



Grange Park, Blackpool

Preliminary Ecological Appraisal

May 2021

Control sheet

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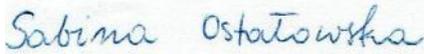
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Executive Summary

Bowland Ecology Ltd was commissioned by Cassidy and Ashton to undertake an ecological appraisal of two areas of land situated within the Grange Park Estate, Blackpool (Site A; NGR: SD 32860 37676 & Site B; NGR:SD 33008 37455) in January 2021. Upon completion of the daytime tree survey, a dusk emergence survey was undertaken in May 2020. The appraisal is to inform an outline planning application for two independent residential developments.

Key ecological features, potential impacts, further survey requirements and outline mitigation measures are summarised in the following table.

Ecological Feature	Potential Impact	Further surveys if affected	Outline Mitigation
Hedgerow (Habitat of Principal Importance)	Direct impact, reduction of hedgerow	N	Retention of entire hedgerow. If removal works are needed, local planning authority to be contacted.
			If works granted, adoption of hedgerow mitigation measures and further habitat enhancements.
Deciduous woodland (Habitat of Principal Importance)	Indirect impacts through pollution	N	Implementation of best practice during works.
Semi-improved grassland	Loss of habitat	N	Minimise loss and disturbance if possible. Habitat creation/improvement to compensate for loss of habitat.
Invasive Species (Japanese knotweed and Cotoneaster)	Spread of non-native invasive species	N	Implementation of appropriate control measures following best practice guidance.
Trees	Direct or indirect impacts through loss of/pruning	N	Mitigation measures including; <ul style="list-style-type: none"> • Re-planting at a 2:1 ratio • Fencing to protect trees from machinery ingress and implementation of root protection areas (RPA) • Dust reduction measures
Bats	Risk of impacting roosting/foraging and commuting bats	Y (possible)	Soft felling technique of Trees 1, 2 and 3 (if directly impacted)
			Retain or replace lost habitat in new landscaping areas.
			Any lighting on site should be designed in accordance with the appropriate guidance
Other mammals	Direct impacts Loss of habitat	N	Make contractors aware of possible presence of small mammals. Remove debris and cover excavations at night.
Birds	Direct impacts Loss of habitat	N	Works to hedgerow, trees, or scrub to be undertaken outside of nesting season (March – August inclusive) or pre-clearance nesting bird check by an ecologist required. Adoption of hedgerow and tree mitigation measures and further habitat enhancements.
Amphibians	Direct impacts Loss of terrestrial habitat	N	Implementation of Reasonable Avoidance Measures (RAMs).
Invertebrates	Direct impacts Loss of habitat	N	Habitat creation/improvement to compensate for loss of habitat

1. Introduction

- 1.1 Bowland Ecology Ltd was commissioned by Cassidy and Ashton to undertake an ecological appraisal of two areas of land situated within the Grange Park Estate, Blackpool (Site A; NGR:SD 32860 37676 & Site B; NGR:SD 33008 37455) in January 2021. A dusk/dawn bat survey of a tree at Site B was also undertaken. Current proposals are for the development of two residential estates.
- 1.2 The two sites are located within the Grange Park housing estate, Blackpool. The immediate surrounding habitats include residential properties with Gateside park to the north and Christ the King Catholic School with associated playing fields and tree lines to the south (see Figure 1 for locations).



Figure 1: Location of sites (survey boundaries shown in red)

- 1.3 The purpose of the survey and appraisal were to: 1) identify and map all habitats occurring within the survey area, 2) identify the presence of (or potential for) wildlife interests with particular reference to the need for further surveys and legal requirements (Appendix A), and 3) provide an ecological assessment, identify potential impacts, and provide recommendations pertaining to the proposal.
- 1.4 This report includes a description of survey methods, a summary description of habitats and fauna and outlines recommendations to provide protection and enhancements for biodiversity and protected species.

2. Methodology

2.1 This appraisal is based on a desk study and an extended Phase 1 Habitat survey. It follows the CIEEM Guidelines for Preliminary Ecological Appraisal and the CIEEM Guidelines for Ecological Report Writing (CIEEM, 2017 a, b), and is in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'.

Desk Study

2.2 The aim of the desk study was to identify the presence of statutory and non-statutory wildlife sites within the area and any legally protected species or Habitats and Species of Principal Importance (HPI and SPI) for the conservation of biodiversity (Section 41 NERC Act, 2006).

2.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<https://magic.defra.gov.uk/>) was reviewed for information on locally, nationally and internationally designated sites of nature conservation importance (statutory sites only) on or within 1 km of the site boundary.

2.4 Local records on and within 1 km of the site were obtained following a data search with Lancashire Environment Record Network (LERN)¹.

2.5 Ordnance Survey (OS) maps, Mario maps (MARIO-Maps & Related Information Online lancashire.gov.uk) and aerial photographs (<http://maps.google.co.uk/maps>) were reviewed to help identify any continuous habitat and any other notable habitats within the surrounding area, together with any ponds within 0.25 km of the site.

2.6 Natural England's great crested newt (*Triturus cristatus*) licensing method statement template (Form WML-A14-2 (version November 2017) advises that, for developments resulting in permanent or temporary habitat loss at distances over 0.25 km from the nearest pond, careful consideration should be given to whether a survey is appropriate. Although the species may use suitable terrestrial habitat up to 0.5 km from a breeding pond, in this instance a 0.25 km search radius was considered appropriate due to the residential nature of surrounding habitats.

Extended Phase 1 Habitat Survey

2.7 The extended Phase 1 habitat survey followed standard methodology (JNCC, 2010 and CIEEM, 2017b). All habitats on site were recorded and all features of ecological significance were target noted.

2.8 This survey methodology records information on the habitats together with any evidence of and potential for legally protected and notable fauna, in particular:

- Potential roosting sites for bats within buildings and trees (identification of suitable cracks and crevices – survey undertaken externally and from ground only). An assessment of suitability was undertaken according to the Bat Conservation Trust's Good Practice Guidelines 3rd Edition (Collins, 2016; Appendix B);
- Assessing the suitability of habitats for other notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole (*Arvicola amphibius*), otter (*Lutra lutra*), white-clawed crayfish (*Austropotamobius pallipes*), badger (*Meles meles*) and invertebrates;
- Checking for the most common invasive plant species subject to strict legal control including Japanese knotweed (*Fallopia japonica*), giant knotweed (*F.*

¹ Records from 2000 onwards are included within the report.

sachalinensis), hybrid knotweed (*F. x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*R. ponticum*, *R. ponticum x R. maximum* and *R. luteum*) and Himalayan balsam (*Impatiens glandulifera*); and

- assessing the suitability of the habitat for amphibians and for the protected great crested newts.

2.9 The survey was carried out by Jodie Marks MSc, BSc (Hons) on the 22nd January 2021. The weather was wet (approximately 5°C), 75% cloud cover and a slight breeze (Beaufort Scale No. 2).

Dusk Emergence Survey

2.10 A dusk emergence survey was conducted on the 12th May 2021. The survey methodology followed the guidelines as described in Collins (2016). Details regarding the start time, weather conditions and surveyors are shown in Table 1 below.

Table 1: Summary of bat survey weather conditions and surveyors

Date	Start and end time and time of sunset/ sunrise	Weather Conditions	Surveyors ²
12.05.21	Start: 20:48 End: 22:33 Sunset: 21:03	Cloud cover (55%) mild with a light breeze Start Temp - 12°C End Temp - 10°C Precipitation - Nil Beaufort wind scale - 1	SR, LH

2.11 The surveyors positioned themselves to get the best coverage of the tree and focused in on those areas with the most potential as roosting habitat. The survey was aided by the use of the following bat detectors: Bat Box Duet and EM Touch.

2.12 The emergence survey was completed at an appropriate time of year and the weather conditions were suitable, therefore a full assessment of the potential of the tree to support roosting bats was undertaken.

Survey Limitations

2.13 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 survey of the study area has not produced a complete list of plants and animals.

2.14 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 extended Phase 1 habitat survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.

2.15 The timing of the Phase 1 survey was outside the optimum period; however, the entire site was accessible and there was sufficient information to confidently recognise the type of habitats present. Therefore, a valid assessment of the habitats present and their potential to support legally protected species was undertaken.

2.16 A fenced compound at Site A had no access at the time of survey due to a locked gate. However, it was possible to see through the fence and due to the small size of the compound it was possible to assess the value of the habitats within the compound for wildlife.

3. Results

Statutory and Non-Statutory Wildlife Sites and nearby Habitats of Principal Importance

- 3.1 There are no statutory designated wildlife sites within 1 km of the sites.
- 3.2 The Liverpool Bay Special Protection Area (SPA) lies 6 km west of Site A. The site supports non-breeding red-throated diver (*Gavia stellata*), little gull (*Hydrocoloeus minutus*), and common scoter (*Melanitta nigra*), as well as breeding common tern (*Sterna hirundo*) and little tern (*Sterna albifrons*). The site also supports an internationally important waterbird assemblage. The IRZ criteria specifies that 'new residential developments in this area should consider recreational disturbance impacts on coastal designated sites and this issue needs to be addressed in the HRA screening.'
- 3.3 Both sites fall within the Impact Risk Zone for the Martin Mere, Blackpool Site of Special Scientific Interest (SSSI), Local Nature Reserve (LNR) and Morecambe Bay RAMSAR & Wyre Estuary SSSI. However, the proposed works do not fall into any of the categories that require consultation with Natural England. Therefore, no further consideration regarding the Impact Risk Zones is required.
- 3.4 There are two non-statutory Biological Heritage sites (BHS) within 1 km of the sites.
- Carleton Cemetery Pond Cluster (BHS) is located approximately 800 m north of Site A. The site comprises a cluster of 15 ponds set amidst pasture and amenity grassland. The Tubular Water-dropwort (*Oenanthe fistulosa*), Greater Duckweed (*Spirodela polyrhiza*) and Lesser Marshwort (*Apium inundatum*) listed in the *Provisional Lancashire Red Data List of Vascular Plants* are found in a number of the ponds, with great crested newts also recorded.
 - Dinmore Avenue Swamp and Fields (BHS) is located approximately 870 m north east of Site A. The site consists of swamp, unmanaged neutral grassland, tall herb vegetation, hedgerows and ditches. The site is important due to its urban fringe location and the extreme scarcity of semi-natural habitats in the western Wyre area.
- 3.5 The search of Multi-Agency Geographical Information for the Countryside identified the following HPI within 1km of the site:
- 15 areas of deciduous woodland, the closest of which is located approximately 265 m north east of Site A;
 - Four areas of coastal and floodplain grazing marsh, the closest of which is located approximately 830 m south east of Site B; and
 - Two areas of Lowland fens, the closest of which is located 885 m north east of Site A, located within Dinmore Avenue Swamp and Fields (BHS).
- 3.6 Habitat connectivity from the site to the HPIs include roadside habitats (verges and hedgerows) and field/garden boundaries.
- 3.7 No ponds are situated within the site boundary. Based on a review of aerial photographs and OS maps there is one pond within 0.25 km of the sites. The single pond is located approximately 163 m south west of Site B and 250 m south of Site A. The pond is situated within the grounds of Christ the King Catholic School.

²: LH: Luke Hall BSc (Hons), SR: Sam Robinson BA

Extended Phase 1 Habitat Survey

- 3.8 Target notes summarising key interest features for wildlife recorded during the extended Phase 1 Habitat survey are included in Appendix C. The Phase 1 Habitat plan of the site is presented in Appendix D and includes the locations of the target notes. Plant species nomenclature follows Stace (2010).

Habitats - Site AAmenity grassland

- 3.9 The south western portion of the site (TN 5) comprises managed amenity grassland resulting in a short sward height with perennial rye grass (*Lolium perenne*) dominating the grassland.

Semi – improved neutral grassland

- 3.10 Semi-improved neutral grassland is present at the northern portion of the site (TN 3), with an additional small strip within the fenced area at TN 6. The grassland is unmanaged resulting in a moderate sward height. Species include Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), timothy (*Phleum pratense*), cocksfoot (*Dactylis glomerata*), tufted hairgrass (*Deschampsia cespitosa*), yarrow (*Achillea millefolium*), ribwort plantain (*Plantago lanceolata*) and teasel (*Dipsacus fullonum*). Some areas are damper in nature and contain occasional compact rush (*Juncus conglomerates*) and common reed (*Phragmites australis*).

Ephemeral vegetation

- 3.11 Ephemeral vegetation with some areas of bare earth is present in the northern section of the site (TN 4). The area is heavily disturbed with numerous small to moderate sized, shallow ephemeral pools present. These are likely to have been numerous at the time of the survey due to the recent heavy rainfall. Species include tufted hairgrass, Yorkshire fog, and chickweed (*Stellaria media*), with occasional compact rush and butterfly bush (*Buddleja davidii*).

Dense scrub

- 3.12 Dense ornamental and native scrub is present at the northern perimeter and northern end of the western boundary (TN 2). Species include privet (*Ligustrum*), butterfly bush, laurel (*Laurus nobilis*) and common heather (*Calluna vulgaris*).

Scattered Scrub

- 3.13 Scattered scrub comprising fruit tree saplings (species unknown), elder (*Sambucus nigra*) and spruce sp. (*Picea*) are present in the northern section of the site, within the semi-improved grassland.

Scattered trees

- 3.14 Spruce, elder and apple (*Malus x robusta*) trees are present on a raised mound within the semi-improved grassland at TN 8.
- 3.15 A mature beech (*Fagus sylvatica*) and hawthorn (*Crataegus monogyna*) tree are present at the eastern perimeter (TN 7).

Invasive species

- 3.16 Cotoneaster is present at two locations within the dense scrub in the north western corner of the site (TN 1).

Hard standing

- 3.17 Large areas of hard standing situated in the southern portion of the site comprise roads and a small car park.

Other habitats

- 3.18 Two deep, uncovered excavation holes are present at the north western corner of the site, adjacent to the dense scrub (TN 2). The holes are currently filled with household waste.
- 3.19 Remnants of an old building (small brick wall still present) and rubble piles are located within the fenced compound area at TN 6.
- 3.20 Five metal shipping containers are present on the hard standing in the south eastern corner of the site.

Habitats - Site B

Amenity grassland

- 3.21 The southern half of the site (TN 2) is more managed in nature and is evidently mown, resulting in a short grassland sward. Species include perennial rye grass, Yorkshire fog, red fescue, creeping buttercup and ragwort (*Jacobaea vulgaris*). Two mown footpaths are present through the site.

Semi-improved neutral grassland

- 3.22 Semi-improved neutral grassland is present in the northern half of the site (TN 6). The grassland is dry and unmanaged resulting in a moderate sward height. The area is subject to high levels of disturbance by dog walkers and children. Species include Yorkshire fog, red fescue, tufted hairgrass, crested dog's tail (*Cynosurus cristatus*), creeping buttercup (*Ranunculus repens*), sedge sp. (Cyperaceae sp.) and fleabane (*Erigeron* sp.). Some areas are damper in nature with occasional common reed, compact rush and greater horse tail (*Equisetum telmateia*) present.

Hedgerow (HPI) (TN 3)

- 3.23 A species rich hedgerow, a HPI, with semi-mature trees is present on the western boundary, adjacent to the public footpath. The hedgerow is unmanaged and measures approximately 3 m high, 1.5 m in width and 70 m in length, with a small brick wall running adjacent for approximately half the hedgerows length. The canopy is dominated by wild privet (*Ligustrum vulgare*), with occasional hawthorn (*Crataegus monogyna*), crack willow (*Salix fragilis*), elder, sycamore (*Acer Pseudoplatanus*) and wych elm (*Ulmus Glabra*). The ground flora comprises bramble and leaf litter (at the time of survey). The scrub and scattered trees to the south are possible remnants of the original larger hedgerow. The hedgerow is classed as 'important' under the Hedgerows Regulations 1997.

Scattered mature trees.

- 3.24 Four mature sycamore trees are present on the northern boundary (TN 5) with a crack willow and an ash situated beyond the southern fence line boundary.

Dense scrub

- 3.25 An area of dense scrub is present within the semi-improved grassland at TN 7. Species include semi-mature ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) with elder, rose sp. (*Rosa* sp.) and ornamental laurel and Laurustinus (*viburnum*) shrubs.
- 3.26 Scrub is present below the semi-mature sycamore trees at TN 5 comprising common broom (*Cytisus scoparius*), elder, blackthorn (*Prunus spinosa*) and wild privet. Dense bramble (*Rubus fruticosus*) scrub is present beyond the fence line at TN 1.

Scattered scrub

- 3.27 Scattered scrub is present throughout the semi-improved grassland. Species include common gorse (*Ulex europaeus*), common broom and dog wood (*Cornus sanguinea*) with recent fruit tree planting present at the northern border.

Invasive species

- 3.28 A stand of Japanese knotweed (*Fallopia japonica*) is present within the hedgerow at TN 4.

Hard standing

- 3.29 A public footpath borders the site from the north west and south.

Standing water

- 3.30 There are no ponds within the site boundary, however, one waterbody (Pond 1) is located within 250 m of both developmental areas.
- 3.31 Pond 1 is located 165 m south west of Site B and 250 m south of Site A and located within the Christ the King Catholic School grounds. The pond is approximately 375 m². The surrounding habitat comprises dense scrub and young to semi-mature trees. Aquatic vegetation includes a small area of bulrush (*Scirpoides holoschoenus*) and duckweed (*Lemnoideae* sp.).

Species (both sites)Bats

- 3.32 The data search returned two records of bat activity within 1 km of the site. One common pipistrelle (*Pipistrellus pipistrellus*) from 2011, located approximately 405 m west of Site A and one potential common pipistrelle roost, from 2007, located approximately 810 m east of Site B. The lack of further records of bats suggests they are under recorded within the area.
- 3.33 The search of the Multi Agency Geographical Information Centre (www.magic.gov.uk) identified no European Protected Species Licences for bats within 1 km of the sites.
- 3.34 The hedgerow, scattered trees and scrub provide suitable foraging and commuting habitat for bat species that show a preference for utilising 'edge' habitats. Such species include common pipistrelle and whiskered (*Myotis mystacinus*) bats, which are flexible in their foraging habitat. The unmanaged semi-improved grassland is considered to provide suitable foraging habitat for noctule (*Nyctalus noctula*) bats, which show a preference for feeding in 'open' habitats.
- 3.35 No trees at Site A have the potential to support a bat roost. However, three trees within Site B have PRF's present (potential roosting features);

Table 2: Trees with bat roost potential

Tree	Description	Bat Roost Potential	Photograph
1	Mature crack willow located on the southern boundary. A transverse-snap (impact shatter) has occurred along a limb at an approximate height of 2 m, facing north east. Another two transverse-snaps (impact shatter) have occurred on two other limbs at an approximate height of 2.5m, north west and east facing.	Moderate	

2 (TN5)	Semi-mature sycamore located along the northern site boundary (located furthest west in a group of four trees). A tear out, flaking bark and a single knot hole are present, south facing.	Low	
3 (TN5)	Semi-mature sycamore located along the northern site boundary (located furthest east within a group of four trees). The tree has a dead limb with flaking bark at an approximate height of 2.5 m, facing west.	Low	

Dusk Emergence Survey

- 3.36 No bats were recorded emerging from Tree 1 during the dusk emergence survey and bat activity throughout the duration of the survey was considered to be very low. Full details of bats recorded during each survey and their behaviour is listed below in Table 3.

Table 3: Bat activity during dusk emergence survey

Sam Robinson (Surveyor 1)		
Time	Species	Activity
21:46	Common pipistrelle	HNS (heard not seen)
22:06	Common pipistrelle	Foraging west to east and over scrub
22:17	Common pipistrelle	Commuting south to north
Luke Hall (Surveyor 2)		
Time	Species	Activity
22:01	Common pipistrelle	Commuting west to south east

- 3.37 During the dusk emergence survey on the 12th May 2021, a total of 4 common pipistrelle passes/foraging activity was recorded by the surveyors. The first common pipistrelle was recorded at 21:46, 43 minutes after sunset. The bat was heard faintly and not seen.

Other mammals

- 3.38 The hedgerow, scattered trees, unmanaged semi-improved grassland, rubble piles and scrub provide potential refuge for hedgehog, a SPI (Species of Principal Importance) and other small mammals. The data search returned two record for hedgehog, both dated 2019. The closest of which is located 430 m north east of Site B. It is likely that hedgehog is common in the area due to the presence of residential properties which provide foraging and nesting opportunities for the species.
- 3.39 A rabbit hole was located at Site A within the semi-improved grassland mound at TN 8 with mammal paths located under the fence line at Site B (TN1).

- 3.40 No records for badger were returned for the search area. The hedgerows and scrub/tree areas provide potential habitat for badger, however, no evidence of badger activity or their setts was recorded during the survey. Furthermore, the fragmented nature of the sites (surrounded by roads and residential dwellings) renders the area less suitable for badger settlement. They are therefore not considered further within this report.

Birds

- 3.41 The data search returned 10 records of notable bird species within 1 km of the site, including common starling (*Sturnus vulgaris*) grasshopper warbler (*Locustella naevia*), grey heron (*Locustella naevia*), grey partridge (*Perdix perdix*), herring gull (*Larus argentatus*), lesser black-backed gull (*Larus fuscus*), house sparrow (*Passer domesticus*), spotted flycatcher (*Muscicapa striata*) and swift (*Apus apus*). The hedgerow, scattered trees and scrub provide nesting and foraging habitat for tree nesting birds. The unmanaged grassland provides a foraging resource for birds such as starlings and potentially raptors and owls; however, the intensive use of the areas by dogs and the general public renders it unsuitable for ground-nesting bird species.

Reptiles

- 3.42 The site does provide some habitats that may be considered potentially suitable for reptiles such as common lizard, for example the brick wall, rubble piles, hedgerow and unmanaged semi-improved grassland. However, no records for reptiles were returned by the data search. Furthermore, the surrounding residential area and close proximity of roads suggest it is highly unlikely reptile species will utilise the site. These species will therefore not be considered further.

Amphibians

- 3.43 The data search returned 10 records for amphibians within 1 km of the sites including common frog (*Rana temporaria*) and common toad (*Bufo bufo*), a SPI. The closest of which was for a common frog located approximately 65 m north east of Site A. The record is dated 2010.
- 3.44 The closest record returned by the data search for great crested newt is located 1.5 km south east of Site B within the Herons Reach Golf Course/Marton Mere Habitat Complex (BHS), which lies south of the B5266 main road. The record is dated 2019. There is also a population of GCN within the ponds at the Carleton Cemetery Pond Cluster (BHS) located 800 m north of Site A.
- 3.45 Pond 1 (TN 8) has a HSI score of 0.6, indicating 'average' suitability for GCN. Habitat connectivity between the pond and Site B is optimal, comprising tree lines and hedgerows. Connectivity to Site A comprises lower value terrestrial habitat of residential gardens and roads.
- 3.46 The hedgerow, scattered trees, unmanaged semi-improved grassland, rubble piles and scrub provide good quality terrestrial habitat for GCN and other amphibian species.

Invertebrates

- 3.47 The data search returned 22 records of notable moth and butterfly species within 1 km of the sites. The closest records are for the buff ermine (*Spilosoma lutea*), shoulder striped wainscot (*Leucania comma*) and the white Ermine (*Spilosoma lubricipeda*) located 375 m south west of Site B. The records are dated 2008.
- 3.48 The unmanaged semi-improved grassland, hedgerow, scrub and scattered trees provide suitable habitat opportunities for a range of invertebrate species.

4. Evaluation of Habitats and Assessment of Potential Impacts

Scheme Proposal

- 4.1 An assessment of effects on ecological features has been made using the available design and survey information and the professional judgement of the ecologist. This includes a consideration of the relevant legislation (see Appendix A) and planning guidance. If there are changes to the proposals, the assessment would need to be reviewed.
- 4.2 The current proposals include the development of two separate residential estates with associated gardens and recreational areas. Current plans are for the development of 53 dwellings at Site A, and 48 dwellings, two blocks of flats and a drainage pumping station at Site B. It is understood that this will require the clearance of the majority of habitats within the Sites.

Designated Sites

- 4.3 Due to the distance (6 km) between the Sites and the Liverpool Bay (SPA) and no FLL (functionally linked land) present on the sites for listed bird species (sites are enclosed with unsuitable habitats and highly disturbed), it is therefore considered that there will be no likely significant effects upon the designated site as a result of the proposed developments. Designated sites are therefore not considered further within this report.

Non-Designated Sites & Habitats of Principal Importance (HPI)

- 4.4 It is anticipated that there will be no direct or indirect impacts to non - designated sites due to their distance from the site (800 m), they are therefore not considered further within this report.
- 4.5 The hedgerow along the western boundary of Site B will be lost to accommodate the proposals. This hedgerow appears to be of considerable age and is composed predominately of native woody species. It is considered to be of sufficient ecological value to qualify as a HPI and is considered 'important' under the HEGs regulations. Hedgerows provide structure in the landscape, habitat connectivity and creates habitat for a variety of species. Therefore, loss and/or a reduction of this habitat has the potential to result in a negative ecological impact, a reduction in the biodiversity value and fragmentation of habitats in the area.
- 4.6 It is anticipated that the proposed works on site will not directly impact deciduous woodland HPI due to its distance from the Site A (265 m). However, site clearance and activities have the potential to indirectly impact the HPI through an increase in dust pollution. Dust pollution reduces the availability of light for photosynthesis and can also alter the pH of soils which may affect the long-term success of plants and woodland within the HPI.
- 4.7 Impacts to remaining HPI's from the proposed developments are considered to be negligible due to their distances from sites and they are therefore not considered further within this report.

Habitats

- 4.8 Development of the sites will result in the loss of amenity grassland and ephemeral vegetation. These habitats are locally common and of limited ecological value.

- 4.9 The hedgerow (HPI), scrub and semi-improved grassland are relatively species rich and less frequent in the surrounding area, which is largely dominated by residential properties. They also provide structure in the landscape and create habitat for a variety of species (see below). Therefore, loss and/or a reduction of these habitats on the Sites has the potential to result in an adverse ecological impact, a reduction in biodiversity value and fragmentation of habitats in the area. Furthermore, whilst the semi-improved grasslands on Site are not diverse enough to be classified as a Habitat of Principal Importance, it is likely that they are significantly more species rich than that of the surrounding habitats that have been subject to urban sprawl and fragmentation, therefore loss of these small areas of grassland will result in a reduction in the biodiversity value of the wider landscape.
- 4.10 Current proposals may result in the reduction or removal of trees. Trees provide structure in the landscape, habitat connectivity and create habitat for a variety of species as discussed in paragraph 4.8. Works in proximity to the trees has the potential to impact RPAs, compromising the health and stability of the tree.
- 4.11 The scheme includes planting native trees, hedgerows and shrub, and a creation of long meadow areas. Once established, new planting with native species will provide cover, nesting, refuge and foraging opportunities for birds, bats and small mammals and provide pollinators with habitat through blossoms and flowers. Landscaping plans can be viewed in Appendix E.
- 4.12 Japanese knotweed (Site B) and cotoneaster (Site A) are non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended). Therefore, it is illegal to cause the spread of the plants in the wild. As well as causing structural damage to buildings, Japanese knotweed in particular is known to rapidly spread in the wild, and it creates dense stands that outcompete/shade native plant species resulting in a decline in native species diversity.

Fauna

Bats

- 4.13 The hedgerow, trees, scrub and semi-improved grassland provide foraging and commuting habitat for bats. Loss of these habitats has the potential to adversely impact upon foraging and commuting bats in absence of mitigation. Any additional lighting required as a result of the development also has the potential to negatively impact foraging and commuting bats in the area.
- 4.14 During the dusk emergence survey no bats were recorded to emerge from Tree 1 and the bat activity in the area was observed to be very low. Therefore, the likelihood of bats using the tree as roosting habitat is now considered to be of **low risk**. However, as bats are a mobile species and use a variety of roosting sites, occasional use of the tree by individual, opportunistic bats cannot be completely discounted. In the absence of appropriate mitigation, there is a **low** risk of causing harm or disturbance to individual bats during works, which would result in an offence.
- 4.15 If works are to impact upon other trees that have been assessed as having the potential to support roosting bats, there is a risk of injury/killing/disturbance to roosting bats, which may result in an offence (see Appendix A). Disturbance through noise or artificial lighting within close proximity to these trees also has the potential to adversely impact roosting bats.

Other mammals

- 4.16 Works impacting the hedgerow, trees, scrub, rubble piles and semi-improved grassland has the potential to impact small mammals including European hedgehog, a SPI, which

may hibernate/shelter in these habitats. Therefore, removal of these features may cause disturbance and/or direct harm to any small mammals present during the works if undertaken without due care and attention.

Birds

- 4.17 Removal of the semi-improved grassland has the potential to reduce the availability of foraging habitat for raptors and owls. However, due to high levels of disturbance of the areas by dog walkers/children and the residential nature of the surrounding area, it is considered that impacts to raptors and owls from the works is likely to be low. Furthermore, alternative higher value raptor and owl habitat is located to the south of Site B.
- 4.18 Impacts to the hedgerow, trees and scrub could adversely impact nesting birds if works are undertaken within the nesting bird season (March to August inclusive) and/or without due care and attention, which would constitute an offence (see Appendix A). The removal of this habitat will also result in the loss of suitable bird nesting and foraging habitat.

Amphibians

- 4.19 Impacts to the hedgerow, trees, scrub, rubble piles and semi-improved grassland has the potential to impact amphibians that may be sheltering in this habitat if works are undertaken without due care and attention. Clearance of this habitat may also result in the loss of refuge habitat for the species.
- 4.20 It is considered that the risks of encountering GCN are low as: 1) The closest record for GCN is located at least 800 m from Site A with connecting habitat comprising residential gardens and roads (sub-optimal) 2) The population to the south is south of the B5266 road barrier (1.5 km away) and 3) the isolated nature of the single pond within 250 m of the sites (no ponds within 1 km). However, encountering individual GCN within suitable terrestrial habitats (hedgerow, scrub, rubble piles, scattered trees and semi-improved grassland) cannot be entirely ruled out.

Invertebrates

- 4.21 The removal of semi-improved grassland, trees and scrub habitats has the potential to result in the loss of valuable habitat for invertebrates, which may potentially be present within the developmental areas. As such, loss of this habitat would likely result in a negative ecological impact.

5. Recommendations

- 5.1 This section provides the required measures to mitigate potential impacts of the proposed development. A key element of the National Planning Policy Framework is to minimise impacts to biodiversity and provide enhancements. Paragraph 109 states that '*The planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible*'. It also states in Paragraph 118 that '*when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by encouraging opportunities to incorporate biodiversity in and around developments.*' This section also therefore includes suggested enhancement measures. The following recommendations are designed to comply with legal requirements and national and local planning policy.

Habitats of Principal Importance

- 5.2 It is understood that the hedgerow (HPI) at Site B will be impacted by the works. As such the local planning authority must be consulted and permission for its removal sought. If works are granted, the hedgerow shall be replaced on a 2:1 ratio with suitable native species saplings of local provenance. Suitable species are given in Appendix F.
- 5.3 Appropriate pollution prevention measures will be adhered to throughout the construction period to ensure that the hedgerow and deciduous woodland HPI will not be adversely impacted during the works. This will include (but not limited to) the following measures during site clearance and construction:
- Maintaining high standards of housekeeping;
 - Using dust barriers;
 - Dampening down working areas in dry periods;
 - Following strict biosecurity measures during works to ensure non-native invasive species are not spread. This will include thoroughly cleaning all machinery, tools and footwear prior to taking on site and on each subsequent visit;
 - Adhering to all relevant guidance on ground water and soils;
 - Keeping the number of vehicle and personnel journeys on and off site to a minimum to reduce erosion and the chance of introducing non-native invasive species;
 - Using covered wagons and skips; and
 - Keeping roads clean with the use of road sweepers.

Habitats

- 5.4 The following measures will be undertaken to mitigate the potential impacts to mature trees and the hedgerow:
- Protective fencing will be installed prior to works commencing to protect trees and the hedgerow from any machinery ingress, or storage of machinery or materials;
 - It is advised that a Root Protection Area (RPA) of the tree/hedgerow is marked off prior to works, and no works will be undertaken within the designated RPA; and
 - Dust reduction measures; see paragraph 5.3.
- 5.5 Trees will be retained where possible. Where this is not possible, suitable mitigation for their loss will be implemented within future landscaping plans for the Sites. Specifically, the replanting of new trees/scrub at a 2:1 ratio to those lost. Species used for planting will

be native, appropriate to the locality and sourced locally. Planting will be undertaken at an appropriate time of year (autumn or early spring when there is no ground frost) and specimens protected from grazing by rabbits and deer (see Appendix F for suitable species).

- 5.6 A large area of semi-improved grassland will be lost as part of the development of the Sites. Therefore, compensation for the loss of this habitat will be in the form of long meadows using seed mixes of local provenance and the use of low fertility substrates within areas set aside for grassland management (approximately 5 m in width - Site A; within the pocket park and around the school green, Site B; around the community green and sheltered garden). It is also advised that a less intensive management/mowing regime of wildflower grassland areas is implemented to allow grasses and herbs to flower and seed.
- 5.7 The following control measures will be undertaken to prevent the spread of Schedule 9, non-native invasive plant species on the Sites during any future works;
- Contractors to be made aware of the location of Japanese knotweed and cotoneaster;
 - Marking off all stands of the aforementioned species with hi-visibility netlon fencing; and
 - Biosecurity measures to be implemented whilst on Site to prevent cross contamination. This involves the cleaning of footwear and machinery, prior to, and on completion of each working window to ensure that invasive species are not taken off Site.
- 5.8 Under the Environmental Protection Act 1990 Sections 33 and 34, Japanese knotweed must be treated as controlled waste. As such, all arisings and potentially contaminated soil from the plant must be disposed of in an appropriate manner to ensure that the waste does not cause pollution of the environment.

Fauna

Bats

- 5.9 See paragraph 5.2, 5.4 and 5.5 on hedgerow and tree mitigation to ensure the continuation of foraging and commuting opportunities for bats within the area is maintained. Nectar rich shrub and tree species should be planted within the recreational areas to attract insects and provide additional foraging opportunities for bats.
- 5.10 During the construction phase, no artificial lighting should be utilised outside daylight hours. Any new lighting schemes during the construction and operational phases should be designed in accordance with the appropriate guidance (BCT & ILP 2018) to minimise the impacts on foraging bats likely to be utilising the surrounding habitats. This document includes (but not limited to) measures such as:
- Use of low-pressure sodium lamps or high-pressure sodium instead of mercury or metal halide lamps; and
 - Lighting should be directed to where it is needed and light spillage avoided, particularly avoided along the west and southern boundaries.
- 5.11 As bats are a mobile species, they may occasionally utilise Trees 1, 2 and 3 (**low** potential) at any time. If works are to impact these trees, it is advised the following Reasonable Avoidance Measures (RAMs) are adhered to throughout the duration of the felling works. If bats are found or suspected, as a legal requirement, works in that area should cease immediately until further advice has been sought from Natural England or the scheme ecologist. The following recommendations should also be adhered to throughout the duration of the works:

- Before any work proceeds, all contractors should be made aware of the possible presence of bats;
- Careful timing of works is recommended. For works to conform with best ecological practice, felling works will be scheduled to occur within the period of least impact to bats – (between October and March due to absence of hibernation potential). If this is not possible, then a **soft felling** technique will be adhered to. Any limbs with features that bats could use (gaps from flaking bark, tear out, knot hole, dead limb, broken limbs) will be lowered to the ground carefully and felled wood left in-situ for 24 hours with any potential bat access points be left upward facing to allow any roosting bats to relocate.
- Works should cease immediately if bats are encountered at any time and only resume once further advice from the scheme ecologist has been sought. If the bat is in immediate danger it should only be picked up with **gloved hands** and placed in a secure container with air holes in a dark, quiet place until the scheme ecologist / an appropriately licenced ecologist arrives at site.

5.12 Mitigation for the loss of bat roosting habitat comprises the installation of two Schwegler 2F general purpose bat boxes on two suitable, mature trees that are to be retained. The bat boxes will be orientated south/south westerly, to ensure they receive sufficient sunlight and are sheltered from strong winds. If damaged, the boxes will be repaired or replaced on a like for like basis.

Other mammals

5.13 It is recommended that contractors are made aware of the likely potential presence of small mammals, including hedgehog on site. Vegetation clearance will be undertaken with care to avoid disturbance to sheltering/hibernating mammals. Any debris from works will not be left on site and any holes, trenches or trial pits associated with works will be covered overnight or fitted with egress boards to prevent animals becoming trapped. The two deep uncovered excavation holes at Site A need to be covered. Any small mammals found within the works area during construction will be carefully relocated to a sheltered location with plenty of vegetation cover, in an area off site which will remain undisturbed.

Birds

5.14 No works to the hedgerow, trees and scrub should be carried out during the breeding bird season (March to August inclusive) to avoid impacts on nesting birds.

5.15 Any works to the aforementioned habitats that must be carried out within the breeding bird season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist. No works will be carried out within 5 m of an identified nest until the young have fledged and are no longer returning to the nest site. Works will only be undertaken once a scheme ecologist has declared the nest to be no longer in use.

Amphibians

5.16 It is considered unlikely that GCN are present within the working area. However, the presence of GCN cannot be entirely ruled out and it is recommended that contractors are made aware of the potential presence of this species and other amphibians on site. It is considered that Reasonable Avoidance Measures (RAMS) are appropriate to mitigate for the low risk to GCN and therefore reduce to a negligible level:

- Contractors will be made aware of the potential for common amphibians and GCN utilising suitable habitats on site;
- Any vegetation to be cleared will be initially cut to 150 mm to reduce its suitability for sheltering and/or foraging. The area will be left for 24 hours to allow any animals to disperse;

- A walkover to check for the presence of amphibians will be undertaken by a suitably qualified ecologist **prior** to cutting the vegetation to ground level;
- Any common amphibians encountered will be moved to a suitable location outside of the working area;
- Should any GCN be encountered, works will stop immediately, and the project ecologist will be contacted for further advice;
- All equipment and/or materials will be stored on hard standing/raised from the ground to reduce its suitability as refugia;
- Any stockpiled soils or other materials will be compacted or covered so as to not provide potential refugia for amphibians;
- Suitable habitats and potential refugia such as piles of materials/vegetation will be checked prior to disturbance; and
- Any excavations associated with works will be covered overnight to prevent any animals from becoming trapped within them, if holes must be left open then they must have a means of escape (e.g. a plank).

Invertebrates

- 5.17 The re-instatement of grassland habitats as described above will ensure the continuation of invertebrate habitat on site.

Enhancement measures

- 5.18 As designs for the site develop an ecologist can provide site specific advice on ways to provide enhancements, in addition to mitigation, to improve the wildlife value of the final development and contribute towards a net gain in biodiversity. Simple examples of enhancement measures which could be considered and designed into the proposals include (but are not limited to):

- Installation of additional wildlife boxes (bird & bat) on suitable trees;
- Additional plantings within the new developments would provide foraging habitat for a variety of species, and therefore have the potential to increase the biodiversity value of the areas. Native, nectar rich plants that attract insects would be recommended as they will enhance foraging opportunities for bats and birds in the local area;
- Additional planting of trees and shrubs will also provide terrestrial habitat for amphibians and arisings from vegetation removal can be retained and used to create hibernacula in recreational areas of the developments;
- Provision of artificial or natural hedgehog boxes located in a quiet, undisturbed area with ground covering vegetation, preferably against a hedgerow, wall or fence. For example, three or four logs may be arranged to leave an appropriate sized hole for a hedgehog to nest in (big enough for the hedgehog and its nest) and covered with masses of twigs and leaves. Retaining wood piles attracts invertebrates and fungi, providing a local food source for hedgehogs and possible nesting sites (materials from site works could be used for this purpose).

Re-survey of the Site

- 5.19 If no works are undertaken on site within 12 months of this survey, or if any changes to the proposals are made, a further ecological survey may be necessary (because of the mobility of animals and the potential for colonisation of the site).

6. References

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Appendix A - Summary of Relevant Legal Information³

Species	Legislation	Offences	Notes on licensing procedures and further advice
Species that are protected by European and national legislation			
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2017 Reg 41	Deliberately ¹ capture, injure or kill a bat; Deliberate disturbance ² of bats; Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.	An NE licence in respect of development is required in England. <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010) <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004)
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Conservation of Habitats and Species (Amendment) Regulations 2017	<ul style="list-style-type: none"> N/A 	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions.
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.1	Intentionally kill, injure or take any wild bird; Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; Intentionally take or destroy the nest or eggs of any wild bird. Schedule 1 species: Special penalties are liable for these offences involving birds on Schedule 1.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.	Licences issued for science (survey), education and conservation by NE.
Great crested newt <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 Reg 41	<ul style="list-style-type: none"> Deliberately¹ capture, injure or kill a great crested newt; Deliberate disturbance² of a great crested newt; Deliberately take or destroy its eggs; Damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by NE. https://www.gov.uk/great-crested-newts-protection-surveys-and-licences <i>European Protected Species: Mitigation Licensing - How to get a licence</i> (NE 2010) <i>Great Crested Newt Mitigation Guidelines</i> (English Nature 2001)
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.	Licences issued for science (survey), education and conservation by NE.

³ This report provides guidance of potential offences as part of the impact assessment. This report does not provide detailed legal advice and for full details of potential offences against protected species the relevant acts should be consulted in their original forms i.e. The Wildlife and Countryside Act, 1981, as amended, The Countryside and Rights of Way Act 2000, The Natural Environment and Rural Communities Act, 2006 and The Conservation of Habitats and Species Regulations 2010.

Species	Legislation	Offences	Notes on licensing procedures and further advice
Rabbits, foxes and other wild mammals. For BAP species and Species of Principal Importance, see below	Wild Mammals (Protection) Act 1996	Intentionally inflict unnecessary suffering to any wild mammal.	Natural England provides guidance in relation to rabbits (Technical Information note TIN003, Rabbits- management options for preventing damage, July 2007) and foxes (which are also protected under the Wildlife and Countryside Act 1981 from live baits and decoys, see Species Information notes SIN003 (2011), <i>Urban foxes</i> and SIN004 (2011) <i>The red fox in rural areas</i> as well as other wild mammals. Lawful and humane pest control of these species is permitted.

¹Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing ²Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong. Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance. ³The term ‘reckless’ is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk. ⁴ The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <http://jncc.defra.gov.uk/page-1377>.

Habitats & Species	Legislation (England & Wales)	Guidance
Species and Habitats of Principal Importance for the Conservation of Biodiversity	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	<p>S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England.</p> <p>Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretaries of State for England and Wales, in consultation with NE, are referred to in S.41 of the NERC Act for England. The list of habitats and species was updated in 2008:</p> <p>England: http://www.ukbap-reporting.org.uk/news/details.asp?x=45</p> <p>The habitats and species listed are not necessarily of higher biodiversity value, but they may be in decline. Habitat Action Plans and Species Action Plans are written for them or are in preparation, to guide their conservation.</p> <p>Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.</p>
Hedgerows	The Hedgerow Regulations 1997	<p>Under the regulations, it is against the law to remove or destroy hedgerows that are classified as “important” under the regulations without permission from the local planning authority. The regulations apply if a hedgerow is in or runs alongside agricultural land, common land including town or village greens, land used for forestry or for the breeding or keeping of horses etc, a local nature reserve or Site of Special Scientific Interest. A hedgerow can be classified as ‘Important’ due to its wildlife and landscape value or due to its heritage value. In general, permission will be required before removing hedges that are at least 20 metres in length, over 30 years old and contain certain species/diversity of plant. The local planning authority will assess the importance of the hedgerow using criteria set out in the regulations.</p> <p>See Defra and Natural England websites for further guidance and information.</p>

Appendix B - Bat Roost Potential Criteria (Collins, 2016)

Suitability	Description of Roosting Habitat	Commuting & Foraging Habitats
Negligible	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.
Low	<p>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 habitats to be used on a regular basis or by a larger number of bats (i.e. unlikely to be suitable maternity or hibernation).</p> <p>A tree of sufficient size and age to contain potential roosting features but with none seen from the ground, or feature seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>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.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.	<p>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.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water.</p>
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	<p>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.</p> <p>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.</p> <p>Site is close and connected to known roosts.</p>

Appendix C - Target Notes

Site A

Target Note	Details	Photo
TN 1	<p>Cotoneaster is present at two locations within the dense scrub at the north western corner of the site.</p>	
TN 2	<p>Dense ornamental and native scrub is present at the northern perimeter and northern end of the western boundary. Species include privet (<i>Ligustrum sp.</i>), butterfly bush (<i>Buddleja davidii</i>), laurel (<i>Laurus nobilis</i>) and common heather (<i>Calluna vulgaris</i>).</p> <p>Two deep, uncovered, excavation holes are present at the north western corner of the site, adjacent to the dense scrub. The holes are currently filled with household waste.</p>	 
TN 3	<p>Semi-improved neutral grassland is present at the northern half of the site. The grassland is unmanaged resulting in a moderate sward height. Species include Yorkshire fog (<i>Holcus lanatus</i>), red fescue (<i>Festuca rubra</i>), timothy (<i>Phleum pratense</i>), cocks-foot (<i>Dactylis glomerata</i>), tufted hairgrass (<i>Deschampsia cespitosa</i>), yarrow (<i>Achillea millefolium</i>), ribwort plantain (<i>Plantago lanceolata</i>) and teasel (<i>Dipsacus fullonum</i>). Some areas are damper in nature and contain occasional compact rush (<i>Juncus conglomerates</i>) and common reed (<i>Phragmites australis</i>).</p>	

Target Note	Details	Photo
TN 4	<p>Ephemeral vegetation with some areas of bare earth is present at the northern section of the site. The area is heavily disturbed with numerous small to moderate sized, shallow ephemeral pools present. These are likely to have been numerous at the time of the survey due to the recent heavy rainfall. Species include tufted hairgrass, Yorkshire fog, and chickweed (<i>Stellaria media</i>), with occasional compact rush and butterfly bush.</p>	
TN 5	<p>The south western quarter of the site comprises managed amenity grassland resulting in a short sward height with perennial rye grass (<i>Lolium perenne</i>) dominating the grassland. A wooden ornamental structure is present within the grassland.</p>	
TN 6	<p>A fenced area that had no access at the time of survey due to a locked gate. The area contains two metal shipping containers, metal fencing, skips and remnants of an old building (small brick wall still present with no bat roost potential) and rubble piles. Ephemeral vegetation and a semi-improved grassland strip is present within the compound with species composition similar to TN 3 and TN 4.</p> <p>A further three more metal shipping containers on hardstanding are present to the south of the compound.</p>	 
TN 7	<p>A mature beech (<i>Fagus sylvatica</i>) and hawthorn (<i>Crataegus monogyna</i>) are present at the eastern perimeter. The hawthorn has a split in the trunk, however not a suitable PRF due to its shallow nature.</p>	

Target Note	Details	Photo
TN 8	Spruce, elder and apple (<i>Malus x robusta</i>) trees are present on a raised mound within the semi-improved grassland with a potential rabbit hole present within the vegetation.	

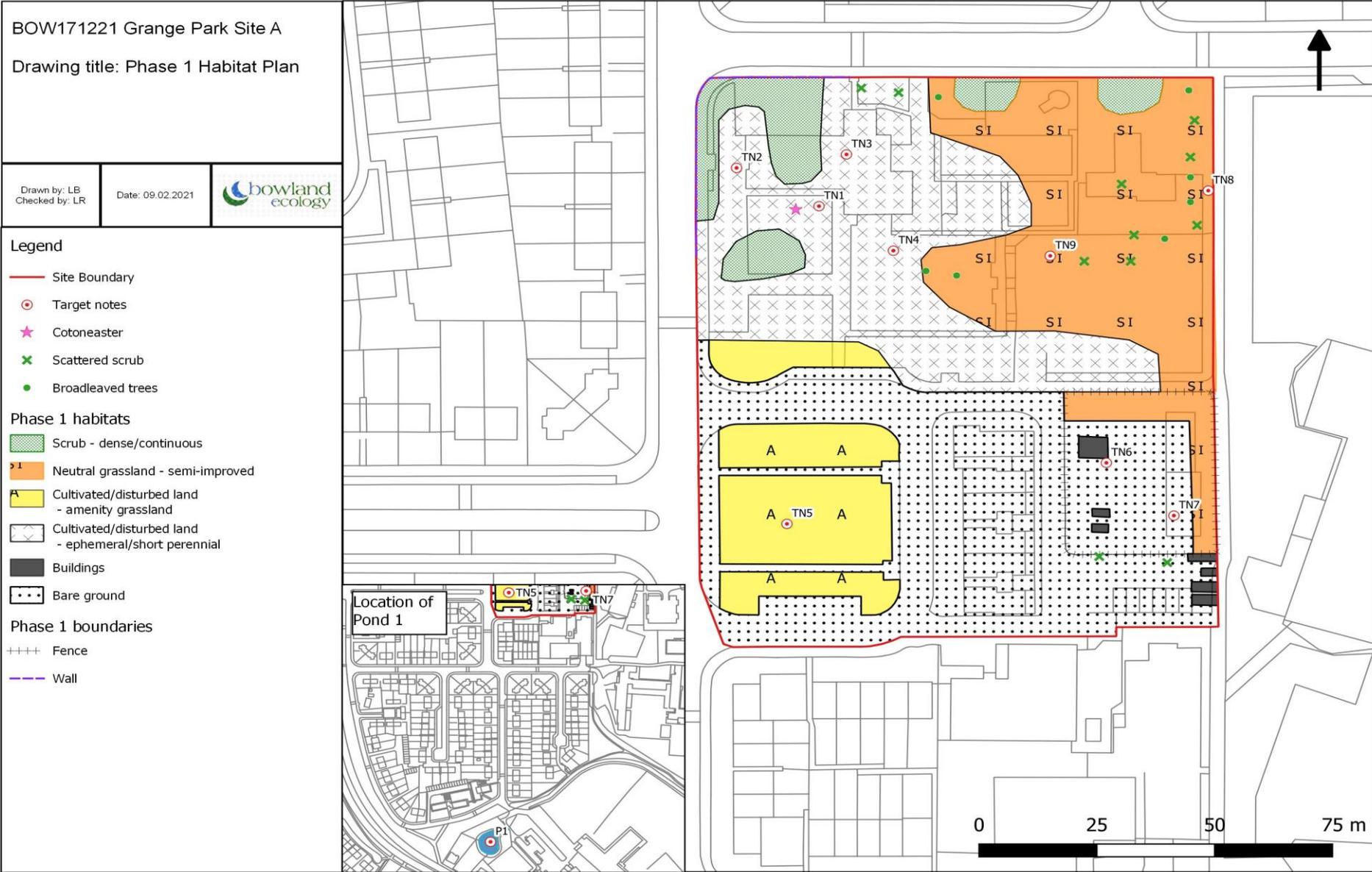
Site B

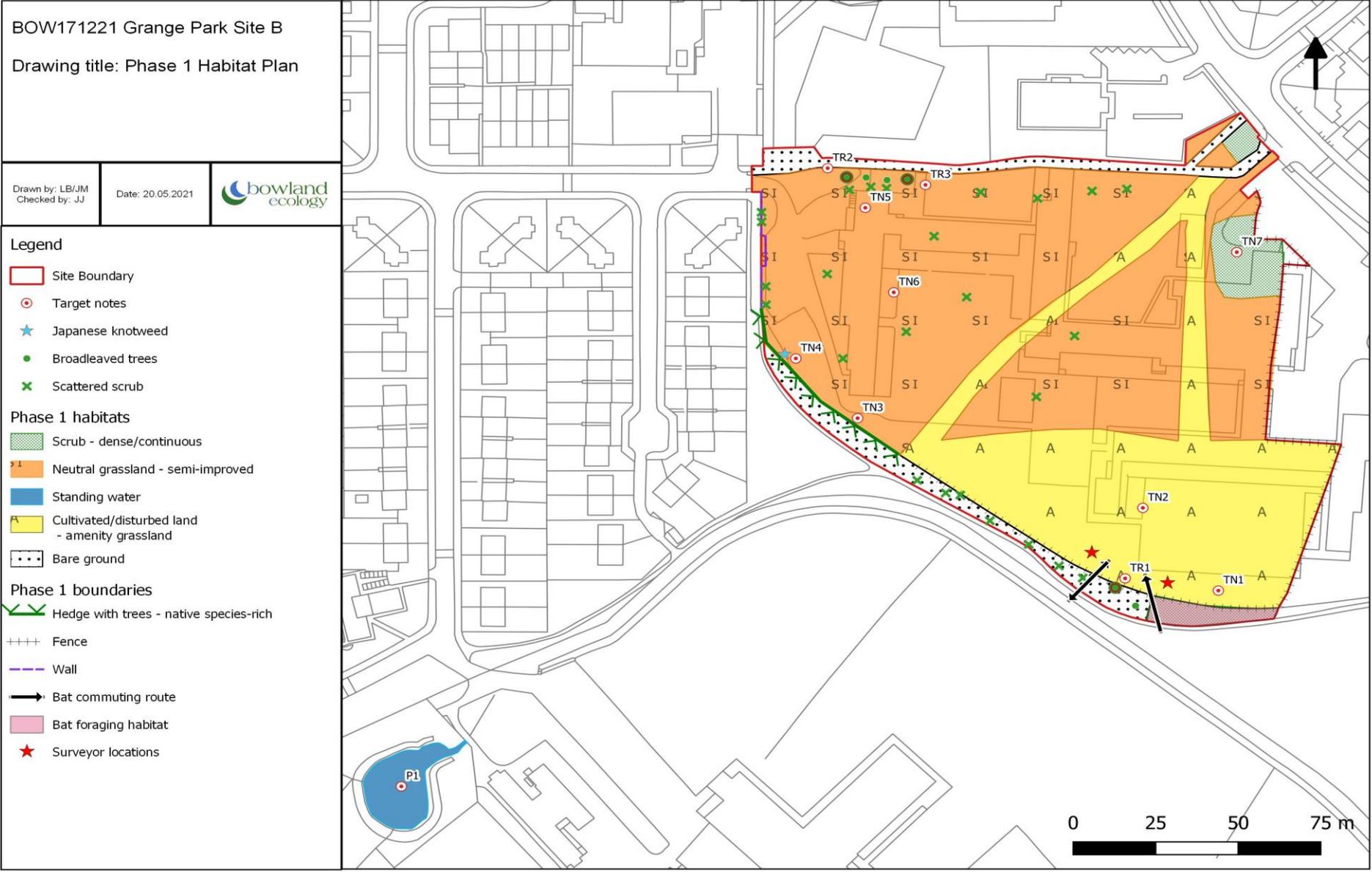
Target Note	Details	Photo
TN 1	Mammal paths, probably rabbit, are present under the metal fence line boundary at the southern perimeter of the site. The paths lead from the amenity grassland to the bramble scrub adjacent to the site.	
TN 2	The southern half of the site is evidently mown resulting in a short grassland sward. Species include perennial rye grass, Yorkshire fog, red fescue, creeping buttercup and ragwort (<i>Jacobaea vulgaris</i>). Two mown footpaths are present through the site.	
TR 3	A species rich hedgerow, a HPI, with semi-mature trees is present on the western boundary, adjacent to the public footpath. The hedgerow is unmanaged, measures approximately 3 m high, 1.5 m in width and 70 m in length, with a small brick wall running adjacent for approximately half the hedgerows length. The canopy is dominated by wild privet (<i>Ligustrum Vulgare</i>), with occasional hawthorn (<i>Crataegus monogyna</i>), crack willow (<i>Salix fragilis</i>), elder, sycamore (<i>Acer Pseudoplatanus</i>) and wych elm (<i>Ulmus Glabra</i>). The ground flora is dominated by bramble with a layer of leaf litter also present. The scrub and scattered trees to the south are possible remnants of the original larger hedgerow. The hedgerow is classed as 'important' under the Hedgerows Regulations 1997.	

Target Note	Details	Photo
TR 4	A single stand of Japanese knotweed (<i>Fallopia japonica</i>) is present within the hedgerow.	
TR 5	<p>An area of scrub and four semi-mature sycamore trees is present along the northern perimeter. Scrub species include common broom (<i>Cytisus scoparius</i>), elder, blackthorn (<i>Prunus spinosa</i>) and wild privet.</p> <p>Tree 2 and 3 have low bat roost potential (see Table 1).</p>	
TR 6	<p>Semi-improved neutral grassland is present at the northern portion of the site. The grassland is dry and unmanaged resulting in a moderate sward height. The area is subject to high levels of disturbance by dog walkers and children. Species include Yorkshire fog, red fescue, tufted hairgrass, crested dog's tail (<i>Cynosurus cristatus</i>), creeping buttercup (<i>Ranunculus repens</i>), sedge sp. (<i>Carex</i> sp.) and fleabane (<i>Erigeron</i> sp.). Some areas are damper in nature with occasional common reed, compact rush and greater horse tail (<i>Equisetum telmateia</i>) present.</p> <p>Fruit tree planting is present on the northern boundary (species unknown) with numerous common broom, common gorse, and dogwood saplings present within the grassland.</p>	

Target Note	Details	Photo
TN 7	An area of dense scrub is present within the semi-improved grassland at the eastern perimeter. Species include semi-mature ash (<i>Fraxinus excelsior</i>) and alder (<i>Alnus glutinosa</i>) with elder, rose sp. (<i>Rosa</i>) and ornamental laurel and Laurustinus (<i>viburnum</i>) shrubs.	
Tree 1	Mature crack willow located at the southern boundary. A transverse-snap (impact shatter) has occurred at the limb at an approximate height of 2 m causing it to hang over the fence line. Two further transverse-snaps (impact shatter) have occurred on adjacent limbs at an approximate height of 2.5m, north west and east facing. The tree is now considered to provide low bat roosting potential following the dusk emergence survey.	
P1	There are no ponds within the site boundary, however, one waterbody is located within 250 m of both developmental areas. Pond 1 is located 165 m south west of Site B and 250 m south of Site A. The pond is approximately 375m ² located within the Christ the King Catholic School grounds. The surrounding habitat comprises dense scrub and young to semi-mature trees. Aquatic vegetation includes a small area of bulrush (<i>Scirpoides holoschoenus</i>) and duckweed (<i>Lemnoideae</i> sp.) The pond scored a HSI of 'average' suitability for GCN.	

Appendix D - Phase 1 Habitat Plans





Appendix E – Proposed Site Plans





- Key**
- Existing Trees/ Hedges Retained
 - Existing Trees/ Hedges Removed
 - Proposed Trees/ Hedges
 - Public Green Space
 - Residential Gardens
 - Childrens Play
 - Pedestrian
 - Upgraded Cycle/ Pedestrian route
 - Parking Space

- Housing Mix**
- DT1 30 No. 4 bed 2 person Flats
 - DT2 23 No. 2 bed 4 person 2 Storey Home
 - DT3 8 No. 3 bed 5 person 2 Storey Home
 - DT4 7 No. 4 bed 5 person 2 Storey Home
 - DT5 4 No. 5 bed 7 person 3 Storey Home
 - DT6 3 No. 6 bed 8 person 3 Storey Home
 - DT7 5 No. 2 bed 4 person Bungalow
- 78 Total

Proposed Site Plan B

Client Blackpool Council/BHC/BCH			
Project Grange Park Proposed Housing			
Drawing No Proposed Site Plan B			
Created	DC	Updated	LMB
Date	15/09/2021	Version	As Indicated
Ref	10657	Page	P03
Architects + Planning + Urban Design + Tree Planning 1 Black Cliff, Preston, Lancashire, PR1 1LZ 11 Riverside, Central Blackpool, Lancashire, FY1 1PS			

Appendix F - Suggested Species for Tree and Shrub Planting

Tree and shrub planting mix						
Scientific name	Common name	Location / Landscape Type		Local Conditions		
		County Wide	Lowlands Below 75m	Soil	Hydrology	
				Neutral	Damp	Dry
<i>Betula pendula</i>	Silver Birch		*	*		*
<i>Betula pubescens</i>	Downy Birch		*	*	*	
<i>Corylus avellana</i>	Hazel		*	*		*
<i>Crataegus monogyna</i>	Hawthorn	*	*	*		*
<i>Ilex aquifolium</i>	Holly	*	*	*		*
<i>Malus sylvestris</i>	Crab Apple		*	*		*
<i>Prunus avium</i>	Wild Cherry		*	*		*
<i>Prunus padus</i>	Bird Cherry			*		*
<i>Prunus spinosa</i>	Blackthorn		*	*		*
<i>Quercus petraea</i>	Sessile Oak					*
<i>Quercus robur</i>	Pedunculate Oak		*	*		*
<i>Rosa arvensis</i>	Field Rose		*	*		*
<i>Rosa canina agg.</i>	Dog Rose		*	*		*
<i>Salix caprea</i>	Goat Willow		*	*	*	
<i>Salix cinerea</i>	Grey Willow		*	*	*	
<i>Sambucus nigra</i>	Elder		*	*		*
<i>Sorbus aucuparia</i>	Rowan	*	*	*		*
<i>Viburnum opulus</i>	Guelder-rose		*	*	*	