola amphibius*)

This species is found throughout Britain but localised to areas of suitable habitat near water. Previously common this species has undergone severe range and population reductions, with a national survey showing a decline of around 89% since 1939, estimated to increased to a loss of 94% by 2000. Merseyside appears to be a stronghold for the species with 75% of sites surveyed having Water Voles present in 1989-90. Though they may still be in decline locally, it is thought to be at a lower level than nationally.

Local declines in the species are caused by inappropriate management of bank-side habitats and waterside developments as well as predation by invasive species such as mink. The use of rodenticides and loss of habitat connectivity may also be factors in population declines.

NERC Act Section 41 Species

Known also as 'Species of Principle Importance in England' and the 'England Biodiversity List' this list was developed to meet the requirements of Section 40 of the Natural Environment and Rural Communities Act (2006). The list is derived, almost wholly, from the 2012 revised list of 'UK Post-2010 Biodiversity Framework' priority species. (So called 'research only' moth species have been excluded from the report.). The section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions. In particular:

- Regional Planning Bodies and Local Planning Authorities must use it to identify the species that should be afforded priority when applying the requirements of National Planning Policy Framework (NPPF) to maintain, restore and enhance species and habitats.
- Local Planning Authorities must use it to identify the species that require specific consideration in dealing with planning and development control, recognising that under NPPF the aim of planning decisions should be to minimise impacts on biodiversity and geodiversity.
- All Public Bodies must use it to identify species that should be given priority when implementing the NERC Section 40 duty.

The following tables detail the NERC Section 41 species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
bird	Bullfinch	<i>Pyrrhula pyrrhula</i>	5	1997-2001	Sect.41.suppl
	Duncock	<i>Prunella modularis</i>	8	1997-1999	Sect.41.suppl
	Grey Partridge	<i>Perdix perdix</i>	2	1997-2001	Sect.41
	Herring Gull	<i>Larus argentatus</i>	6	1997-2006	Sect.41.suppl
	House Sparrow	<i>Passer domesticus</i>	19	1997-2006	Sect.41
	Lapwing	<i>Vanellus vanellus</i>	6	1997-2002	Sect.41
	Linnet	<i>Linaria cannabina</i>	5	1997-2003	Sect.41.suppl
	Reed Bunting	<i>Emberiza schoeniclus</i>	2	1997-2001	Sect.41
	Skylark	<i>Alauda arvensis</i>	4	1997-2003	Sect.41,Sect.41.suppl
	Song Thrush	<i>Turdus philomelos</i>	10	1997-2001	Sect.41.suppl
	Starling	<i>Sturnus vulgaris</i>	9	1997-2003	Sect.41.suppl
bony fish (Actinopterygii)	Atlantic Cod	<i>Gadus morhua</i>	118	2005-2011	Sect.41
	Atlantic Salmon	<i>Salmo salar</i>	2	1962	Sect.41
	Dover Sole	<i>Solea solea</i>	4	2005-2010	Sect.41
	European Eel	<i>Anguilla anguilla</i>	11	1986-2016	Sect.41
	Whiting	<i>Merlangius merlangus</i>	178	2005-2012	Sect.41
flowering plant	Cornflower	<i>Centaurea cyanus</i>	2	2004-2015	Sect.41
	Dandel	<i>Lolium temulentum</i>	2	1977	Sect.41
	Marsh Stitchwort	<i>Stellaria palustris</i>	1	1987	Sect.41
insect - butterfly	Small Heath	<i>Coenonympha pamphilus</i>	1	1997	Sect.41
	Wall	<i>Lasiommata megera</i>	3	1993-2002	Sect.41
	White-letter Hairstreak	<i>Satyrus w-album</i>	1	2017	Sect.41
insect - moth	Rosy Minor	<i>Litlogia literosa</i>	1	1972	Sect.41
	Sallow	<i>Cirrhia icteritia</i>	2	1972-1979	Sect.41
	Shoulder-striped Wainscot	<i>Leucania comma</i>	3	1854-1972	Sect.41
marine mammal	Bottle-Nosed Dolphin	<i>Tursiops truncatus</i>	1	2000	Sect.41
	Common Porpoise	<i>Phocoena phocoena</i>	6	2004-2012	Sect.41
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1903	Sect.41
terrestrial mammal	Bats	<i>Chiroptera</i>	4	1985-1993	Sect.41
	Brown Long-eared Bat	<i>Plecotus auritus</i>	5	1986-1991	Sect.41
	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	1	1970	Sect.41
	European Water Vole	<i>Arvicola amphibius</i>	1	1994	Sect.41
	Noctule Bat	<i>Nyctalus noctula</i>	1	2015	Sect.41

Pipistrelle Bat species	<i>Pipistrellus</i>	16	1980-2017	Sect.41
Unidentified Bat	<i>Myotis</i>	1	1992	Sect.41
West European Hedgehog	<i>Erinaceus europaeus</i>	31	1981-2017	Sect.41

Desig. Code	Desig. Name	Designation Description
Sect.41.suppl	Supplementary list to deal with S41 bird sub-sp problems	Bird species corresponding to British sub-species listed in section 41 (England) of the NERC Act (2006).
Sect.41	Natural Env. and Rural Communities Act 2006. Species of Principal Importance in England (section 41)	Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.

IUCN Red-listed Species

The IUCN Red List of Threatened Species (sometimes called 'Red Data Book' species) indicates the conservation status of plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. The system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on plants and animals that are categorized as 'Extinct' or 'Extinct in the Wild'; on taxa that cannot be evaluated because of insufficient information ('Data Deficient'); and on plants and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme ('Near Threatened').

The following tables detail the IUCN Red-listed species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
flowering plant	Box	<i>Buxus sempervirens</i>	1	2013	RLGB.DD
	Corn Marigold	<i>Glebionis segetum</i>	6	2004-2007	RLGB.VU
	Corn Spurrey	<i>Spergula arvensis</i>	7	1977-2007	RLGB.VU
	Darnel	<i>Lolium temulentum</i>	2	1977	RLGB.CR
	Field Woundwort	<i>Stachys arvensis</i>	6	1977-1981	RLGB.Lr(NT)
	Large-flowered Hemp-nettle	<i>Galeopsis speciosa</i>	2	2008	RLGB.VU
	Marsh Stitchwort	<i>Stellaria palustris</i>	1	1987	RLGB.VU
	Prickly Poppy	<i>Papaver argemone</i>	2	2007	RLGB.VU
	Weasel's-snout	<i>Misopates orontium</i>	1	1977	RLGB.VU
	Wild Pansy	<i>Viola tricolor</i>	2	1981	RLGB.Lr(NT)
	Yellow Vetchling	<i>Lathyrus aphaca</i>	1	1987	RLGB.VU
insect - butterfly	Small Heath	<i>Coenonympha pamphilus</i>	1	1997	RLGB.Lr(NT)
	Wall	<i>Lasiommata megera</i>	3	1993-2002	RLGB.Lr(NT)
	White-letter Hairstreak	<i>Satyrrium w-album</i>	1	2017	RLGB.EN
mollusc	Large Black Slug	<i>Arion (Arion) ater</i>	4	1998-2007	RLGB.DD

Desig. Code	Desig. Name	Designation Description
RLGB.DD	IUCN (2001) - Data Deficient	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that a threatened category is appropriate.

RLGB.VU	IUCN (2001) - Vulnerable	A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future.
RLGB.CR	IUCN (2001) - Critically endangered	A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E.
RLGB.Lr(NT)	IUCN (2001) - Lower risk - near threatened	Taxa which do not qualify for Lower Risk (conservation dependent), but which are close to qualifying for Vulnerable. In Britain, this category includes species which occur in 15 or fewer hectads but do not qualify as Critically Endangered, Endangered or Vulnerable.
RLGB.EN	IUCN (2001) - Endangered	A taxon is Endangered when it is not Critically endangered but is facing a very high risk of extinction in the wild in the near future.

Nationally Notable Species

These are plants and animals which do not fall within red-list categories but which are none-the-less uncommon in Great Britain.

The following tables detail the Nationally Notable species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
flowering plant	Box	<i>Buxus sempervirens</i>	1	2013	NR-excludes
	Darnel	<i>Lolium temulentum</i>	2	1977	NR-excludes
	Fringed Water-lily	<i>Nymphoides peltata</i>	2	1982-1983	NS-excludes
	Large-leaved Lime	<i>Tilia platyphyllos</i>	1	1987	NS-excludes
	Medlar	<i>Mespilus germanica</i>	1	2012	NS-excludes
	Northern Yellow-cress	<i>Rorippa islandica</i>	5	1977-1982	NS-excludes
	Rock Stonecrop	<i>Sedum forsterianum</i>	1	1981	NS-excludes
	Yellow Vetchling	<i>Lathyrus aphaca</i>	1	1987	NS-excludes
insect - beetle (Coleoptera)	Adonis' Ladybird	<i>Hippodamia (Adonia) variegata</i>	1	1998	Nb
	Anommatus duodecimstriatus	<i>Anommatus duodecimstriatus</i>	1	2007	Na
	Notiophilus quadripunctatus	<i>Notiophilus quadripunctatus</i>	1	1990	Nb
	Polydrusus (Chrysophis) formosus	<i>Polydrusus (Chrysophis) formosus</i>	3	2006-2013	Na
insect - hymenopteran	Red-tailed (Hill) Cuckoo Bee	<i>Bombus (Psithyrus) rupestris</i>	1	1971	Nb

Desig. Code	Desig. Name	Designation Description
NS-excludes	Nationally Scarce. Excludes Red Listed taxa	Nationally Scarce - Occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria
NR-excludes	Nationally Rare. Excludes Red Listed taxa	Nationally Rare - Occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
Nb	Nationally Notable B	Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.
Na	Nationally Notable A	Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.

WCA schedule 9 species (including non-native invasive plants)

Schedule 9 of the Wildlife & Countryside Act (amended 2010) lists species of plants and animals for which it is a specific offence to plant or otherwise cause to grow in the wild (plants) or release or allow to escape into the wild (animals). Many of these are invasive non-native plants and animals, but there are also a number of native animals on the list (e.g. Barn Owl) which cannot be released into the wild in England without a license from Natural England.

The following tables detail the WCA Schedule 9 species recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
bird	Canada Goose	<i>Branta canadensis</i>	6	1997-2011	MBB-WCA-S9
crustacean	Chinese Mitten Crab	<i>Eriocheir sinensis</i>	3	2013-2015	MBB-WCA-S9
flowering plant	Canadian Waterweed	<i>Elodea canadensis</i>	4	1977-1983	MBB-WCA-S9
	Indian Balsam	<i>Impatiens glandulifera</i>	11	1977-1987	MBB-WCA-S9
	Japanese Knotweed	<i>Fallopia japonica</i>	33	1977-2017	MBB-WCA-S9
	Japanese Rose	<i>Rosa rugosa</i>	2	2015-2017	MBB-WCA-S9
	New Zealand Pigmyweed	<i>Crassula helmsii</i>	3	1997-1998	MBB-WCA-S9
	Nuttall's Waterweed	<i>Elodea nuttallii</i>	1	1982	MBB-WCA-S9
	Rhododendron ponticum	<i>Rhododendron ponticum</i>	5	1987-2017	MBB-WCA-S9
	Three-cornered Garlic	<i>Allium triquetrum</i>	1	2017	MBB-WCA-S9
terrestrial mammal	Black Rat	<i>Rattus rattus</i>	17	1889-1989	MBB-WCA-S9
	Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	26	2007-2017	MBB-WCA-S9

Desig. Code	Desig. Name	Designation Description
MBB-WCA-S9	Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order 2010	Species on Schedule 9 (part 2) as revised 2010. Under section 14 of the Act it is illegal to release into the wild any animal or allow to grow in the wild any plant which is not ordinarily resident in GB or which is a known threat and is listed on Schedule 9 of the Act.

BAP priority habitats

In 2007 the Local Biodiversity Manager (responsible for the North Merseyside Biodiversity Action Plan) undertook a review of the extent of UK BAP priority habitats in North Merseyside and produced GIS layers to show their extents. In most cases these inventories were derived from two main sources: the latest Phase 1 habitat surveys which were conducted for the four North Merseyside local authorities between 1996 and 2007; and an NVC survey of the Sefton Coast carried out between 2003 and 2004. A separate NVC survey of the Ribble estuary carried out in 2002 (which also included saltmarsh at the Alt) was also useful as were one or two other sources. Because of the diverse nature of habitat classifications, it was not always possible to produce inventories with a one-to-one correspondence with UK BAP priority habitats. The table below shows the BAP habitat inventories for North Merseyside and their correspondence with UK BAP priority habitats.

North Merseyside habitat inventory	Correspondence with UK BAP priority habitats
Lowland Acid Grassland	Lowland Dry Acid Grassland
Lowland Heathland	Lowland Heathland
Lowland Raised Bog	Lowland Raised Bog
Neutral Grassland	Incorporates the UK BAP habitat Lowland Meadows but also, in North Merseyside, includes a lot of amenity grassland, road verges etc.
Calcareous Grassland	Calcareous Grassland
Ponds	Ponds
Lakes	Eutrophic lakes
Reedbeds	Reedbeds
Hedgerows	Hedgerows
Saltmarsh	Coast Saltmarsh
Sand Dune	Coastal Sand Dune

All Woodland	It was not possible, from the available data, to produce separate inventories for different woodland types in North Merseyside, so this inventory incorporates elements of several UK BAP priority habitats such as Lowland Mixed Deciduous Woodland, Wet Woodland and Wood Pasture & Parkland.
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Note that the 'Ponds' BAP inventory was derived locally using water bodies less than two hectares in extent from Ordnance Survey data. The 'Lakes' BAP inventory is a nationally supplied inventory, but the lakes are only represented in this as points. Therefore any water body over two hectares in extent will only be represented on our habitat maps by a point and will not show the extent of the lake. However, ponds will be indicated by polygons showing their extent. Occasionally a large pond – though still less than two hectares in extent – will be represented in both the 'Lake' and 'Pond' inventories.

Habitat	Amount	Units
Lakes	1	count
Hedgerows	0.71	kilometres
All Woodland	9.66	hectares
Ponds	1.04	hectares
Ponds	2	count

The table above indicates the extent of each of the BAP habitat inventories (see previous table) occurring within your search area (see appendix 3 for maps).

Detailed habitat mapping

Merseyside BioBank collates and maintains detailed habitat mapping – normally Phase 1 or NVC – for the North Merseyside area. This includes both historic data and the most up-to-date habitat survey data available. Here we report on the detailed habitat mapping we hold for your search area.

Ref: EN-CBA-Coastal		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region.		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Coastal Core Biodiversity Areas. See http://www.lcreconet.uk/ for further information.		
CBA Coastal		
C6	Intertidal Mudflats	326.18 ha

Ref: EN-CBA-Mosaic		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Mosaic Core Biodiversity Areas. See http://www.lcreconet.uk/ for further information.		
CBA General features		
Gen3	Local Wildlife Site	17.51 ha

Ref: EN-CBA-Woodland		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Woodland Core Biodiversity Areas. See http://www.lcreconet.uk/ for further information.		
CBA Woodland		
Wo3	Lowland Mixed Broad-leaf Woodland	14.93 ha

Wo4	Lowland Mixed Deciduous Woodland	12.05 ha
Wo6	Lowland Wood-pasture and Parkland	1.91 ha

Ref: EN-CBA-Woodland		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Woodland Core Biodiversity Areas. See http://www.lcreconet.uk/ for further information.		
CBA Woodland		
Wo3	Lowland Mixed Broad-leaf Woodland	14.93 ha
Wo4	Lowland Mixed Deciduous Woodland	12.05 ha
Wo6	Lowland Wood-pasture and Parkland	1.91 ha

Ref: EN-LinearFeatures		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Linear features. See http://www.lcreconet.uk/ for further information.		
Linear feature		
Lin1	Active railway corridor	15.85 km
Lin5	Hedgerow	0.71 km
Lin6	Major road corridor	17.76 km

Ref: EN-SteppingStones		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Stepping Stone habitats. See http://www.lcreconet.uk/ for further information.		
Stepping stone habitat		
SS1	Ponds	1.23 ha

Ref: EN-SteppingStones		
Source: Composite layer generated by Merseyside Environmental Advisory Service on behalf of the Liverpool City Region		
Survey date: 01/01/2016		
Notes: LCR Ecological Network Stepping Stone habitats. See http://www.lcreconet.uk/ for further information.		
Stepping stone habitat		
SS1	Ponds	1.23 ha

Ref: Liverpool-2006-07		
Source: Liverpool Space for Nature project - phase 1 habitat survey 2006-2007		
Survey date: 2006 - 2007		
Notes: This is the 'default' baseline mapping used by the Council. It is the most recent complete coverage for the borough.		
Woodland and scrub		
A1.1.2	Broadleaved woodland - plantation	2.22 ha
Miscellaneous		
J1.2	Cultivated/disturbed land - amenity grassland	0.86 ha

Habitat maps themselves are produced at the end of the report. You can cross-reference the figures in the tables below to the maps by means of the reference which appears on each

map. A map with the reference 'Composite' is a special map made on-the-fly at the time of this report production by merging data from all available sources and using the most up-to-date mapping available at any given point in your search area.

Designated Areas

There are a number of types of 'designated areas' in North Merseyside. These types are shown in the table below together with the total number of North Merseyside sites for each.

Type of area	No. of sites
Site of Special Scientific Interest	6
Special Protection Area (Natura 2000)	3
Marine Special Protection Area	1
Special Area of Conservation (Natura 2000)	1
RAMSAR (wetland of international importance)	3
National Nature Reserve	3
Local Nature Reserve	57
Knowsley Local Wildlife Site	23
Sefton Local Wildlife Site	55
St Helens Local Wildlife Site	121
Liverpool Local Wildlife Site (current)	28
Liverpool Local Wildlife Site (proposed)	30
Merseyside Ancient Woodland Inventory	11
RSPB/LWT Windfarm Alert Map	1
Red Squirrel Protection Area	1

The following table indicates the results of the intersection between the search area and designated areas detailed above (see appendix 3 for maps).

Name	Type
College Street North, Shaw Street	Liverpool Local Geological Site
Lime Street Railway Cutting	Liverpool Local Geological Site
St James Cemetery, Liverpool Anglican Cathedral	Liverpool Local Geological Site
St Georges Hill, Netherfield Road South	Liverpool Local Geological Site
Wapping Railway Cutting, Chatsworth Street	Liverpool Local Geological Site
Queens Walk, Anglican Cathedral	Liverpool Local Geological Site
Herculaneum Bridge PH, Herculaneum Road, Dingle	Liverpool Local Geological Site
Metropolitan Cateolic Cathedral, Brownlow Hill	Liverpool Local Geological Site
St Anne Street Underpass	Liverpool Local Geological Site
Whitley Gardens (south), Shaw Street	Liverpool Local Geological Site
Whitley Gardens (north), Shaw Street	Liverpool Local Geological Site
Mersey Estuary	Nature Improvement Area
Princess Park	Liverpool Local Wildlife Site
Everton Park and Nature garden	Liverpool Local Wildlife Site

Citations¹ for Local Wildlife Sites are supplied separately.

¹ In Knowsley, some Local Wildlife Site citations do not include lists of species and habitats for which they are designated and where this is the case a separate list is supplied for the site. No Local Wildlife citations are available for Liverpool Local

Interpretation and caveats

Merseyside BioBank records included

All relevant non-confidential records managed by Merseyside BioBank which intersect the search area are included in this report, except where excluded by one or more of the conditions described in the rest of this section.

NBN Atlas records included

All relevant records available to Merseyside BioBank from the NBN Atlas are included in this report, except where excluded by one or more of the conditions described in the rest of this section. NBN Atlas records are accessed live *via* web-services at the time of report generation.

Merseyside BioBank often has access to NBN records at higher resolution than the standard 'public' access. These records have been downloaded and used with the permission of the data providers, but are subject to normal NBN Atlas terms and conditions. You must not use them beyond the specific purposes for which this report was provided to you and you must adhere, at all times, to the NBN Atlas terms and conditions.

Record location and dates

If a record can only be located to a relatively low precision (e.g. 1 km or 2 km square), then it is possible that the unrecorded precise location of the animal or plant might have been outside of the search area. Sometimes the location name column can be useful in deciding whether or not this was likely to have been the case. In records from our own database, we have replaced all digits with the '#' character in the location field to people's privacy where addresses have been used as location names.

Records which are only available to us at less than 2 km square (tetrad) precision are excluded from the report. We report dates at the highest precision available to us. Records for which no date is available are excluded from the report.

Absence of records and 'negative records'

The absence of biological records for an area, or the presence of 'negative records', is not proof that taxa are not present.

Duplicate records

Although we do our very best to avoid reporting the same record more than once ('duplicate records') this is sometimes unavoidable for records that have entered the biological records network *via* more than one route. In particular, there may be some record duplication between records from Merseyside BioBank's database and records from the NBN Atlas datasets (though, of course, we do not report on NBN Atlas records which originate from Merseyside BioBank).

Validity of records

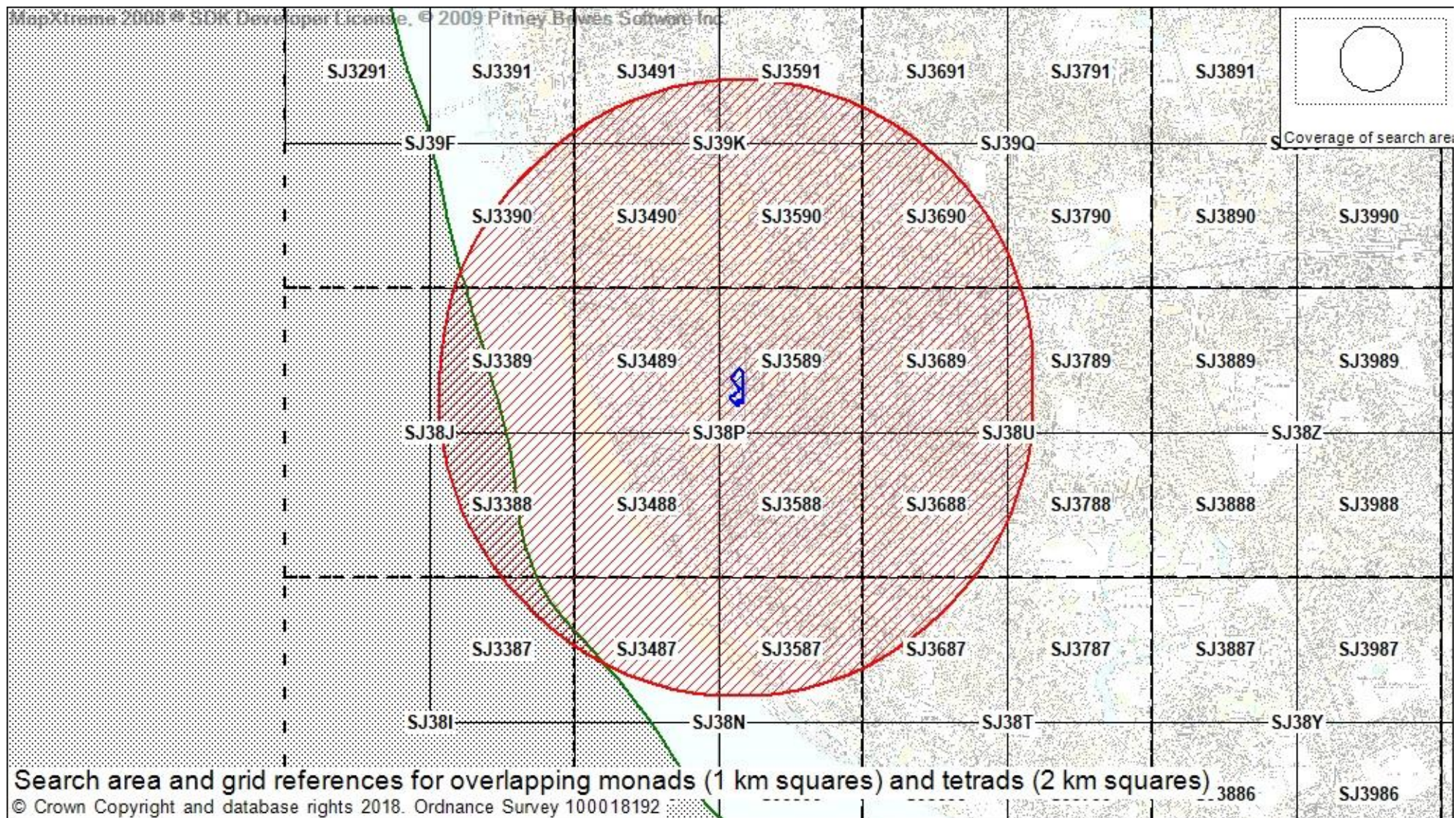
Whilst Merseyside BioBank continually strives to verify the records that we manage, we accept no responsibility for any errors subsequently discovered. Merseyside BioBank accepts no responsibility for errors in data derived from the NBN Atlas.

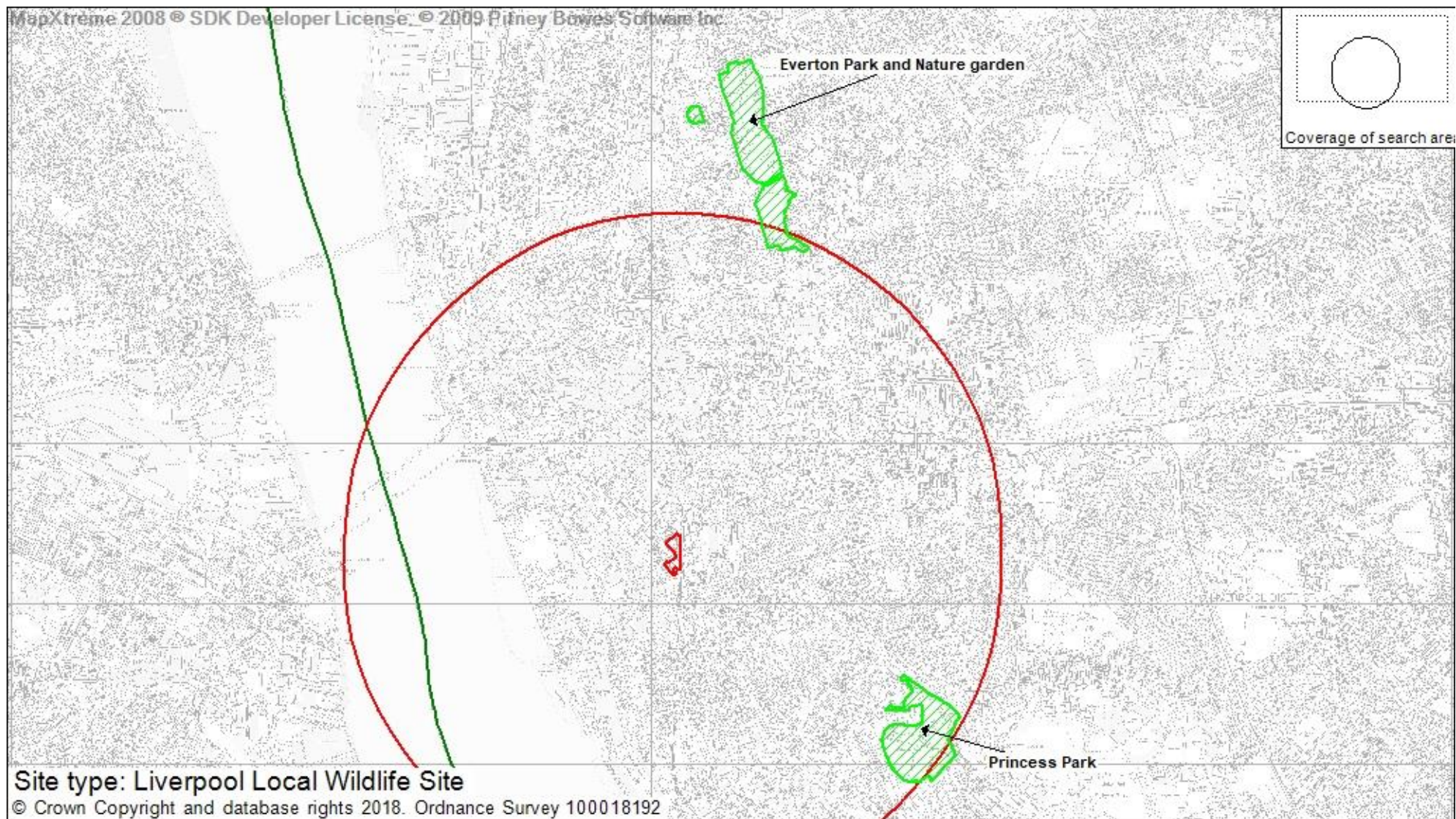
Bird records

Only bird records with a recorded status of proven, probable and possible breeding have been included in this data search. Bird records with other statuses are not included. The most recent bird records for North Merseyside included, e.g. those generated for the ongoing breeding and wintering atlas projects, since these data have yet to undergo verification by the County Bird Recorder. It is possible for you to contact the County Bird Recorder independently for his interpretation of the most recent data with respect to your search area. The contact details are:

Steve White
stevewhite102@btinternet.com

Please note that if this is a commercial data request you will be invoiced by **Sefton Borough Council**, which is the hosting authority for Merseyside BioBank.





The Local Biodiversity Records Centre for North Merseyside

Merseyside BioBank,
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