



Witherslack Group

Lakeside School, Liverpool

ECOLOGICAL APPRAISAL REPORT

April 2021

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1.0 NON-TECHNICAL SUMMARY

- 1.1 FPCR were commissioned on behalf of the Witherslack Group to undertake an ecological assessment at Lakeside School, Liverpool (centered around OS Grid Reference SJ 437 893). The aim of the assessment was to identify any ecological constraints in relation to a proposed development of the Site.

The proposals involve the expansion of Lakeside School, which is currently located in the south-western corner of the Site boundary, into the adjoining derelict riding school site to the north and east of the main school site. The proposals include the construction of new school buildings and car park areas in the eastern and northern sections of the Site. A Multi-Use Games Area (MUGA) facility will also be constructed to the north of Building B6, and areas of green space created throughout the Site. Some works are proposed within the main school site, for example an area of existing car park is to become a play area. The proposals will require the demolition of numerous buildings and the removal of habitats, mainly in the central, northern and eastern sections of the Site. A small proportion of the woodland along the southern boundary to the west of the current Lakeside School site is also to be removed in order to improve access from Naylor's road.

- 1.2 The Site comprises of a school and a derelict riding school. There are 19 buildings/structures and a pond stocked for fishing on Site. Other habitats present include semi-natural broadleaved woodland, scrub, poor semi-improved grassland, tall ruderal, amenity grassland, introduced shrub, bare ground and hardstanding (Figure 2).
- 1.3 The Mersey Estuary and New Ferry (SPA, RAMSAR, SSSI) is c.7km south of the Site. Due to the scale of the proposal and the lack of suitable habitat provision on Site for wetland birds, no negative impacts on these designated sites are anticipated.
- 1.4 Two Local Wildlife Sites are present within 1km of the Site, the closest of which is Ten Acre Pits, over 400m from the Site (Figure 1). These sites will not be directly affected by this development due to their distance from the application area, the nature of the intervening and buffering habitats and the small-scale nature of the current proposals. A Nature Improvement Area borders the site, but the proposed development is unlikely to impact on the functionality of the wildlife corridor.
- 1.5 Survey work included:
- Extended phase 1 habitat surveys on 25th September 2019 20th May 2020;
 - Internal / external building assessments for bats were carried out on 25th September 2019 and 20th May 2020;
 - Nocturnal presence / likely absence surveys for bats were carried out on 1st October 2019, 3rd June 2020, 4th June 2020 and 18th June 2020;
 - eDNA sampling to determine presence/ absence of Great Crested Newts (GCN) was carried out on 20th May 2020;
 - Barn owl surveys were carried out on 25th September 2019 and 20th May 2020; and
 - Badger surveys were carried out on the same dates.
- 1.6 Most habitats on Site were considered to be of low conservation importance, although the woodland and scattered trees provide potential habitats for invertebrates, nesting birds and other local wildlife, as well as providing structural diversity and continuity of habitat. It is recommended

that the section of woodland within the current Lakeside School Site – along the southern and western Site boundary – is retained.

- 1.7 No evidence of roosting bats was noted in association with any of the structures during internal/external assessment surveys. However, subsequent nocturnal presence/ likely absence surveys identified small numbers of common species roosting in association with two buildings (B1 & B2). Mitigation will be necessary to facilitate demolition which will need to be undertaken under a European Protected Species (EPS) Mitigation Licence. Given the small size and low status of the roost sites, licensing should comprise of registration of the site through a 'low impact' mitigation class licence to allow low impact work on bat roosts (CL21).
- 1.8 One tree provided high bat roosting potential due to an attached bat box (Figure 3). This tree was located within the current Lakeside School site and is within the section of woodland along the Southern boundary which is to be retained. If this is not feasible, further surveys will be required prior to removal. All other trees were considered to have negligible or low bat roosting potential from the ground level.
- 1.9 Several bird nests were observed in buildings and areas of scrub throughout the derelict riding school. It is recommended that this is carried out outside of the nesting season (March – August inclusive) or if this is not feasible, all vegetation to be removed should be checked by an experienced ecologist for the presence of active nests.
- 1.10 Notable evidence of barn owls (pellets and splashing) was found throughout the barn (B1) in 2019 and 2020, but no evidence of nesting barn owls was found in May 2020 during a barn owl survey. However, buildings should be checked by an appropriately licenced ecologist for evidence of all nesting birds (not just barn owls) prior to development. As proposals will likely result in the loss of a roost site, good practice guidelines should be followed to result in continuity of roosting opportunities for barn owl. This may include the installation of a temporary alternative roost nearby and providing a permanent roosting place inside the developed buildings.
- 1.11 The nearest GCN record was c.700m from the Site boundary. During the initial survey, a single pond was identified within the Site boundary, with a HSI score of 'Poor' and a predicted GCN presence of 3% and absence was later confirmed through the use of eDNA sampling. It is unlikely that GCN would present a constraint to development of the site considering the distances to other ponds in the area.
- 1.12 No reptile records were found within 1km of the Site. The site was considered suitable for reptiles given the presence of several natural (dead wood piles) and man-made (rubble piles, metal sheeting) refugia along with the areas of scattered scrub, rough grassland, and degraded hardstanding. No reptile surveys were conducted, so it is recommended that presence is assumed and works are carried out following a precautionary method statement and suitable reptile habitat is provided within the final scheme.
- 1.13 In line with the National Planning Policy Framework (NPPF), it is recommended that the development of the site results in a net gain in value for wildlife via the use of ecological enhancement measures. In addition to the recommendations with respect to individual species and habitats outlined above, opportunities within the scheme for general biodiversity enhancements have been outlined.

2.0 INTRODUCTION

- 2.1 The following report has been prepared by FPCR Environment and Design Ltd. on behalf of the Witherslack Group. It provides the results of an Extended Phase 1 Habitat Survey and additional protected species surveys undertaken at Lakeside School and the adjoining derelict riding school (central OS grid reference: SJ 437 893) in 2019 and 2020. The Site is located just off Naylor's Road to the east of Liverpool.
- 2.2 The Site is 2.19ha in extent, encompassing a school and a derelict riding school. This area is indicated by the red line boundary on the figures and referred to as 'Site' throughout the report.
- 2.3 There are 19 associated buildings/structures situated towards the east of the Site, and a fishing pond located in the south-western corner of the Site. Other habitats present include semi-natural broadleaved woodland, scrub, poor semi-improved grassland, tall ruderal, amenity grassland, introduced shrub, and hardstanding.
- 2.4 In terms of the immediate surroundings, disused paddocks (consisting of poor semi-improved grassland) and arable farmland surround the Site to the north, east and west. Naylor's Road borders the Site to the south, with golf courses beyond.
- 2.5 The objective of this report was to gain an understanding of the baseline ecology of the Site and immediate surrounding area, and to determine whether the Site supports, or has the potential to support, protected species. This involved a desk study and an Extended Phase 1 Habitat survey as well as additional protected species surveys (GCN, bats and barn owls).

Proposals

- 2.6 The proposals involve the expansion of Lakeside School, which is currently located in the south-western corner of the site boundary, into the adjoining derelict riding school site to the north and east of the main school site. The proposals include the construction of new school buildings and car park areas in the eastern and northern areas of the Site. A Multi-Use Games Area (MUGA) facility will also be constructed to the north of B6 and green space areas created throughout the Site. There are some works proposed within the main school site, for example an area of existing car park is to become a play area.
- 2.7 The proposals will involve the demolition of numerous buildings (B1a-d, B2, B3, B4, B5, B8, B9, B10, B11, B12, B13, B14, B15a-b, B16a-b, B17, B18, and B19) and the removal of habitats, mainly in the central, northern and eastern sections of the Site. A small proportion of the woodland along the southern boundary to the west of the current Lakeside School site is also to be removed in order to improve access from Naylor's road.

Previous Ecological Reports

- 2.8 FPCR produced an Ecological Appraisal for Lakeside School in November 2019. The site boundary covered Lakeside School, and just a part of the derelict riding school (Building B1). For this current report, the Site boundary has been considerably extended to the north and east to include the majority of the derelict riding school.

- 2.9 An extended Phase 1 Survey and Baseline EcIA was previously produced by Crook & Associates for the parts of the eastern half of the Site (the buildings and eastern section) in November 2015¹. For that report, bat surveys of the buildings and a great crested newt *Triturus cristatus* (GCN) survey of the pond were carried out. No conclusive evidence of roosts was reported, and no GCN were recorded in the on-site pond P1. Evidence of barn owl *Tyto alba* were recorded within three buildings on-site (B1, B14, B15), but were not confirmed as breeding.

3.0 METHODOLOGY

Desktop study

- 3.1 To support the field survey and further compile existing baseline information relevant to the Site, ecological information was sought from Merseyside BioBank Local Environmental Records Centre (LERC), including records of protected or notable species and sites designated for nature conservation interest.
- 3.2 Online sources of ecological data were also sought including the Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk).
- 3.3 The search area of interest varied depending upon the likely significance and zone of influence of the data requested, as follows:
- a minimum of a 10km radius around the Site was searched for sites with an international statutory designation; Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar sites;
 - a minimum of a 2km radius around the Site for sites of national/regional importance with a statutory designation of Site of Special Scientific Importance (SSSI) or National Nature Reserve (NNR);
 - up to a 1km radius around the Site for sites of local importance with statutory designation of Local Nature Reserve (LNR), or non-statutory designation of Site of Importance for Nature Conservation (SINC) or the equivalent Local Wildlife Site (LWS); and
 - a 1km search area for records of notable / protected species (i.e. including Species of Principal Importance under S41 of the Natural Environment and Rural Communities Act (NERC) 2006 and the Merseyside Biodiversity Action Plan).

Field Survey - Habitats/Flora

Extended Phase 1 Survey

- 3.4 The Extended Phase 1 habitat survey is a survey technique recommended by Natural England that largely follows guidance from JNCC 2010², with the scale of recording of habitat parcels adjusted to provide more detail for smaller sites.
- 3.5 Extended Phase I habitat surveys were undertaken on 25th September 2019 (original site boundary) and 20th May 2020 (updated site boundary) by suitably experienced ecologists from

¹Extended Phase 1 Survey and Baseline EcIA Former Wheathill Riding Centre Naylor's Road, Huyton, Knowsley C S Crook & Associates November 2015

²JNCC, (2010), Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7

FPCR; following the most recent site visit the Site boundary was amended to that shown on Figure 2. The surveys comprised a walkover of the Site, mapping the principal habitat types and identifying a representative species list for each habitat. The abundance of species was quantified using the DAFOR scale, ranging from Dominant to Abundant, through Frequent and Occasional to Rare. Any habitats suitable for, or features with the potential to support, protected or notable species were also assessed and recorded.

Field Survey - Fauna

Bats

Buildings - Internal/External Inspection

- 3.6 Nineteen buildings were present on site, seven of these were assessed on the 25th September 2019 (B1, B2, B3, B4, B5, B8, B9, and B10). Buildings B6 and B7 were not included in inspections as these buildings are to be retained and should be unaffected by proposals. Following an extension of the Site boundary, the other nine buildings (B11-B19) were assessed on 20th May 2020. Locations of all buildings are shown on Figure 2.
- 3.7 The surveys were undertaken by licensed bat ecologists from FPCR (Natural England Class Licence Registration Number: 2015-12569-CLS-CLS and 2020-46132-CLS-CLS) accompanied by an assistant ecologist.
- 3.8 External aspects of the buildings on the Site were examined to determine any potential or actual access points and roost sites. Structural features with the potential for use by roosting bats were recorded and suitable access points such as small gaps under eaves/soffit boards, raised or missing ridge tiles and gaps at gable ends were identified. Evidence to substantiate use was also sought including staining from urine and/or fur and the presence of bat droppings in and around features. Indicators that potential access points had not recently been used, included the presence of heavy cobwebbing and general detritus around these points.
- 3.9 The interiors of the buildings, where accessible, were also visually assessed for evidence of bat activity and/or for the potential to be used by bats. Evidence of a roost would be determined by the presence of a dead or live bat(s), concentrated piles or scattered droppings, food remains such as insect wing fragments as well as scratch marks and/or staining.
- 3.10 This methodology takes into account the statutory guidance (Natural England, 2001)³ and updated guidelines introduced by the Bat Conservation Trust⁴ and the 2004 Bat Workers Manual⁵.
- 3.11 In combination with the above, buildings within the Site were visually assessed for the potential use by nesting or roosting barn owl. Additional signs, such as pellets and faecal splashing were also searched for on or around potential perches. This survey was carried out by an Ecologist accredited under Barn Owl Class Licence: CL29/00182.
- 3.12 Bat boxes affixed to B14 and B15 were inspected on the 18th June 2020. This included detailed inspection with endoscopes, torches and cameras by an appropriately licensed ecologist (Natural England Class Licence Registration Number: 2015-12569-CLS-CLS). The boxes were inspected

³ English Nature (2001) Bat Mitigation Guidelines

⁴ Collins J, (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust

⁵ Mitchell-Jones, A.J. & McLeish, A.P. Ed., (2004), 3rd Edition Bat Workers' Manual

for evidence of current or past occupation by bats. The other bat boxes were covered by the three nocturnal surveys carried out on B1, B2, B3 and B5 (see next Section).

Buildings - Nocturnal Assessment

- 3.13 One building (B1) was assessed as having high potential, two buildings were assessed as having moderate potential (B2 and B14), nine were low potential (B3, B5, B11, B12, B13, B15, B16, B18, and B19) and the remaining five buildings (B4, B8, B9, B10, and B17) had negligible potential (see Results). As such, the following nocturnal surveys were undertaken:
- 3.14 An initial dusk emergence survey was undertaken on the 1st October 2019 to identify any roosting bats emerging from B1, B2, B3 and B5 (and their associated bat boxes). Five surveyors were positioned at viewpoints where all aspects of the buildings could be observed (refer to Figure 4). Two further dawn surveys with five surveyors were undertaken on the 4th and 18th of June 2020 in order to pin-point roost locations (refer to Figure 6 and 7).
- 3.15 A dusk emergence survey with four surveyors was completed on the 3rd June 2020 to identify any roosting bats emerging from B14 and B11 (refer to Figure 5). A second survey of B14 was completed with two surveyors at dawn on the 18th June 2020 (refer to Figure 7).
- 3.16 The remaining low potential buildings (B12, B13, B15, B16, B18, and B19) were also surveyed at dawn on the 18th June 2020 (refer to Figure 7). Due to the complexity of these low quality buildings, surveyors utilised back-tracking techniques (see, para 8.4, Collins, 2016) which involved making visual observations (supported by bat detectors) of commuting bats prior to dawn and following them identify roost locations.
- 3.17 A combination of Wildlife Acoustics Inc. Echo Meter Touch® PRO bat detectors, and Echo Meter Touch® app on a mobile Android device / Apple Inc. iPad® were used for these surveys. Anabat Walkabout, Batbox Duets and Anabat Express were also used during the dawn surveys on 4th and 18th June. Dusk emergence surveys were undertaken approximately 15 minutes prior to sunset and between 90-120 minutes following sunset.
- 3.18 Three night-vision cameras (Panasonic HC-W850 video camera with night-shot mode and infra-red spotlights) were used to provide additional coverage during the surveys on 1st October 2019. Where necessary, the recorded footage was then analysed. The cameras were set up to record approximately 15 minutes prior to sunset and between 90-120 minutes following sunset.
- 3.19 The surveys were undertaken during suitable weather conditions i.e. when the ambient air temperature at the start of the survey exceeded 10°C and when there was little / no wind or rain. This methodology takes into account the statutory guidance from English Nature (now Natural England)⁶ and further guidelines introduced by the Bat Conservation Trust⁷ and JNCC⁸.
- 3.20 Table 1 below provides the dusk emergence / dawn re-entry survey dates and weather conditions.

⁶ English Nature (2004) Bat Mitigation Guidelines

⁷ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust

⁸ JNCC (1999) Bat Workers Manual

Table 1: Nocturnal emergence/re-entry survey weather conditions.

Survey Date	Buildings surveyed	Sunset / Sunrise	Start temp (°C)	Wind (BF)	Rain (0-5)	Cloud cover (%)
01/10/2019	B1, B2, B3, B5	18:50	11	1	0	90
03/06/2020	B11 and B14	21:33	12	0	0	70
04/06/2020	B1, B2, B3, B5	04:47	10	1	0	80
18/06/2020	B1, B2, B3, B5, B12, B13, B14, B15, B16, B18, B19	04:42	15	1	0	80

Ground Assessment of Trees

3.21 Tree assessments were undertaken from ground level on 25th September 2019 and 20th May 2020, with the aid of a torch and binoculars (where appropriate). During the survey Potential Roosting Features (PRF) for bats such as the following were sought⁹:

- natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
- man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems);
- woodpecker holes;
- cracks/splits in stems or branches (horizontal and vertical);
- partially detached, loose or bark plates;
- cankers (caused by localised bark death) in which cavities have developed;
- other hollows or cavities, including butt rots;
- compression of forks with included bark, forming potential cavities;
- crossing stems or branches with suitable roosting space between;
- ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk);
- bat or bird boxes; and
- other suitable places of rest or shelter.

3.22 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features may enhance or reduce the potential value.

3.23 Based on the above, trees were classified into general bat roost potential groups based on the presence of these features. Table 2 (below) broadly classifies the potential categories as accurately

⁹ BS 8596:2015, (October 2015): Surveying for bats in trees and woodland, Pg 16

as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in Bat Surveys for Professional Ecologists: Good Practice Guidelines¹⁰.

- 3.24 Although the British Standard Document groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conservation Trust Guidelines) to allow more specific survey criteria to be applied.

Table 2: Classification and survey requirements for bats in trees.

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work / Actions
Confirmed Roost	Evidence of roosting bats in the form of live / dead bats, droppings, urine staining, mammalian fur oil staining, etc.	A Natural England derogation licence application will be required if the tree or roost site is affected by the development or proposed arboricultural works. This will require a combination of aerial assessment by roped access bat workers (where possible, health and safety constraints allowing) and nocturnal survey during appropriate periods (e.g. nocturnal survey - May to August) to inform on the licence. Works to tree undertaken under supervision in accordance with the approved good practice method statement provided within the licence. However, where confirmed roost site(s) are not affected by works, work under a precautionary good practice method statement may be possible.

¹⁰ Collins J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work / Actions
High Potential	A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc). Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	Aerial assessment by roped access bat workers (if appropriate) and / or nocturnal survey during appropriate period (May to August). Following additional assessments, tree may be upgraded or downgraded based on findings. If roost sites are confirmed and the tree or roost is to be affected by proposals a licence from Natural England will be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.
Moderate Potential	A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.	A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August). Following additional assessments, tree may be upgraded or downgraded based on findings. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate. If a roost site/s is confirmed a licence from Natural England will be required.
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but a precautionary working method statement may be appropriate.
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.

*The Conservation of Habitats & Species Regulations 2017 (as amended) affords protection to “breeding sites” and “resting places” of bats. The EU Commission’s Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places “where there is a reasonably high probability that the species concerned will return”.

- 3.25 In combination with the above, all trees within the Site were visually assessed for the existence of large cavities with the potential for use by nesting or roosting barn owl. Additional signs, such as pellets and faecal splashing were also searched for on or around potential perches.

Badgers

- 3.26 Land within the development area was surveyed on 25th September 2019 and 20th May 2020 following the methodology outlined by Harris *et al.* (1989)¹¹ and those specified in statutory guidance¹². This involves a walkover of the Site searching for field signs which would indicate the presence of badgers *Meles meles* as follows:
- setts: including earth mounds and evidence of bedding and or runways between identified setts
 - latrines: often located close to setts; at territory boundaries or adjacent to favoured feeding areas
 - prints and established track or runways;
 - hairs caught on rough wood or fencing; and
 - other evidence: including snuffle holes, feeding and playing areas and scratching posts. The identification of these latter signs on their own does not necessarily provide conclusive evidence of the presence of badgers. A number of such signs need to be seen in conjunction before badgers can be confirmed as being present.

Great Crested Newts

Habitat Assessment & Habitat Suitability Index (HSI)

- 3.27 During the Phase I habitat survey a pond was identified within the Site boundary (P1 on Figure 2). An assessment of the potential for the pond to support a breeding population of great crested newts was completed in accordance with the Habitat Suitability Index (HSI) methodology, as developed by Oldham *et al.* (2000)¹³. The HSI scores ten suitability indices (factors thought to affect GCN) for a pond, both in the field and from a desktop study. The indices that are assessed are:
- location (Area A, B or C within the UK);
 - pond Area (size in metre²);
 - permanence (how many times it may dry out in a decade);
 - water quality (invertebrate diversity);
 - shade (percentage of a waterbodies perimeter shaded);
 - fowl (impact of waterfowl if present);
 - fish (impact of fish if present);
 - pond Count (density of ponds within 1km)

¹¹ Harris, S., Cresswell, P. & Jeffries, D. (1989) Surveying for badgers. Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol.

¹² Badgers: surveys and mitigation for development projects (2015) <https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects>

¹³ Oldham, R.S. & Keeble, J. & Swan, M.J.S. & Jeffcote, M.. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*. 10. 143-155.

- terrestrial Habitat (quality of surrounding habitat); and
 - macrophytes (percentage of surface area occupied).
- 3.28 The calculated HSI score, between 0 and 1, allows ponds to be scaled, based on their suitability for GCN.
- 0.00 – 0.49 – Poor
 - 0.50 – 0.59 – Below Average
 - 0.60 – 0.69 – Average
 - 0.70 – 0.79 – Good
 - 0.80 – 1 – Excellent
- 3.29 A general assessment of the on-site terrestrial habitats was also conducted during the surveys.

eDNA Sampling and Analysis

- 3.30 Environmental DNA or eDNA sampling is a method used to detect GCN occupancy within waterbodies, using traces of DNA shed into the pond. In May 2020, the on-site pond (P1) was considered for eDNA sampling, which was then carried out in accordance with protocols recommended by Natural England¹⁴.
- 3.31 Sampling was undertaken on the 20th May 2020 by an appropriately licensed and experienced ecologist who collected samples of water from around the pond. This comprised taking samples of agitated water from 20 locations around the pond and mixing thoroughly. 15ml of this water was then placed into each of six sterile tubes containing preservatives, precipitates and a DNA sequence that was used for degradation control. This was then transported under suitable conditions to the FERA laboratory at Sand Hutton, York for analysis. Following analysis, results provided by the laboratory could have one of the three outcomes, details of which are provided in Table 3 below.

Table 3: Description of possible results of eDNA analysis.

Result	Description
Positive	A positive result means that eDNA from GCN was detected and they have been present within the water in the 20 days before sampling. An eDNA score would be provided indicating the number of positive replicates from a series of twelve.
Negative	DNA from GCN was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.
Inconclusive	Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided. Degradation can occur through poor storage of the samples or kits and inhibition can occur through unexpected chemicals in the sample.

¹⁴ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn, F (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt, DEFRA Project WC1067. Freshwater Habitats Trust: Oxford

Other Species

- 3.32 Throughout the Phase 1 habitat survey, consideration was also given to the existence and use of the Site by other protected species under Part 1 of the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act 1992 and the Conservation of Habitats and Species Regulations 2017 (as amended), as well as locally notable fauna such as Biodiversity Action Plan (BAP) or Red Data Book (RDB) species.

Limitations

- 3.33 Initial surveys in 2019 were not commissioned until September, this allowed time in relation to the appropriate survey periods to undertake an internal and external assessment of the buildings and carry out a single nocturnal survey of B1 and the surrounding buildings (B2, B3, B5).
- 3.34 The first nocturnal bat emergence survey was scheduled on the 25th September 2019 but had to be abandoned due to health and safety concerns relating to trespassers. The survey was undertaken at the next opportunity when weather conditions were suitable which was on the 1st October 2019. This nocturnal survey proved sufficient to identify the presence of bat roosts within the building B1, but was not sufficient to characterise the roost.
- 3.35 The Site had a changing nature, with several buildings on the derelict riding school site being burnt between visits (see paragraph 4.42).

4.0 RESULTS

Desktop Study

- 4.1 A summary of the relevant information is provided below; original data provided by the consultees has not been included in this report. Locations of statutory and non-statutory designated sites referred to in the following section are illustrated on Figure 1.

Statutory Designated Sites

- 4.2 One site of international and national importance was located within the search area.
- 4.3 The Mersey Estuary and New Ferry designated site (SPA, RAMSAR, SSSI) is c.7km south of the site, comprising of large areas of saltmarsh and extensive intertidal sand and mud-flats. The intertidal flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds. During the winter, the site is of major importance for ducks and waders including golden plover *Pluvialis apricaria*, dunlin *Calidris alpina alpina*, pintail, redshank *Anas acuta*, shelduck *Tadorna tadorna* and teal *Anas crecca*. The site is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

Non-Statutory Designated Sites

- 4.4 Two Local Wildlife Sites (LWS) are located within 1km of the development area, the closest of which is Ten Acre Pits (Table 4; Figure 1).
- 4.5 A Nature Improvement Area also borders the Site to the south.

Table 4: Non-Statutory sites of interest (in distance/significance order)

Site/designation	Citation	Distance and aspect
Ten Acre Pits (LWS)	A mature broadleaf woodland with a dense canopy. A dense shrub layer in places with an improving ground flora.	481m N, buffered by the M62
Lee Park Golf Course (LWS)	A golf course containing a mosaic of habitats which provides important wetland habitats. Ponds on site provide habitat for great crested newt, smooth newt, common toad. Ponds support an assemblage of ten dragonfly species as well as galingale (a nationally scarce species) and other wetland species. English bluebell is present within woodlands.	860m S, buffered by Childwall Golf Club and urban environment
Netherley Brook and Ditton Brook Corridor (Nature Improvement Area)	These areas were established to create joined up and resilient ecological networks at a landscape scale. This NIA encompasses Ditton Brook and Netherley Brook, which both act as a corridor to connect the Mersey Estuary with farmland to the south of Liverpool, Halton and Knowsley. Priority habitats for this area include grassland, woodland and wetlands. Notable species present include water vole, farmland birds (including linnet and redpoll) and barn owl.	Borders the Site to the S

Species records

- 4.6 Records of protected or notable species from within the site (or within close proximity) include one record of a common pipistrelle *Pipistrellus pipistrellus* roost within the Site boundary. Based on previous consultancy reports from 2008 this is thought to relate to a roost within B1 which was later not identified in further surveys in 2015¹⁵. Two smooth newt *Lissotriton vulgaris* records were also present in association with pond P1.
- 4.7 A summary of the records of protected and priority species derived from the desk study consultees are provided in Table 5, below. Species records have been filtered to comprise protected and / or notable species within 1km of the Site boundary from the last 20 years. The locations of the pertinent species records are mapped on Figure 1.
- 4.8 A number of species records were provided with a British Vice County Reference, as such the record location is subject to a degree of interpretation. Any notable species are included in Table 5 but are not shown on Figure 1.

¹⁵ Extended Phase 1 Survey and Baseline ECIA Former Wheathill Riding Centre Naylor's Road, Huyton, Knowsley C S Crook & Associates November 2015

Table 5: Notable species records.

Species	Conservation Status	Total number of records (within 1km)	Location / Minimum distance of records from the Site boundary
Bats			
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Regs, WCA Sch5, LBAP	1	2008, Wheathill Riding Centre, a roost on-site
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	Regs, WCA Sch5, SPI, LBAP	1	2012, Huyton Park, 550m NE
Unknown bat species Chiroptera	Regs, WCA Sch5, LBAP	4	Records ranging from 2002-2014, 520m N, and a roost located 650m NE
Other mammals			
European water vole <i>Arvicola amphibius</i>	WCA Sch5, SPI, UKBAP, LBAP	3	Records ranging from 1999-2017, Huyton Bk, 510m SW
American mink <i>Neovison vison</i>	WCA Sch9	1	2017, along M62 near Huyton, 700m NE
Birds			
Grey partridge <i>Perdix perdix</i>	BoCC Red, SPI, UKBAP, LBAP	3	Record from 1999-2007, 780m SW
Lapwing <i>Vanellus vanellus</i>	BoCC Red, SPI, UKBAP, LBAP	2	Records from 2007, Wheathill Farm, 80m NW
Skylark <i>Alauda arvensis</i>	BoCC Red, SPI, UKBAP, LBAP	3	Records ranging from 2002-2007, Wheathill Farm, 80m NW
House Sparrow <i>Passer domesticus</i>	BoCC Red, SPI, UKBAP	5	Records from 2001, 750m NE
Reed bunting <i>Emberiza schoeniclus</i>	BoCC Amber, SPI, UKBAP	4	Record from 1999-2007, 780m SW
Amphibians			
Smooth Newt <i>Lissotriton vulgaris</i>	WCA Sch5	2	Records from 2008, pond P1 within the Site boundary
Plants			
Bluebell <i>Hyacinthoides non-scripta</i>	WCA Sch8, LBAP	2	Records from 2019, Ten Acre Pits LWS, 560m NE
Himalayan Balsam <i>Impatiens glandulifera</i>	WCA Sch9	3	Records from 2015-2019, Belle Vale, 415m NW
Japanese Knotweed <i>Fallopia japonica</i>	WCA Sch9	7	Records range from 2008-2017, fields south of M62, 255m W

Status Key: Regs = The Conservation of Habitats and Species Regulations 2017 (As amended), WCA = Wildlife and Countryside Act 1981 (as amended), Sch5 = Schedule 5 of WCA, Sch8 = Schedule 8 of WCA, Sch9 = Schedule 9 of

WCA, SPI = Species of Principal Importance, as listed under the Natural Environment and Rural Communities Act (2006), BoCC Red = Birds of conservation concern Red List, BoCC Amber = Birds of conservation concern Amber List, UKBAP = UK Biodiversity Action Plan 2007, LBAP = Merseyside Biodiversity Action Plan.

- 4.9 Badger records were present within 700m of the Site boundary. The exact locations of these records have not been provided due to the confidential nature of the records.
- 4.10 MAGIC map confirms that there are no European Protected Species licence applications within 1km of the Site. However, GCN presence in pond(s) c.700m north-west of the site in 2016 was shown on MAGIC under GCN Class Survey Licence Returns (Figure 1).
- 4.11 In addition to the pond on-site (P1), there were two ponds located within 500m of the Site boundary, shown on Figure 1:
- Pond A – c.430m NE of Site
 - Pond B – c.384 NW of Site

Habitats/Flora

- 4.12 The habitats described below correspond to those mapped on Figure 2. Botanical species lists for the habitats are provided in Appendix A.
- 4.13 Where areas of the same habitat type differed in species composition or abundance, a number has been assigned in order to differentiate the habitat descriptions and species lists.
- 4.14 There were several areas of waste found throughout the habitats on Site including corrugated metal (TN1, Fig. 2) and fly tipped waste (TN2, Fig. 2).

General Habitat Summary

- 4.15 The habitats found within the study area comprised:
- semi-natural broadleaved woodland;
 - dense scrub;
 - scattered scrub;
 - windbreaks and broadleaved trees;
 - poor semi-improved grassland;
 - ephemeral short perennial;
 - tall ruderal;
 - marginal vegetation;
 - standing water;
 - amenity grassland;
 - introduced shrub;
 - gardens (including lawns and planting);
 - buildings;
 - hardstanding.

Semi-natural broadleaved woodland

- 4.16 A strip of semi-natural broadleaved woodland bordered the southern and western boundary of the main school site (Photograph 1). The canopy featured frequent ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, and occasional silver birch *Betula pendula*, pedunculate oak *Quercus robur* and goat willow *Salix caprea* with a ground flora of dominant common ivy *Hedera helix* and frequent common nettle *Urtica dioica* and bramble *Rubus fruticosus agg.*
- 4.17 The woodland around the pond was dominated by crack willow *Salix fragilis* with rare weeping willow *Salix x sepulcralis*.
- 4.18 A bat hibernation box was affixed to a tree on the southern boundary (Figure 3, see paragraph 4.100 below).

Dense scrub

- 4.19 Areas of dense scrub were present throughout the derelict riding school, to the north of the main Lakeside school site (Photograph 2). This was largely made up of dominant bramble, grey willow *Salix cinerea* and frequent elder *Sambucus nigra*.

Scattered scrub

- 4.20 Scattered scrub was found on the edge of hardstanding and between some of the buildings located within the derelict riding school. This had frequent elder and bramble, with occasional willow species *Salix* spp.

Photograph 1: An area of semi-natural broadleaved woodland on the south-western edge of Site, adjacent to SI₁, viewed from the north.



Photograph 2: An area of bramble and willow scrub, located in the derelict riding school to the north of the main school site, viewed from the north.



Windbreaks & broadleaved trees

- 4.21 A windbreak consisting of occasional sycamore, holly *Ilex aquifolium*, garden privet *Ligustrum ovalifolium*, hawthorn and ash was found south of buildings B2 and B3, and north of the poor semi-improved grassland in the south-east corner (Figure 2). A windbreak of dominant Leylandii *Cupressus x leylandii* was located along the school boundary fence to the east of building B7. Ash, sycamore, and grey willow were rarely present. A strip of Leylandii was present within the woodland

at the entrance to the school, running parallel to Naylor's Road. Ground cover beneath the trees was largely dominated by common ivy.

- 4.22 Scattered broadleaved trees were located amongst the amenity grassland on-site including ash, sycamore, lime, rowan *Sorbus aucuparia* and wild cherry *Prunus avium*.
- 4.23 Broadleaved trees were found throughout the derelict riding school. Species included willow species, sycamore and elder. There were also two lines of willow trees bordering the areas to the west and east of the site.

Poor semi-improved grassland

- 4.24 Poor semi-improved grassland had colonised the degraded hardstanding in the eastern section of the Site (SI₁, Photograph 3). The grass species present included frequent Yorkshire-fog *Holcus lanatus* and false oat-grass *Arrhenatherum elatius*. Other species found throughout the sward included occasional white clover *Trifolium repens*, black medic *Medicago lupulina*, herb-Robert *Geranium robertianum*, common chickweed *Stellaria media* and creeping buttercup *Ranunculus repens*.
- 4.25 The field located in the north-western section of the Site was poor semi-improved grassland which had colonised a sandy paddock (SI₂, Photograph 4). Grass species included abundant creeping bent *Agrostis stolonifera*, along with frequent sweet-vernal grass *Anthoxanthum odoratum*, Yorkshire-fog and cock's-foot, *Dactylus glomerata*. Other species found throughout the sward included occasional hard rush *Juncus inflexus*, Rosebay willowherb *Chamerion angustifolium* and rare fox and cubs *Pilosella aurantiaca*.
- 4.26 Patches of bramble scrub were encroaching on the area of grassland from the west, and occasional buddleia *Buddleja davidii* and willow saplings were found throughout, along with dead wood piles (TN3 on Fig. 2, Photograph 5).

Ephemeral/short-perennial

- 4.27 Along with poor semi-improved grassland, areas of ephemeral/short-perennial were also found on the hardstanding between the derelict riding school buildings located in the north of the site. This contained frequent colt's-foot *Tussilago farfara* and common mouse-ear *Cerastium fontanum*.

Tall ruderal

- 4.28 An area of tall ruderal vegetation, dominated by common nettle with frequent hedge bindweed *Calystegia sepium* and creeping thistle *Cirsium arvense*, was present within the area of bramble scrub immediately to the north of the main school site (Photograph 6), with a smaller patch adjacent to B14. The area which borders the car park in the south-west corner of the main school site was of similar composition.

Photograph 3: Semi-improved grassland (SI₁) to the east of the Site, with Building B9, viewed from the north-west.



Photograph 4: Semi-improved grassland (SI₂) to the west of the Site, viewed from the east.



Photograph 5: Buddleia *Buddleja davidii* and a pile of dead wood within the area of semi-improved grassland (SI₂), viewed from the east.



Photograph 6: An area of tall ruderal vegetation within the dense scrub to the north of the main school site, viewed from the north-east.



Standing water

- 4.29 A pond (P1, Photograph 7) which is stocked for fishing was located in the south-western corner of the Site. The pond was surrounded by fencing, and adjacent to amenity grassland and hardstanding to the east, as well as a small strip of willow dominated broadleaved woodland to the north and west. Frequent broad-leaved pondweed *Potamogeton natans* was present.
- 4.30 Marginal vegetation was present around the pond (P1) periphery, as well as in two larger stands. Common reed *Phragmites australis* dominated, along with frequent yellow flag iris *Iris pseudacorus* and white water-lily *Nymphaea alba*.

Amenity grassland

- 4.31 Along with the hardstanding at the centre of the Site, there were also areas of amenity grassland, dominated by perennial rye-grass *Lolium perenne* and a meadow grass *Poa sp.* in addition to frequent daisy *Bellis perennis* and white clover (Photograph 8).

Introduced shrub

- 4.32 Introduced shrub was present around the car park areas.

Gardens (including lawns and planting)

- 4.33 The site encompassed a derelict house (B11), with associated gardens, in the south-eastern corner (Photograph 9 and 10). This area was predominantly lawn dominated by perennial rye-grass with frequent daisy and occasional germander speedwell *Veronica chamaedrys*, which was bordered by planting. A conifer hedge bordered the garden to the north, which had sustained fire damage.

Photograph 7: Pond P1, viewed from the south-eastern side.



Photograph 8: Amenity grassland and buildings B1a, B6, B7a, viewed from the south-west.



Photograph 9: The area of garden, and fire damaged conifer hedge, to the north of B11, viewed from the south-west.



Photograph 10: The area of garden to the south of B11, viewed from the north.



Buildings

- 4.34 The Site contained 19 buildings (some of which comprised of multiple attached units).
- 4.35 On the main school site these largely comprised of school buildings, made up of presumably former residential two and three storey detached building with single storey extensions (B7) and single storey outbuildings (B4, B6).
- 4.36 A derelict two storey brick-built house (B11) with extensive fire damage, was located in the south-eastern corner of the site.
- 4.37 B8 was a single storey brick structure, likely to have been previously used as a garage, grouped together with B9 and B10 which were two shipping containers.

- 4.38 The remaining buildings formed the derelict riding school located in the northern and eastern section of the Site boundary.
- 4.39 A large double-height brick barn (B1) made up of four rooms was located adjacent to the school buildings. There were also three additional single storey buildings (B2, B3 and B5) adjoining the barn which were derelict with broken windows and doors.
- 4.40 Several additional brick-built single-storey derelict farm buildings were found throughout the riding school site (B12, B13, B14, B15). These were accompanied by several larger buildings (B16, B18, B19) made from a variety of materials including corrugated metal, asbestos sheet walls and wooden cladding. B17 was a shipping container.
- 4.41 Numerous bat/bird boxes were affixed to the buildings as shown on Figure 3.
- 4.42 B8 (a garage associated with B11) and B15a sustained fire damage between the site visit on the 20th May 2020 and the 18th June 2020 (Photographs 11-14).

Photograph 11: B8 on the 18th May 2020.



Photograph 12: B8 on the 20th June 2020.



Photograph 13: B15a on the 18th May 2020.



Photograph 14: B15a on the 20th June 2020.



Hardstanding

- 4.43 A large proportion of the main school site was covered by hardstanding forming a road, car parking areas, and paths (Photograph 15). This consisted of a combination of concrete, gravel, and artificial

turf. At the centre of the Site there was also a small playground, surfaced with artificial turf (Photograph 16).

- 4.44 Hardstanding was found throughout the derelict riding school, which consisted of concrete as well as gravel surfaces (Photograph 17).
- 4.45 There was a pile of aggregate located to the east of B17 (TN4, Fig. 2, Photograph 18), and wood chips covered an area of the hardstanding to the west of B14 (TN5, Fig. 2, Photograph 19).

Photograph 15: Hardstanding and amenity grassland, viewed from the west.



Photograph 16: Playground and amenity grassland in the centre of the Site, viewed from the south.



Photograph 17: An example of the hardstanding found throughout the derelict riding school.



Photograph 18: A pile of aggregate to the east of B17 (TN4), viewed from the south.



Photograph 19: Dead wood and wood chips on hardstanding to the west of B14 (TN5), viewed from the east.



Fauna - Bats

Buildings – Internal/External Inspection

- 4.46 There were a range of construction types across the site including older repurposed structures and modern prefabricated structures, as well as agricultural type buildings.
- 4.47 No evidence of roosting bats was noted in association with any of the structures. However, the large barn (B1a-d) was found to provide high potential and roosting bats were confirmed during a preliminary survey in 2019. B2 and B14 provided moderate potential. B3, B5, B11, B12, B13, B15, B16, B18, and B19 were considered to have low potential. Buildings B4, B8, B9, B10, B17 had negligible potential.
- 4.48 The buildings and their suitability for bats are described below. Buildings with similar or identical features have been grouped for conciseness.

Building 1 (B1, Photographs 20-22)

- 4.49 A large double height barn structure. Constructed of double skinned brick walls with loose and missing mortar throughout. The roof structure comprised a pitched slate structure with a stone ridge. The building had open doors and windows throughout. On each wall were a number of ventilation gaps in the brick work. Wooden fascias were present at the eaves and very occasional lead flashing at joints with other buildings. Door and window frames comprised a mixture of brick and stone lintels and ledges. A number of bird and bat boxes were attached to the exterior of the building (Figure 3).
- 4.50 Internally B1 was divided into several rooms (B1a to B1d), each with an open vaulted ceiling. The roof structure had exposed slates with no under lining and untreated timber structures. Throughout the barn the roof was supported by double purlins with king posts present in B1a and B1b which were resting on brick buttresses. Throughout, the timber joints appeared to be very tight with no obvious gaps. Within the walls were puttock holes where previously joists were cited. The floors were rough concrete, and rubble strewn. B1a was quite dark inside, whereas the other rooms were quite light with all rooms being fairly clear of cobwebs.

- 4.51 Numerous potential access points were present throughout including ventilation gaps, missing bricks, slipped/missing roof slates and behind fascias. There are also open doors and windows throughout. Roosting opportunities were provided within the wall cavities, within bat and bird boxes and occasional gaps in masonry. The roosting potential provided by building B1 was classified as **high**.

Photograph 20: External north-western aspect of B1.



Photograph 21: South-western gable end of B1.



Photograph 22: Interior aspect of B1.



Building 2 (B2, Photograph 23 and 24)

- 4.52 A single storey building with brick walls and a pitched slate tiled roof. It was evident that the roof had been refurbished, and a bat box was affixed to the southern gable (Figure 3).
- 4.53 Internally, B2 was connected to B1 through an internal door and in general the building had a light, open nature.
- 4.54 Numerous potential access points were present throughout, including wooden fascias and open doors and windows. Roosting opportunities were provided through the presence of roof under lining, puttock holes, a ridge beam and timber joints associated with king post beams. The roosting potential provided by B2 was classified as **moderate**.

Photograph 23: External south-western aspect of B2.



Photograph 24: Interior aspect of B2.



Building 3 (B3, Photograph 25)

- 4.55 A single storey building constructed with brick walls, similar to B2 but converted into former office. The pitched roof comprised of slate tiles with wooden fascias on an overhanging joist.
- 4.56 Surveyors were not able to enter the building, but internal features could be observed from the open window. A cupboard room was present which appeared to be very heavily cobwebbed.
- 4.57 There were numerous potential access points including the open window, wooden fascias and the presence of damaged ridged tiles. The roosting features were limited and there were no signs of bat activity, so the roosting potential was classified as **low**.

Photograph 25: External north-eastern aspect of B3.



Building 4 (B4, Photograph 26)

- 4.58 A single storey timber-built building with a felt mono-pitch roof and UPVC windows, providing **negligible** bat roosting potential.
- 4.59 The building was used as a classroom and surveyors were not able to enter the building for internal inspections.

Photograph 26: External south-eastern aspect of B4.



Building 5 (B5, Photograph 27)

- 4.60 A single storey brick building with a mono-pitch slate tiled roof, formerly stables, with open doors and windows throughout. There was a small outhouse with corrugated metal roof adjoined to the north and B1 adjoined to the south.
- 4.61 There were numerous potential access points including through open doors, rotten wooden fascias and gaps at verges of gable wall. Potential roosting features present included fibreboard under lining in places, rough cut timber single purlin, puttock holes, and potential wall cavities. However, there were no signs of bat activity, and the overall roosting potential was classified as **low**.

Photograph 27: External northern aspect of B5.



Building 8 (B8)

- 4.62 B8 was a single storey brick structure, likely to have been previously used as a garage, which provided **negligible** bat roosting potential.
- 4.63 B8 was burnt down between the visit on the 20th May and the 18th June 2020 (see Photograph 11 and 12).

Building 9 and 10 (B9 and B10, Photograph 28 and 29)

- 4.64 Buildings B9 and B10 were metal shipping containers, which provided **negligible** bat roosting potential.

Photograph 28: Western aspect of B9.**Photograph 29: South-western aspect of B10.**Building 11 (B11, Photograph 30 and 31)

- 4.65 Building B11 was a two-storey, brick-built house with fire damage. It had a gable roof covered with slate tiles. Both the ridge and the slates on the roof were well-sealed. Chimney stacks with well-sealed flashing were located on each gable end. The chimney stacks had small sections of pitched roof. On the pitched roof of the eastern chimney stack there were some missing and lifted slates, which would provide potential for roosting bats. Wooden barge, fascia and soffit boards were present and were generally well sealed. Clay hanging tiles were present on the southern aspect above the first-floor windows. A gap in the clay tiles was present and would provide some bat roosting potential. The windows on the northern, eastern and western aspects were boarded up. Small gaps around the boards provided further potential bat roosting opportunities.

Photograph 30: B11 northern aspect.**Photograph 31: Gap in clay hanging tiles on southern aspect of B11.**

- 4.66 An internal assessment could not be undertaken due to health and safety considerations, however due to the extensive fire damage to the roof space, roosting potential would be limited to the external features discussed above. The building was generally well-sealed and it was considered that the building offered **low** bat roosting potential.

Building 12 (B12, Photograph 32 and 33)

- 4.67 Building B12 was a single-storey, brick built, barn with an asbestos gable roof. There were large gaps in the asbestos roofing on both roof pitches. Small gaps that would provide some opportunities for roosting bats were noted at the ridge. Internally the barn was open and light. The beams had a king post structure and the roof was unlined. Two swift boxes were located on the south-eastern aspect (Figure 3).

Photograph 32: B12 south-western aspect.



Photograph 33: Internal roof structure of B12.



- 4.68 No evidence of roosting bats was noted in association with this building. It was therefore considered to provide **low** bat roosting potential.

Building 13 (B13, Photograph 34 and 35)

- 4.69 Building B13 was a dilapidated, single-storey, brick built, livestock shed with gable roof. The northern pitch had largely collapsed, with some remaining slate roof tiles, whereas the southern pitch was covered in corrugated metal sheets. There were some small gaps in the mortar along the stone ridge and small gaps in the slates, which could provide some limited roosting potential.

Photograph 34: B13 southern aspect.



Photograph 35: B13 north-western aspect.



- 4.70 Internally to the south the roof was lined with wood. No evidence of roosting bats was noted in association with this building. It was therefore considered to provide **low** bat roosting potential.

Building 14 (B14, Photographs 36-39)

- 4.71 Building B14 was a single-storey, brick built, barn with a slate gable roof. This part of the building was formerly a barn and stable block. There were some gaps along the ridge that would provide

some roosting potential. A more recent edition to the building was situated along the northern aspect. This was brick built with a shallow-pitched, asbestos roof with fascia boards. Bat boxes were present on the south-western and north-eastern aspects (Figure 3).

Photograph 36: B14 south-western aspect.



Photograph 37: B14 north-eastern aspect.



- 4.72 Internally the older section of the building had wooden trusses and a king-post beam structure. The roof was largely unlined and there were numerous gaps in the slates. A small section of lining was situated above a hay loft on the southern roof pitch, the gap between the lining and the slates providing some roosting potential. The newer part of the building had wooden beams and was unlined. There were some large gaps between the bricks where the mortar had degraded, which would provide some roosting potential.

Photograph 38: Internal roof structure of older part of building B14.



Photograph 39: Internal roof structure of newer part of building B14.



- 4.73 No evidence of roosting bats was noted in association with this building. However, given the potential roosting features externally and internally, it was considered to provide **moderate** bat roosting potential.
- 4.74 No evidence of current use was recorded during an inspection of the bat boxes affixed to B14.

Building 15 (B15, Photograph 40 and 41)

- 4.75 Building B15 comprised of two sections; B15a a single-storey, brick built, barn and B15b a modified horsebox propped up on breeze blocks.
- 4.76 B15a had an asbestos gable roof with asbestos barge boards and wooden fascia boards. There were some minor gaps associated with the barge boards on the southern gable end, a bat box was also situated on this aspect (Figure 3). The internal structure comprised metal girders with an

unlined roof. Internally the building was very open and light, with multiple roof windows present. This part of the building provided **low** bat roosting potential.

Photograph 40: B15b in foreground, B15a in background south-eastern aspect.



Photograph 41: Interior of B15a.



- 4.77 B15b was a horse box with flat and pitched roof sections. Fascia boards were present and well-sealed. Internally the structure had a metal frame and was open and light. This part was considered to provide **negligible** bat roosting potential.
- 4.78 B15a was burnt down between the visit on the 20th May and the 18th June 2020 (see photograph 13 and 14).
- 4.79 No evidence of current use was recorded during an inspection of the bat boxes affixed to B15.

Building 16 (B16, Photograph 42 and 43)

- 4.80 Building B16 comprised two parts, the first (B16a) was a large metal shed, a former riding school with office and kitchen annexes on the south-eastern aspect (B16b). Building 16a had an asbestos, gable roof with multiple roof windows. The walls were corrugated metal sheets and metal barge boards and fascia boards were present. Internally the structure consisted of metal girders and was very light and open.
- 4.81 Building 16b was a single storey, breeze block and metal annex. The shallow pitched roof consisted of corrugated metal sheets and metal fascia and barge boards were present. The majority of the windows on the south-eastern aspect were boarded up. These had some minor gaps that provide some limited bat roosting potential. Internally the roof was constructed of metal girders and was unlined.

Photograph 42: B16b in foreground, B16a in the background.



Photograph 43: Interior of B16a.



- 4.82 There was some potential for roosting bats at the eaves or behind the boarded-up windows, however overall, the building provided **low** potential for roosting bats.

Building 17 (B17, Photograph 44)

- 4.83 Building B17 was a metal shipping container, which provided **negligible** bat roosting potential.

Photograph 44: B17 south-western aspect.

Building 18 (B18, Photograph 45 and 46)

- 4.84 Building B18 was a single-storey, double height barn with corrugated asbestos, gable roof and corrugated metal and asbestos sheet walls. There were minor gaps at the roof ridge and between the wall sheeting. The structure was open on the eastern aspect and internally it had a metal frame with an unlined roof.

Photograph 45: B18 south-eastern aspect.



Photograph 46: Interior of B18.



- 4.85 This building was considered to provide **low** bat roosting potential.

Building 19 (B19, Photograph 47 and 48)

- 4.86 Building B19 was a single-storey stable block with corrugated asbestos, gable roof and corrugated metal walls. Asbestos barge boards and wooden fascia boards were present. Minor gaps were noted in association with these features on the north-eastern aspect. Internally B19 was split into stable stalls and the front was partly open fronted. The structure was supported by metal girders with gaps where nesting birds were noted.

Photograph 47: B19 north-eastern aspect.



Photograph 48: Interior of B19.



- 4.87 Overall, this building was considered to provide **low** bat roosting potential.

Buildings - Nocturnal Bat Surveys

B1, B2, B3, B5

- 4.88 Building B1 was categorised as providing high bat roosting potential so this building was subject to a total of three nocturnal surveys to characterise roosts. The adjoining building B2 (which is interconnected) had moderate roosting potential so was also covered by these surveys.
- 4.89 The initial nocturnal emergence survey was undertaken on buildings B1, B2, B3, B5 on the 1st October 2019 (surveyor positions are shown on Figure 4). During the survey a common pipistrelle was observed flying within B1b 54 minutes after sunset (19:44) having likely emerged from a roost from within the building. This was observed to commute away from the building towards the north. A further common pipistrelle was recorded 1 hour and 13 minutes after sunset (20:03) within B1a, and continued to forage within the building for some time before leaving and commuting to the north west. Other bat activity observed during the survey was very limited and comprised a small number of common pipistrelles commuting past the building.
- 4.90 A re-entry survey carried out on the 4th June 2020 and surveyors observed no evidence of roosting bats (surveyor positions are shown on Figure 6). General bat activity was very limited throughout the survey, with no foraging activity and only a small number of common pipistrelles commuting past the buildings being recorded.
- 4.91 A re-entry survey carried out on the 18th June 2020 found evidence of roosting potential (surveyor positions are shown on Figure 7). A single bat was seen entering B2 through the open doorway 42 minutes before sunrise (04:00) (Figure 7). No echo location was detected, which indicated that this bat was likely a brown long-eared bat *Plecotus auratus* (BLE), although this could not be confirmed without echolocation calls to analyse. Other activity during the survey comprised of a small number of common pipistrelles and soprano pipistrelles *Pipistrellus pygmaeus* commuting past the buildings and foraging above P1.

B14

- 4.92 Building B14 had moderate bat roosting potential so was subject to two nocturnal surveys, one at dusk and one at dawn.
- 4.93 A survey of B14 at dusk on the 3rd June 2020 found no evidence of roosting bats (surveyor positions are shown on Figure 5). A small number of common pipistrelles were recorded commuting past the buildings, originating from the fields to the west.
- 4.94 A second survey was covered by the dawn backtracking which included B14 on the 18th June 2020 found no evidence of roosting bats (surveyor positions are shown on Figure 7). A small number of common pipistrelles were recorded commuting past the buildings.
- 4.95 The bat boxes located on B14 (Figure 3) were inspected with an endoscope and no evidence of roosting bats were found.

B11

- 4.96 A single survey of the low potential burnt out house (B11) was undertaken at dusk on the 3rd June 2020 by 2 surveyors and found no evidence of roosting bats (surveyor positions are shown on

Figure 5). Throughout the survey five common pipistrelles and a soprano pipistrelle were recorded commuting down the lane to the east of the building, with a common pipistrelle also foraging continuously over the garden to the south of B11.

B12, B13, B15, B16, B18, and B19 (Figure 7)

- 4.97 A backtracking and re-entry survey was undertaken at dawn on the 18th June 2020. This was used to identify if any roosts were likely to be present on B12, B13, B15, B16, B18, and B19 (& B14). During the survey seven surveyors were deployed around the buildings to cover a range of aspects. This was in addition to the five surveyors who were focusing on roosts within B1 at the same time. A number of common pipistrelles were observed foraging in the lane to the east and this species and brown long eared bats were occasionally observed commuting over the buildings. However, no bats were observed entering any roosts or exhibiting behaviour suggestive of potential roosting during the survey.
- 4.98 The bat box located on B15 (Figure 3) was inspected with an endoscope and no evidence of roosting bats were found.

Ground based Assessment of Trees

- 4.99 No evidence of roosting bats was recorded in association with any of the trees on-site and only one tree was described as having more than low roosting potential.
- 4.100 It was noted that a sycamore on the south-western Site boundary contained a Schwegler hibernation box attached to its trunk (Figure 3, Photograph 49), and therefore was considered to provide **high** roosting potential.

Photograph 49: Bat box attached to a sycamore.



Bats - Habitats

- 4.101 The broadleaved woodland, scrub and tall ruderal vegetation provides potential foraging/commuting habitat for local bat populations and linkages into the wider area. Due to their improved, species-poor nature, the grassland habitats recorded across the Site are unlikely to support a high density of invertebrate species and therefore are less likely to provide a significant foraging resource for bats.
- 4.102 Throughout the nocturnal surveys common pipistrelle bats were observed foraging over the garden surrounding B11, as well as above P1, up and down the lane to the east of site, and along the line

of willow trees beyond the northern boundary. Common pipistrelle and soprano pipistrelle were also recorded commuting throughout the site.

Badgers

- 4.103 Whilst it was considered that the grassland and scrub may provide suitable foraging habitat for this species, during the survey no signs attributable to badgers such as setts, latrines, hairs or footprints were recorded within the Site or its immediate surrounds (where accessible). No incidental sightings were noted during any of the other surveys.

Birds

- 4.104 The habitats recorded on-site provide potential nesting habitat for use by a limited range of common urban fringe bird species. Blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, buzzard *Buteo buteo*, carrion crow *Corvus corone*, goldfinch *Carduelis carduelis*, long-tailed tit *Aegithalos caudata*, magpie *Pica pica*, robin *Erithacus rubecula* and woodpigeon *Columba palumbus* were recorded during the survey on the 25th September 2019.
- 4.105 During the site visit on 20th May 2020, multiple bird nests were seen in the derelict buildings and scrub on site.

Barn owls

- 4.106 During the internal surveys undertaken on 25th September 2019, barn owl pellets were found throughout the barn (B1a-d) as well as splashing and possible nest materials. Within B1a there were seven pellets and possible nesting material on eastern gable wall plate. Within B1b, seven pellets and splashing was present on buttresses. Within B1c and B1d there were 50+ pellets and nest material on internal beams.
- 4.107 During the site visit on the 20th May 2020, no evidence of nesting barn owls was recorded in the barn (B1), or any of the additional buildings within the extended boundary. However, pellets and splashing were found throughout B1, suggesting the presence of perch or roosting site. No incidental sightings of barn owls were recorded on site during the bat surveys.

Great Crested Newts

- 4.108 A pond (P1) was present in the south-western corner of the Site (Photograph 7). Table 6 shows the Habitat Suitability Index of the pond was 0.48, which is considered 'Poor' suitability for GCN, with a 3% predicted likelihood of this species being present.

Table 6: HSI Score of the on-site pond (P1).

Location	Pond Area	Pond Drying	Water Quality	Shade	Fowl	Fish	Ponds	Terrestrial Habitat	Macrophytes	HSI score	Predicted Presence
A / 1	c.825 m ² / 0.98	Never / 0.9	Mod / 0.67	10% / 1	Minor / 0.67	Major / 0.01	2 ponds / 0.55	Mod / 0.67	15% / 0.45	0.48 / 'Poor'	0.03 3%

- 4.109 In terms of terrestrial habitats, the Site provides suitable foraging habitat for amphibian species, including regenerating woodland, scrub, grassland and ephemeral short/perennial vegetation. Areas of discarded rubble, dead wood and wood chippings also provide suitable hibernation refugia. The more developed parts of the Site were considered to have limited value for amphibian species, with the peripheral semi-natural habitats providing a suitable habitat for a range of amphibian species.
- 4.110 An eDNA test of the on-site pond (P1) was **negative** – the results can be found in Appendix B.
- 4.111 No records of GCN were present within 500m of the Site, but there is evidence from 2016 c.700m from the Site boundary (see paragraph 4.10).

Reptiles

- 4.112 No reptile records were returned within 1km of the Site boundary.
- 4.113 The mosaic of habitats within the site provide suitable habitat for reptile species, particularly common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and potentially slow worm *Anguis fragilis*. The regenerating woodland, scrub, grassland and ephemeral short/perennial vegetation were considered to provide suitable foraging habitat for reptiles. Areas of discarded rubble, dead wood and wood chippings provide suitable refugia and potential hibernaculum and the interface between the habitats offering a range of basking opportunities.

5.0 DISCUSSION AND RECOMMENDATIONS

Statutory Designated Sites

- 5.1 The Mersey Estuary and New Ferry designated site (SPA, RAMSAR, SSSI) was 7km from the Site boundary, but it is considered the proposed development will have no impact on the qualifying features of these European designated sites. Designated for the intertidal and saltmarsh habitats which provide foraging and roosting sites for large populations of wetland and estuarine birds, there is no suitable habitat for qualifying features within the Site boundary.

Non-statutory Sites

- 5.2 Data searches indicate that two Local Wildlife Sites are present within the desktop search area, the closest of which is Ten Acre Pits, over 500m from the Site.
- 5.3 It is considered that these sites will not be directly affected by this development due to their distance from the application area, the nature of the intervening and buffering habitats and the small-scale nature of the current proposals. Furthermore, due to the nature of the proposals it is not thought that an increase in recreational pressures would be imposed on the designated sites.
- 5.4 Netherley Brook and Ditton Brook Corridor (Nature Improvement Area) bordered the site to the South. The proposed development could have negative impacts on this during construction (e.g. noise and dust production), but the adoption of sound site management principles and adherence to current best practice guidelines would minimise this. Due to the nature of the development it is unlikely to have a long-term impact on the functionality of the wildlife corridor.

Habitats

- 5.5 The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:
- inclusion within specific policy (e.g. veteran trees, ancient woodland and linear habitats in NPPF 2019, or non-statutory site designation); and
 - identification as a Habitat of Principal Importance for biodiversity under NERC 2006 and consequently identification as a Priority Habitat within the local Biodiversity Action Plan (LBAP) and a Priority Habitat for England under Biodiversity 2020.
- 5.6 Under NPPF 2019, development should seek to contribute a net gain in biodiversity with an emphasis on improving ecological networks and linkages where possible. This would be best secured through the production and implementation of a Construction Environmental Management Plan (CEMP).
- 5.7 The scrub, poor semi-improved grassland, tall ruderal, ephemeral/short-perennial, amenity grassland and hardstanding habitats were considered to be of low nature conservation value and no rare or notable plant species were confirmed in these habitat types. Urban Grasslands are the subject of a LBAP Habitat Plan¹⁶. It is unlikely that the grassland present on-site would qualify as important under the LBAP criteria, however. Consequently, loss of these habitats is unlikely to be a significant ecological constraint to development of the Site.

Semi-natural broadleaved woodland, scattered trees and windbreaks

- 5.8 The woodland and scattered trees provide potential habitats for invertebrates, nesting birds and other local wildlife in addition to providing structural diversity and continuity of habitat.
- 5.9 Although a significant proportion of the canopy is formed by mature native trees, the woodland would not be representative of Lowland Mixed Deciduous Woodland Habitat of Principal Importance (HPI) given its size and lack of a 'natural' ground flora. From a botanical perspective, this area of woodland would be considered to be of importance at a local scale.
- 5.10 It is recommended that the woodland within the current Lakeside School site is retained and buffered, considering any relevant arboricultural advice. It is understood that a small section of the woodland to the east of the school boundary is likely to be removed to improve site access from Naylor's road.

Ponds

- 5.11 The pond on site provides suitable habitat for a variety of species and add to the overall habitat diversity of the site and wider area. Ponds are the subject of a LBAP Habitat Plan¹⁷. The pond is to be retained.
- 5.12 Due to the close proximity of works, the waterbody could be at risk from pollution during works as result of soil-runoff or accidental spillages, with adverse impacts on dependent fauna associated with the pond. Adoption of sound site management principles and adherence to current best

¹⁶ Habitat Action Plan: Urban Grasslands 2008 updated 2018 North Merseyside BAP

¹⁷ Habitat Action Plan: Ponds 2008 updated 2018 North Merseyside BAP

practice guidelines for working near water should also help to prevent negative impacts on the pond from pollution events during construction, as will good working practice to prevent soil contamination in the event of, for example, a fuel spill. This would be best secured through the production and implementation of a CEMP.

Fauna

Bats

- 5.13 All species of bats and their roosts are listed on the Conservation of Habitats and Species Regulations 2017 making it illegal to deliberately disturb any such animal or damage / destroy a breeding site or roosting place of any such animal. Bats are also afforded full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to recklessly or intentionally kill, injure or take a species of bat or recklessly or intentionally damage or obstruct access to or destroy any place of shelter or protection or disturb any animal whilst they are occupying such a place of shelter or protection. Some bat species are SPI under the NERC Act and a number of bat species are also priority species within the Merseyside BAP.
- 5.14 Six records of common pipistrelle, soprano pipistrelle, and an unknown bat species were returned from within the search area. This included a record of a common pipistrelle roost within the Site boundary. Based on previous consultancy reports from 2008 this is thought to relate to a roost with B1 which was later not identified in further surveys in 2015¹⁸.

Bats – buildings

- 5.15 A series of 19 buildings were present within the survey area (B1-19). No evidence of roosting bats was noted in association with any of the structures during internal/external surveys. However, the large barn (B1a-d) was found to provide high bat roosting potential and B2 and B14 provided moderate bat roosting potential, due to the presence of several features which could be utilised by bats. B3, B5, B11, B12, B13, B15, B16, B18, and B19 were considered to have low bat roosting potential. Buildings B4, B8, B9, B10, B17 had negligible bat roosting potential.
- 5.16 The survey effort undertaken on each building was related to bat roosting potential provided;
- High bat roosting potential / confirmed roost – 3 surveys;
 - Medium bat roosting potential – 2 surveys; and
 - Low bat roosting potential - 1 surveys.
- 5.17 Throughout the course of the surveys up to three roosts were identified in association with B1 and B2 (which are interconnected). During the initial emergence survey on the 1st October 2019 two common pipistrelles were observed emerging from the building (Figure 4). In the 18th of June 2020, a single bat thought to be a BLE was observed entering the building but not re-emerging (Figure 7). As such this is considered to have roosted in the building.
- 5.18 No further evidence of roosts was recorded in association with the buildings during any of the other surveys.
- 5.19 There were also numerous bat boxes affixed to the buildings, including B1, although during the surveys and endoscope inspections no evidence of current use was recorded. No evidence has

¹⁸ Extended Phase 1 Survey and Baseline ECIA Former Wheathill Riding Centre Naylor's Road, Huyton, Knowsley C S Crook & Associates November 2015

been found that these are associated with any previous mitigation or Natural England licences. The survey undertaken in 2015 also described the use of the bat boxes as unconfirmed, with no obvious signs of use and a lack of emergence observations during nocturnal surveys.

- 5.20 The exact roosting locations in B1 and B2 were not identified but these are likely to be within the fabric of the buildings. Previous information from surveys in 2015 and 2008 suggest these are most likely to be of low conservation significance (small numbers of common species)¹⁹ and these survey results corroborates these findings.
- 5.21 Given the small number of bats observed, these are considered to constitute occasionally used roosts comprising small numbers of male and / or non-breeding female common pipistrelle and BLE bats. The structures (B1 and B2) are not considered to represent significant hibernation habitat for this species.
- 5.22 As B1 and B2 have been found to support bat roosts, this represents a statutory constraint to development. The proposed operations will likely result in the permanent loss of an occasionally used common pipistrelle bat (a common and widespread species) and an occasionally used BLE summer, day (non-maternity) roosts. As such, an appropriate licence will be required to legitimise the works affecting the buildings containing the roosts. Given the small size and low status of the roost sites, it is considered that licensing should comprise of registration of the site through a site-Bat ‘Low Impact’ Class Licence (BLICL). This could only be applied for once full planning permission is granted and all relevant conditions discharged. The licence will allow the demolition of the building providing adequate mitigation is implemented.
- 5.23 The bat boxes currently found on buildings (B1, B2, B14 and B15 on Figure 3) will need to be relocated or replaced at least like for like with an equivalent.
- 5.24 Mitigation and compensation will comprise of the following key elements as outlined in current guidance and the now archived Bat Mitigation Guidelines:
 - The small, occasionally used day roosts confirmed within the site are considered to be of low conservation significance and their loss to be of low-negligible impacts on the local bat population. The BMG goes on to state that minimum mitigation / compensation required for this level of impact on roosts of this size and status comprises:
‘Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring.’
 - Prior to the start of any demolition works, a Toolbox Talk will be provided to all site contractors highlighting the presence of roosting bats and any necessary measures to be implemented, including actions to be taken in the event of any unanticipated discovery of roosting bats during works.
 - Mitigation to be implemented to minimise the risk of injury / mortality of individual bats will comprise the careful removal by hand of roof materials associated with confirmed and potential roost sites under the supervision of a suitably experienced ecologist. This would comprise the removal of all roof tiles. Following the removal of roof tiles, it is considered that the remaining roof structure would no longer be suitable to support roosting bats. As such, subsequent demolition operations would proceed without supervision.

¹⁹ Mitchell-Jones, A. J. (2004). Bat Mitigation Guidelines. English Nature

- 5.25 It is proposed that one new bat box will be installed prior to any destructive search / demolition works, in case any bats need to be relocated from the confirmed roost sites within building the building and to provide roosting opportunities during the construction phase. The following bat box (or similar) will be installed for this purpose:
- Schwegler 2F, good for smaller British bats such as common pipistrelle.
- 5.26 In order to provide enhanced roosting features for bats, a bat box / bat tube will be incorporated into the built development. These are bat boxes which can be incorporated into buildings and are maintenance free. The small size of the box means they are more suitable for smaller colonies, so there are unlikely to be long-term issues arising from bat droppings / urine from large numbers of bats. The following boxes (or similar) are recommended:
- Schwegler 1F bat tube, good for a wide range of bat species.
 - Ibstock bat brick B (or similar), as above, good for a wide range of bat species.
- 5.27 The tubes will need to be placed within suitable walls at least 4m from the ground on a suitable aspect i.e. south, east or west and away from lighting to ensure roosting behaviour is not affected. The tubes should be placed on buildings on the site periphery, adjacent tree lines or hedgerows for cover once the bats have emerged. These measures are suitable for a wide range of British bat species.
- 5.28 All new roost provision features will have connectivity to offsite habitats. These features will provide suitable roosting opportunities for non-maternity roosts for common pipistrelle bats as well as enhanced roosting opportunities for a wide range of common bat species. Therefore, the mitigation / compensation plans will maintain and enhance the conservation status of the site for bats.

Bats – trees

- 5.29 One tree was found to provide high bat roosting potential due to an attached bat box (Figure 3), but no evidence of current use was recorded. As this was located within the current Lakeside School site, it will be retained within the area of woodland along the southern boundary²⁰.
- 5.30 All other trees which were identified as having potential roost features for bats were considered to have negligible or low potential from the ground level inspection. Any trees with low potential will need to be ‘soft felled’ under supervision of a licenced ecologist.

Bats – habitats

- 5.31 Although habitats on-site are of some value for commuting and foraging bats due to the presence of features such as a pond and scrub, which are likely to attract invertebrate prey items, the size and extent of the Site is so limited that it is considered to fall below the level required for nocturnal activity transects.
- 5.32 Where possible, it is recommended that a good practice lighting regime be used for the development to avoid light spill onto suitable foraging such as hedges and pond. Provided this good practice is followed (where possible) and lighting is minimised, effects from lighting should

²⁰ FPCR Environment & Design Ltd. (2020) Arboricultural Assessment

be negligible. The detailed design of lighting is based upon latest guidelines²¹ and includes the following:

- external lighting will be positioned to ensure no direct lighting of existing trees, woodland, or proposed areas of habitat creation / landscape planting; and
- unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting.

Badgers

- 5.33 Badgers and their active setts are protected under the Protection of Badgers Act 1992, making it an offence to kill, injure or take badgers or to damage or obstruct access into a badger sett. The Act also prohibits disturbance of a badger whilst it is occupying a sett.
- 5.34 No evidence of the presence of badger was recorded within the Site during the survey. Subsequently, badgers are not considered to pose a constraint to development of the Site.

Birds

- 5.35 All wild bird species are protected while nesting by the Wildlife and Countryside Act (WCA) 1981 (as amended). This legislation protects wild birds and their eggs from intentional harm, and makes it illegal to intentionally take, damage, or destroy a wild bird nest while it is in use or being built. Species listed under Schedule 1 of the WCA 1981 (as amended) have additional protection and makes it is an offence to intentionally or recklessly disturb the species, on or near an 'active' nest.
- 5.36 During the survey on the 20th May 2020 several bird nests were observed in buildings and areas of scrub throughout the derelict riding school.
- 5.37 Current proposals are that all scrub is to be removed. Where removal of woody vegetation is required, it is recommended that this is carried out outside of the nesting season (March – August inclusive) as all birds are protected whilst on the nest under the Wildlife and Countryside Act 1981 (as amended). If removal outside the nesting season is not feasible, all vegetation to be removed should be checked by an experienced ecologist for the presence of active nests. Should active nests be discovered, detailed advice would be provided by the supervising ecologist. Advice is likely to include a buffer zone around any located nests until all young have fledged.
- 5.38 The above advice is also relevant to the buildings, particularly those located within the derelict riding school, and the bird boxes affixed to buildings. Ideally these boxes should be relocated to an appropriate location, under supervision of a suitably qualified ecologist, outside of the nesting bird season.

Barn owls

- 5.39 Barn owls are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore the birds, their nests, eggs and young are fully protected. It is an offence to intentionally or recklessly disturb barn owls at an active nest site with eggs or young or before eggs are laid, or to disturb the dependent young.

²¹ Bat Conservation Trust & Institute of Lighting Professionals (2018) Guidance Note 08/18 - Bats and Artificial Lighting in the UK - Bats and Built Environment Series'

- 5.40 Notable evidence of barn owls was found throughout B1. This was consistent with historic evidence from previous ecological surveys undertaken in 2015²².
- 5.41 Barn owls would be expected to nest within the period between March to August. No evidence of nesting barn owls was found in May 2020, and none were sighted during the bat surveys. However, buildings should be checked by an appropriately licenced ecologist for evidence of all nesting birds (not just barn owls) prior to any works during this period. If nesting is observed, then impacts should be avoided until nests have been fledged.
- 5.42 As proposals will likely result in the loss of a roost site, good practice guidelines should be followed to result in continuity of roosting opportunities for barn owl²³:
- maintain continuity of occupation by making temporary alternative provision nearby - a barn owl roosting/nesting box should be provided for barn owls within 200 metres of the development site at least 30 days before any development works commence, and remain in place until at least 30 days after permanent provision has been made;
 - ensure compliance with legal protection by requiring a survey immediately pre-development - no building/construction work should take place within 30 metres of any part of the site containing material evidence of barn owl occupation unless survey-based evidence can prove no birds are nesting within 3 days of work commencing; and
 - provide a permanent roosting place inside the developed buildings – an accessible roosting space for barn owls shall be provided and maintained within one or more of the developed buildings.

Great crested Newts

- 5.43 Great crested newts are afforded legal protection by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2017. Great crested newts are also listed as a Species of Principal Importance under the NERC Act and the Merseyside BAP.
- 5.44 During the survey, a single pond was identified within the site boundary, with a HSI score of 'Poor' and a predicted GCN presence of 0.03/ 3%. This low suitability was mostly due to the confirmed presence of large populations of predatory fish. An eDNA survey of P1 returned negative result, which is corroborated by previous ecological surveys in 2015 which did not find evidence of GCN²⁰.
- 5.45 Two ponds (Pond A and B on Fig. 1) were identified within 500m of the Site. Pond A and B were both over 250m from the Site boundary.
- 5.46 The nearest records returned were c.700m away from the Site boundary.
- 5.47 Research published by Natural England (Cresswell & Whitworth 2004²⁴) in relation to GCN trapping and translocation suggests that "*at distances greater than 200-250m, capture operations will hardly ever be appropriate*". These recommendations are also broadly consistent with findings in the literature, since although a maximum routine migratory range has been estimated as approximately

²² Extended Phase 1 Survey and Baseline ECIA Former Wheathill Riding Centre Naylor's Road, Huyton, Knowsley C S Crook & Associates November 2015

²³ Barn Owls and Rural Planning Applications – a guide, Barn Owl Trust 2015

²⁴ Cresswell W and Whitworth R (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. English Nature Research Report 576. English Nature, Peterborough.

250m from a breeding pond (Franklin, 1993²⁵; Oldham and Nicholson, 1986²⁶; Jehle, 2000²⁷) a terrestrial zone of 63 m, within which 95% of summer refuges were located, has also been suggested. In addition, following the breeding season, Jehle & Arntzen (2000²⁸) recorded 64% of newts within 20 m of the pond edge. Therefore, the records are sufficiently distant from the application site not to pose as a constraint to the proposed development.

- 5.48 In terms of terrestrial habitats, although some features of interest were present (notably the grassland and scrub, as well as refugia) they were considered to be of limited value due to their small size and isolation. It is unlikely that GCN would migrate (over 250m) to utilise the limited habitats present on-site and therefore GCN are not considered a constraint to the proposed development.

Reptiles

- 5.49 All British reptiles are protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended) and are listed as species of principal importance for the conservation of biodiversity under the NERC Act, indicating that public bodies, such as the Local Planning Authority, have a duty to have regard to the conservation of these species.
- 5.50 No records of reptiles were returned from within the search area. There were several natural (dead wood piles) and man-made (rubble piles, metal sheeting) refugia present throughout the site, but particularly in the derelict riding school area of the Site. Along with the areas of scattered scrub, rough grassland, and degraded hardstanding, the Site provides a range of habitat structures, including a mix of open areas and cover, which is suitable for reptiles.
- 5.51 No reptile surveys were conducted, so it is recommended that a precautionary approach is taken when undertaking works.
- 5.52 The aim of the mitigation strategy on site is to clear areas of suitable habitat and carry out the construction works using precautionary methods to avoid causing harm to any reptiles, should they be present. Key elements include:
- prior to the start of any demolition works, a Toolbox Talk will be provided to all site contractors by a suitably qualified ecologist, highlighting the potential presence of reptiles and any necessary measures to be implemented, including actions to be taken in the event of any unanticipated discovery of reptiles during works;
 - all vegetation clearance works must be undertaken when common reptiles are likely to be active (mid-April to mid-October) to avoid any chance of disturbing reptiles during the sensitive hibernation period;
 - a suitably qualified ecologist will supervise the directional strimming of any suitable ground vegetation with an initial strim to 200mm. Arisings would be removed. A second strim would be completed 1-2 hours later to 50mm, towards retained and unaffected habitats allowing reptiles to move into these areas;

²⁵ Franklin P.S. (1993) The migratory ecology and terrestrial habitat preferences of the great crested newt, *Triturus cristatus*, at Little Wittenham Nature Reserve. M.Phil. Thesis, De Montfort University, UK.

²⁶ Oldham, R.S. & Nicholson, M., 1986. Status and ecology of the warty newt *Triturus cristatus*. Report to the Nature Conservancy Council (Contract HF 3/05/123), Peterborough.

³¹ Jehle, R., 2000.. The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). Herpetological Journal, 10, pp. 137-142.

²⁸ Jehle, R and Arntzen, JW 2000, 'Post-breeding migrations of newts (*Triturus cristatus* and *T. marmoratus*) with contrasting ecological requirements', Journal of Zoology, London, 251, pp. 297-306.

- following strimming, any potential hibernation/refuge sites such as rubble, tree/hedgerow roots or wood piles present within the working area shall be removed carefully under supervision of the ecologist;
- any reptiles found will be relocated by a suitably qualified and experienced ecologist to an area of suitable retained habitat;
- all arisings from any vegetation clearance not used for the creation of new or maintenance of hibernacula must be removed from the working area at this time to prevent the incidental creation of reptile hibernacula and habitat;
- construction materials and products, such as wood and rubble, created during operation of the site and subsequent to any habitat creation for reptiles would be placed within the compound and away from potential reptile habitat to prevent these from being used by reptiles during works.

5.53 The areas of suitable habitat are small and are not deemed important for local reptile populations and so no habitat creation, restoration or enhancement is considered necessary. However, retained areas of vegetation, as well as newly created areas of green infrastructure could provide habitat enhancements.

Biodiversity Enhancements

General Enhancements

5.54 In line with NPPF, it is recommended that the development of the site result in a gain in value for wildlife by incorporating biodiversity in and around the development via the use of ecological enhancement measures. Prior to this being mandated in the pending Environment Bill, some LPA's are now requesting that all developments are subject to a formal audit (Biodiversity offsetting using Defra matrix 2.0 or similar) with the scheme required to result in a calculated percentage increase in biodiversity value. Currently this percentage varies between LPA's. Where losses cannot be avoided onsite, offsite compensation will be required or alternatively this can sometimes be avoided by contributing to a biobank scheme if one is available locally.

5.55 In addition to the recommendations with respect to individual species and habitats outlined further above, opportunities exist within the scheme for general biodiversity enhancements to be undertaken. The following measures are recommended for this specific site:

- any new habitats created as part of the green infrastructure of the site should aim to increase the diversity of habitats present and provide structural diversity and should be designed in a way to have connectivity with each other and existing habitats on site
- any areas of informal grassland, should seek to use a herb-rich mix suitable for the local area, with any more formal areas using a flowering lawn mix as an alternative to a standard rye grass mix;
- any garden planting proposed at the outset should also use native species of value to wildlife. Suitable small tree species for inclusion in garden planting schemes include field maple, silver birch and holly;
- all informal areas of planting should use native species and be subject to sympathetic management and a management plan to promote their conservation value;

- soft landscaping using native and ecologically valuable species would enhance the site, avoid using non-native species with overly complex flower structure or those of an invasive nature such as cotoneasters;
- some of the arisings from the vegetation clearance should be used to create hibernacula (e.g. around the pond) of benefit to reptiles and amphibians;
- The scheme should provide an increase in bat roosting and bird nesting opportunities. This would be best delivered through bat and bird boxes (in addition to those required for mitigation).

6.0 APPENDIX A: BOTANICAL SPECIES LIST

Semi-natural broadleaved woodland, scattered broadleaved trees, windbreaks		
Common Name	Scientific Name	DAFOR
Ash	<i>Fraxinus excelsior</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F
Leyland cypress	<i>Cupressocyparis leylandii</i>	F
Pedunculate oak	<i>Quercus robur</i>	F
Silver birch	<i>Betula pendula</i>	F
Sycamore	<i>Acer pseudoplatanus</i>	F
Common lime	<i>Tilia x europaea</i>	O
Crack willow	<i>Salix euxina</i>	O
Garden privet	<i>Ligustrum ovalifolium</i>	O
Goat willow	<i>Salix capraea</i>	O
Holly	<i>Ilex aquifolium</i>	O
Purple plum	<i>Prunus cerasifera</i>	O
Rowan	<i>Sorbus aucuparia</i>	O
Spring cherry	<i>Prunus x subhirtella</i>	O
White poplar	<i>Populus alba</i>	O
Wild cherry	<i>Prunus avium</i>	O
Sessile oak	<i>Quercus petraea</i>	R
Weeping willow	<i>Salix x sepulcralis</i>	R
Ground flora		
Common ivy	<i>Hedera helix</i>	A
Bramble	<i>Rubus fruticosus agg.</i>	F
Common nettle	<i>Urtica dioica</i>	F
Hedge bindweed	<i>Calystegia sepium</i>	F
Dog rose	<i>Rosa canina</i>	O
Wild angelica	<i>Angelica sylvestris</i>	O
Shaggy soldier	<i>Galinsoga quadriradiata</i>	R

Dense and Scattered Scrub		
Common Name	Scientific Name	DAFOR
Bramble	<i>Rubus fruticosus agg.</i>	A
Grey willow	<i>Salix cinerea.</i>	F
Elder	<i>Sambucus nigra</i>	F
Gorse	<i>Ulex europaeus</i>	A
Hawthorn	<i>Crataegus monogyna</i>	O
Bittersweet	<i>Solanum dulcamara</i>	O

Poor semi-improved grassland (Sl ₁)		
Common Name	Scientific Name	DAFOR
Yorkshire-fog	<i>Holcus lanatus</i>	A
White clover	<i>Trifolium repens</i>	A
Common chickweed	<i>Stellaria media</i>	F
Common mouse-ear	<i>Cerastium fontanum</i>	F
Common nettle	<i>Urtica dioica</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
Creeping thistle	<i>Cirsium arvense</i>	F
Dandelion	<i>Taraxacum officinale</i>	F
False oat-grass	<i>Arrhenatherum elatius</i>	F
Herb-Robert	<i>Geranium robertianum</i>	F
Common mugwort	<i>Artemisia vulgaris</i>	O
Black medick	<i>Medicago lupulina</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	O
Broad-leaved dock	<i>Rumex obtusifolius</i>	O
Red dead-nettle	<i>Lamium purpureum</i>	O
Canadian fleabane	<i>Erigeron canadensis</i>	O
Canadian goldenrod	<i>Solidago canadensis</i>	O
Common ragwort	<i>Jacobaea vulgaris</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Feverfew	<i>Tanacetum parthenium</i>	O
Mugwort	<i>Artemisia vulgaris</i>	O
Oxford ragwort	<i>Senecio squalidus</i>	O
Petty spurge	<i>Euphorbia peplus</i>	O
Plantain ribwort	<i>Plantago lanceolata</i>	O
Rosebay willowherb	<i>Chamerion angustifolium</i>	O
Spear thistle	<i>Cirsium vulgare</i>	O
American willowherb.	<i>Epilobium ciliatum</i>	O
Red clover	<i>Trifolium pratense</i>	O

Poor semi-improved grassland (Sl ₂)		
Common Name	Scientific Name	DAFOR
Creeping bent	<i>Agrostis stolonifera</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
Sweet-vernal grass	<i>Anthoxanthum odoratum</i>	F
Perennial ryegrass	<i>Lolium perenne</i>	A
Common mouse-ear	<i>Cerastium fontanum</i>	F
Creeping thistle	<i>Cirsium arvense</i>	F
Cat's ear	<i>Hypochaeris radicata</i>	F
Hard rush	<i>Juncus inflexus</i>	O
Rosebay willowherb	<i>Chamerion angustifolium</i>	O

Poor semi-improved grassland (Sl ₂)		
Self Heal	<i>Prunella vulgaris</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	O
Broad-leaved dock	<i>Rumex obtusifolius</i>	O
Common ragwort	<i>Jacobaea vulgaris</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Buddleia	<i>Buddleja davidii</i>	O
Willow saplings	<i>Salix</i> spp.	O
Common mugwort	<i>Artemisia vulgaris</i>	O
Fox and Cubs	<i>Pilosella Aurantiaca</i>	R

Ephemeral/short-perennial		
Common Name	Scientific Name	DAFOR
Creeping bent	<i>Agrostis stolonifera</i>	F
Colt's-foot	<i>Tussilago farfara</i>	F
common mouse-ear	<i>Cerastium fontanum</i>	F

Tall ruderal		
Common Name	Scientific Name	DAFOR
Common nettle	<i>Urtica dioica</i>	A
Creeping thistle	<i>Cirsium arvense</i>	A
Hedge bindweed	<i>Calystegia sepium</i>	A
Rosebay willowherb	<i>Chamerion angustifolium</i>	A
Greater plantain	<i>Plantago major</i>	F
Yarrow	<i>Achillea millefolium</i>	F
Common mugwort	<i>Artemisia vulgaris</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	O
Common ivy	<i>Hedera helix</i>	O
Bittersweet	<i>Solanum dulcamara</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O

Marginal vegetation		
Common Name	Scientific Name	DAFOR
Common reed	<i>Phragmites australis</i>	D
White water-lily	<i>Nymphaea alba</i>	O
Yellow flag iris	<i>Iris pseudacorus</i>	O

Standing water (P1)		
Common Name	Scientific Name	DAFOR
Broad-leaved pondweed	<i>Potamogeton natans</i>	F

Amenity grassland		
Common Name	Scientific Name	DAFOR
Perennial rye-grass	<i>Lolium perenne</i>	D
A meadow-grass	<i>Poa sp.</i>	D
Daisy	<i>Bellis perennis</i>	F
White clover	<i>Trifolium repens</i>	F

Gardens (including lawns and planting)		
Common Name	Scientific Name	DAFOR
Perennial rye-grass	<i>Lolium perenne</i>	D
Daisy	<i>Bellis perennis</i>	F
Selfheal	<i>Prunella vulgaris</i>	O
Germander speedwell	<i>Veronica chamaedrys</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Dandelion	<i>Taraxacum officinale</i>	R

7.0 APPENDIX B: EDNA SURVEY RESULTS**DNA Analysis Report - Commercial in Confidence**

Customer: FPCR Environment & Design Ltd
Address: [REDACTED]
Contact: [REDACTED]
Email: [REDACTED]
Tel: [REDACTED]
Report date: 29-May-2020
Order Number: GCN20-1230
Samples: Pond Water
Analysis requested: Detection of Great Crested Newt eDNA from pond water.

Thank you for submitting your samples for analysis with the Fera eDNA testing service. The details of the analysis are as follows:

Method:

The method detects pond occupancy from great crested newts (GCN) using traces of DNA shed into the pond environment (eDNA). The detection of GCN eDNA is carried out using real time PCR to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed is detailed in Biggs J., et al, (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

The limits of this method are as follows: 1) the results are based on analyses of the samples supplied by the client and as received by the laboratory, 2) any variation between the characteristics of this sample and a batch will depend on the sampling procedure used. 3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of GCN DNA against a calibration curve, 4) a 'not detected' result does not exclude presence at levels below the limit of detection.

The results are defined as follows:

Positive: DNA from the species was detected.

eDNA Score: Number of positive replicates from a series of twelve.

Negative: DNA from the species was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.

Inconclusive: Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided.

page 1 of 2

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DNA Analysis Report - Commercial in Confidence



CustomerReference	Fera Reference	GCN Detection	eDNA Score	Inhibition	Degradation
Pond1	S20-012796	Negative	0	No	No

The results indicate that eDNA for great crested newts was not detected in the sample submitted. Analysis was conducted in the presence of the following controls: 1) extraction blank, 2) appropriate positive and negative PCR controls for each of the TaqMan assays (GCN, Inhibition, and Degradation). All controls performed as expected.

This test procedure was developed using research funded by the Department of Environment, Food and Rural Affairs.

Issuing officer: Steven Bryce
Tel: 01904 462 070
Email: e-dna@fera.co.uk

page 2 of 2

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8.0 APPENDIX C: BAT SURVEY SUMMARY

Building internal / external surveys

Date	Surveyors	Building Reference	Potential for roosting bats
25/09/2019	Survey was undertaken by an Associate Ecologist (holder of Natural England bat licence CL18 (Level 2) 2015-12569-CLS-CLS) and assisted by a trainee bat ecologist.	B1a-d	High
		B2	Moderate
		B3	Low
		B4	Negligible
		B5	Low
		B8	Negligible
		B9	Negligible
		B10	Negligible
20/05/2020	Survey was undertaken by an Associate Ecologist (holder of Natural England bat licence CL18 (Level 2) 2020-46132-CLS-CLS) and assisted by a trainee bat ecologist.	B11	Low
		B12	Low
		B13	Low
		B14	Moderate
		B15	Low
		B16	Low
		B17	Negligible
		B18	Low
		B19	Low

Nocturnal emergence / re-entry surveys

Survey details	Date	Time	Conditions	Surveyors	Results summary
Nocturnal emergence survey of B1, B2, B3 and B5	01/10/2019	18:35 – 20:20	Sunset: 18:50 Start temp (°C): 11 Wind (BF): 1 Rain (0-5): 0 Cloud cover (%): 90	<u>FPCR Environment & Design Ltd:</u> Survey led by an Associate Ecologist (holder of Natural England bat licence CL18 (Level 2) <u>2015-12569-CLS-CLS</u>) Supported by 3 suitably experienced ecologists	During the survey a common pipistrelle was observed flying within B1b 54 minutes after sunset (19:44) having likely emerged from a roost from within the building. This was observed to commute away from the building towards the north. A further common pipistrelle was recorded 1 hour and 13 minutes after sunset (20:03) within B1a and continued to forage within the building for some time before leaving and commuting to the north west. Other bat activity observed during the survey was very limited and comprised a small number of common pipistrelles commuting past the building.
Nocturnal emergence survey of B11 and B14	03/06/2020	21:18 – 23:03	Sunset: 21:33 Start temp (°C): 12 Wind (BF): 0 Rain (0-5): 0 Cloud cover (%): 70	<u>FPCR Environment & Design Ltd:</u> Survey led by an Associate Ecologist (holder of Natural England bat licence CL18 (Level 2) <u>2020-46132-CLS-CLS</u>) Supported by 3 suitably experienced ecologists	No evidence of roosting bats was observed and there was generally very little activity with a small number of common pipistrelles foraging and commuting between the buildings and a soprano pipistrelle recorded by the detector but not seen.
Nocturnal re-entry survey of B1, B2, B3, B5	04/06/2020	02:47 – 05:02	Sunset: 04:47 Start temp (°C): 10 Wind (BF): 1 Rain (0-5): 0 Cloud cover (%): 80	<u>Tyler Grange Group Ltd.:</u> 5x Ecologist	Surveyors observed no evidence of roosting bats. General bat activity was very limited throughout the survey, with no foraging activity and only a small number of common pipistrelles commuting past the buildings being recorded.

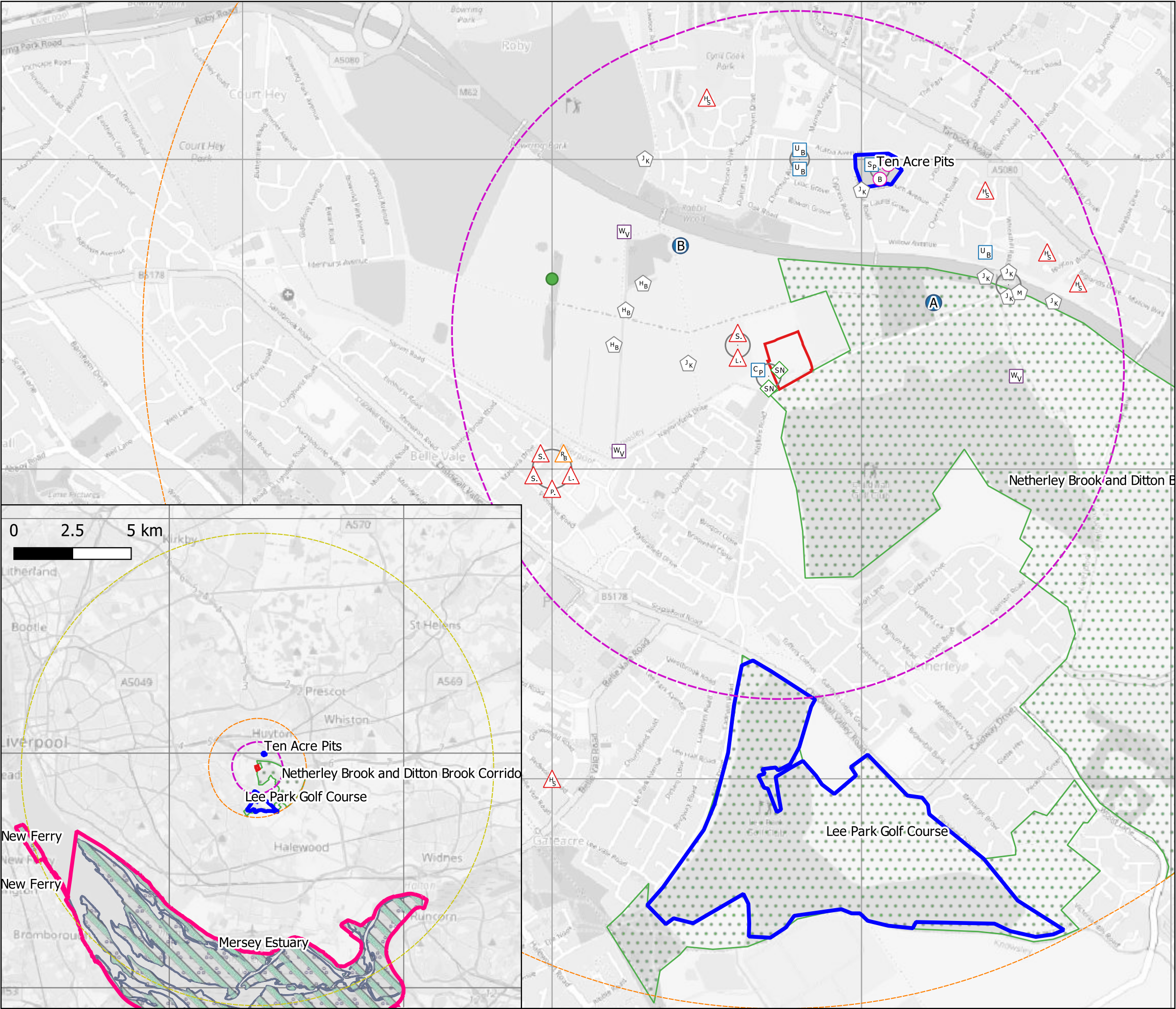
Survey details	Date	Time	Conditions	Surveyors	Results summary
Nocturnal re-entry survey of B1, B2, B3, B5, B12, B13, B14, B15, B16, B18, B19	18/06/2020	02:42 – 04:58	Sunset: 04:42 Start temp (°C): 15 Wind (BF): 1 Rain (0-5): 0 Cloud cover (%): 80	<u>FPCR Environment & Design Ltd:</u> Survey led by an Associate Ecologist (holder of Natural England bat licence CL18 (Level 2) <u>2015-12569-CLS-CLS</u>) Supported by 6 suitably experienced ecologists. <u>Tyler Grange Group Ltd.:</u> 5x Ecologist	During this survey, a single bat was seen entering B2 through the open doorway 42 minutes before sunrise (04:00). No echolocation was detected, which indicated that this bat was likely a brown long-eared bat (BLE), although this could not be confirmed without echolocation calls to analyse. Other activity during the survey comprised of a small number of common pipistrelles and soprano pipistrelles commuting past the buildings and foraging above P1.

9.0 APPENDIX D: BADGER SURVEY SUMMARY

Date	Surveyors	Results summary
25/09/2019	<u>FPCR Environment & Design Ltd:</u> 2 x suitably experienced ecologists from FPCR Environment & Design Ltd	No signs attributable to badgers such as setts, latrines, hairs or footprints were recorded within the Site or its immediate surrounds (where accessible).
20/05/2020	<u>FPCR Environment & Design Ltd:</u> 2 x suitably experienced ecologists from FPCR Environment & Design Ltd	No signs attributable to badgers such as setts, latrines, hairs or footprints were recorded within the Site or its immediate surrounds (where accessible).

10.0 APPENDIX E: BARN OWL SURVEY SUMMARY

Date	Surveyors	Results summary
25/09/2019	<u>FPCR Environment & Design Ltd:</u> 2 suitably experienced ecologists from FPCR Environment & Design Ltd, lead surveyor accredited under under Natural England barn owl licence CL29/00182)	Barn owl pellets were found throughout the barn (B1a-d) as well as splashing and possible nest materials. Within B1a there were seven pellets and possible nesting material on eastern gable wall plate. Within B1b, seven pellets and splashing was present on buttresses. Within B1c and B1d there were 50+ pellets and nest material on internal beams.
20/05/2020	<u>FPCR Environment & Design Ltd:</u> 2 suitably experienced ecologists from FPCR Environment & Design Ltd, lead surveyor accredited under under Natural England barn owl licence CL29/00182)	No evidence of nesting barn owls was recorded in the barn (B1), or any of the additional buildings within the extended boundary. However, pellets and splashing were found throughout B1, suggesting the presence of perch or roosting site. No incidental sightings of barn owls were recorded on site during the bat surveys.



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Key

- Site Boundary
- 1km buffer
- 2km buffer
- 10km buffer
- Local Wildlife Site (LWS)
- Nature Improvement Area (NIA)
- Site of Special Scientific Interest (SSSI)
- Special Protected Area (SPA)
- RAMSAR Sites
- Off-site ponds within 500m (with ref.)
- GCN Class Survey Licence Return - Present

Notable species records

- Common pipistrelle
- Soprano pipistrelle
- Unknown bat species
- Water vole
- Smooth newt
- Grey partridge
- Lapwing
- Skylark
- House sparrow
- Reed bunting
- Bluebell
- American mink
- Himalayan balsam
- Japanese knotweed



client
Witherslack Group

project
Lakeside School, Liverpool

drawing title
SITE LOCATION AND CONSULTATION PLAN

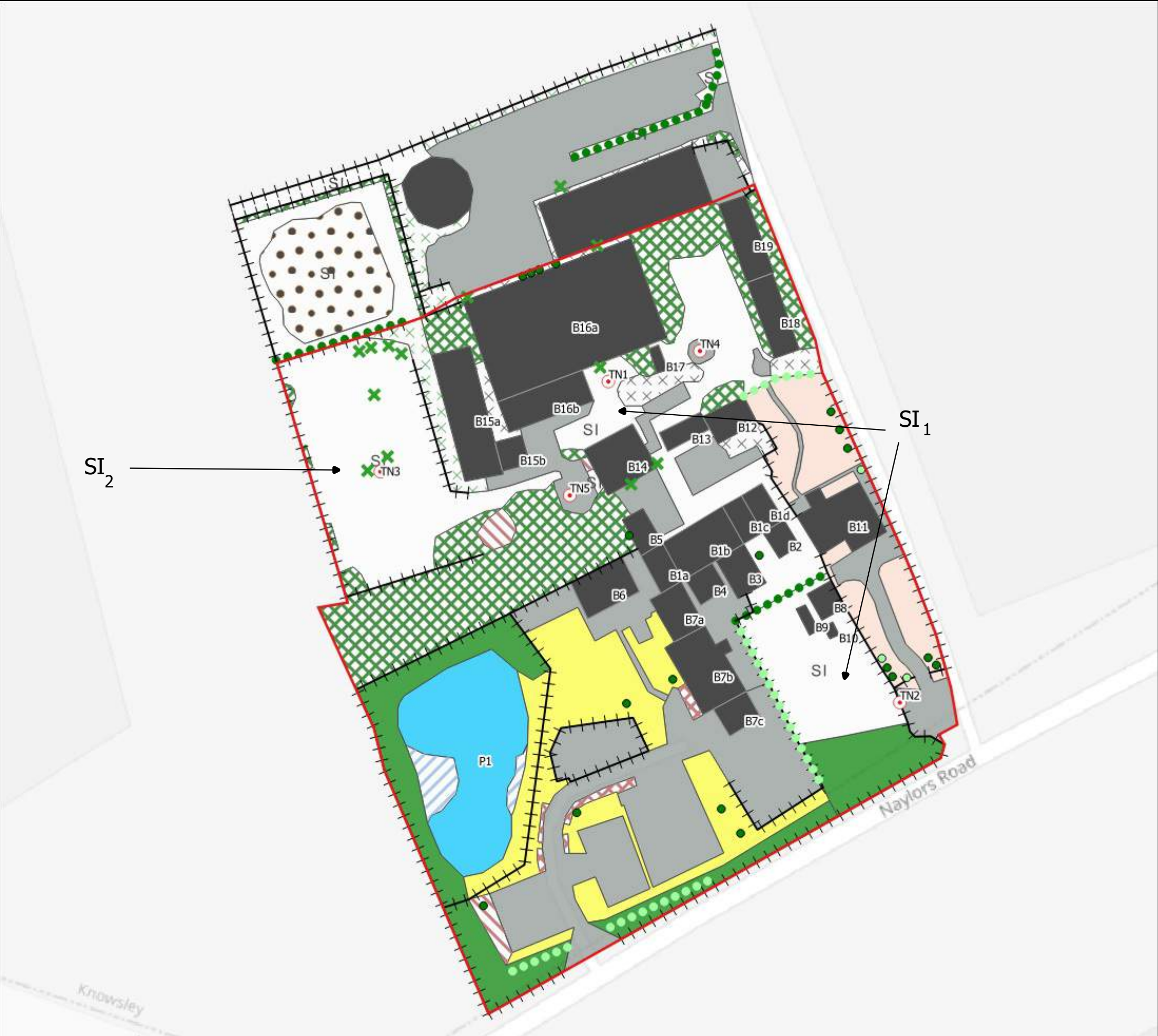
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Figure 1

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Key

Site Boundary

Phase 1 Habitats

- Bare ground
- Broadleaved woodland - semi-natural
- Buildings
- Built Environment: Buildings/hardstanding
- Built Environment: Gardens (lawn and planting)
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - ephemeral/short perennial
- Introduced shrub
- Marginal and inundation - marginal vegetation
- Other tall herb and fern - ruderal
- Poor semi-improved grassland
- Scrub - dense/continuous
- Scrub - scattered
- Standing water
- Broadleaved trees
- Fence
- Coniferous trees
- Scrub - scattered
- Coniferous tree
- Broadleaved tree
- Target note (with ref.)

- TN1 - Corrugated metal and other waste (potential refugia)
- TN2 - Fly tipped waste
- TN3 - Dead wood pile (potential refugia)
- TN4 - Pile of aggregate
- TN5 - Dead wood/wood chips on hardstanding (potential refugia)



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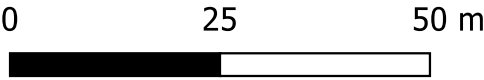
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PHASE 1 HABITAT PLAN



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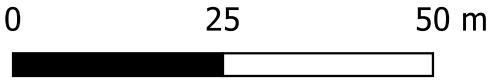


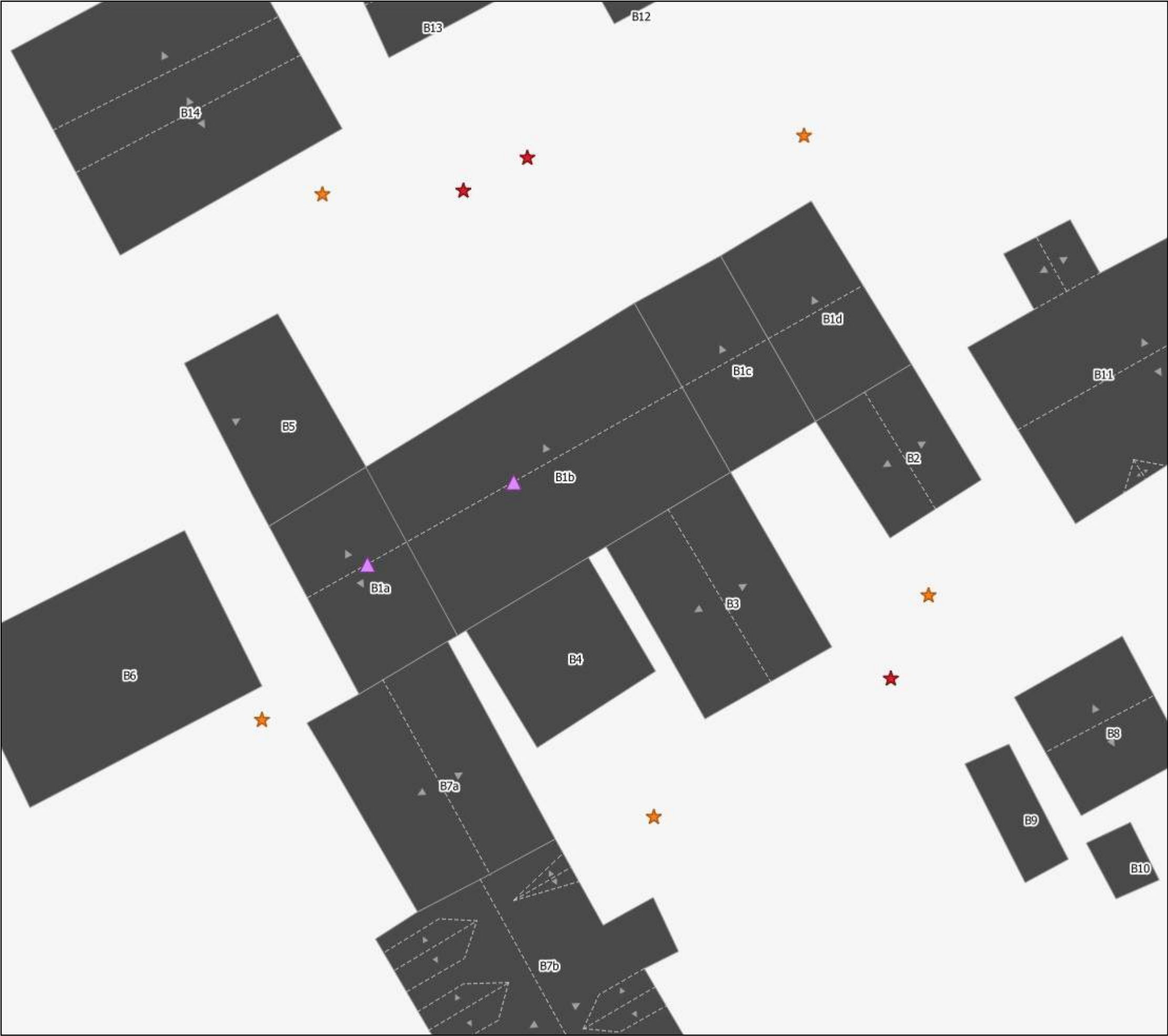
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Key

- Site Boundary
- Buildings(with ref.)
- Bat box (on building)
- Bat box (on tree)
- Bird box (on building)





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Key

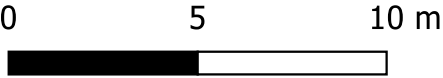
Site Boundary

Buildings(with ref.)

Surveyor

Camera

Common pipistrelle - emerging from within building



client

Witherslack Group

project

Lakeside School, Liverpool

drawing title

NOCTURNAL EMERGENCE SURVEY PLAN - DUSK 01.10.2019

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Figure 4

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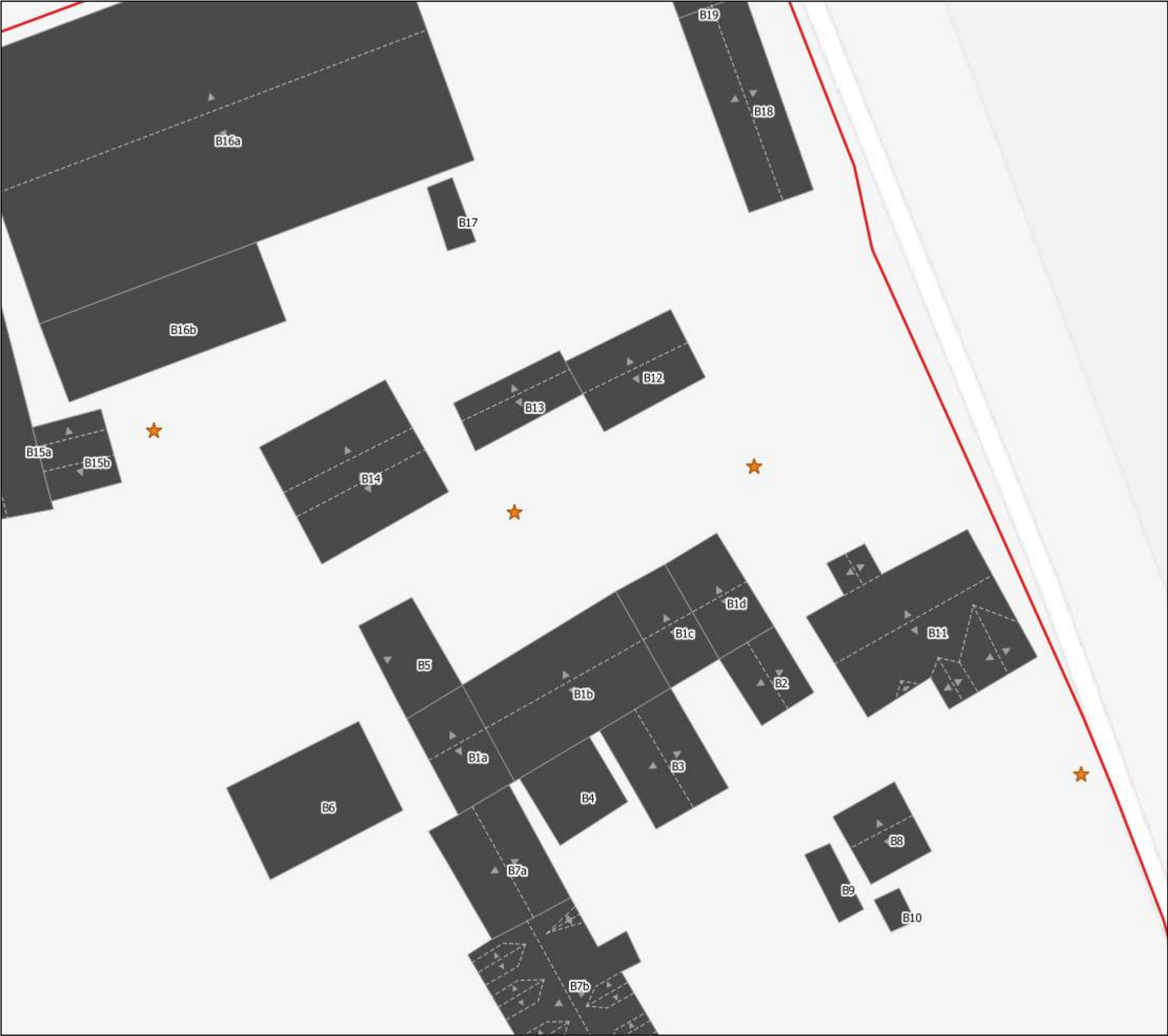
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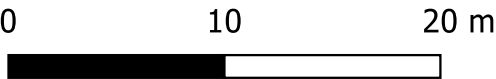
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- Key**
- Site Boundary
 - Buildings(with ref.)
 - Surveyor



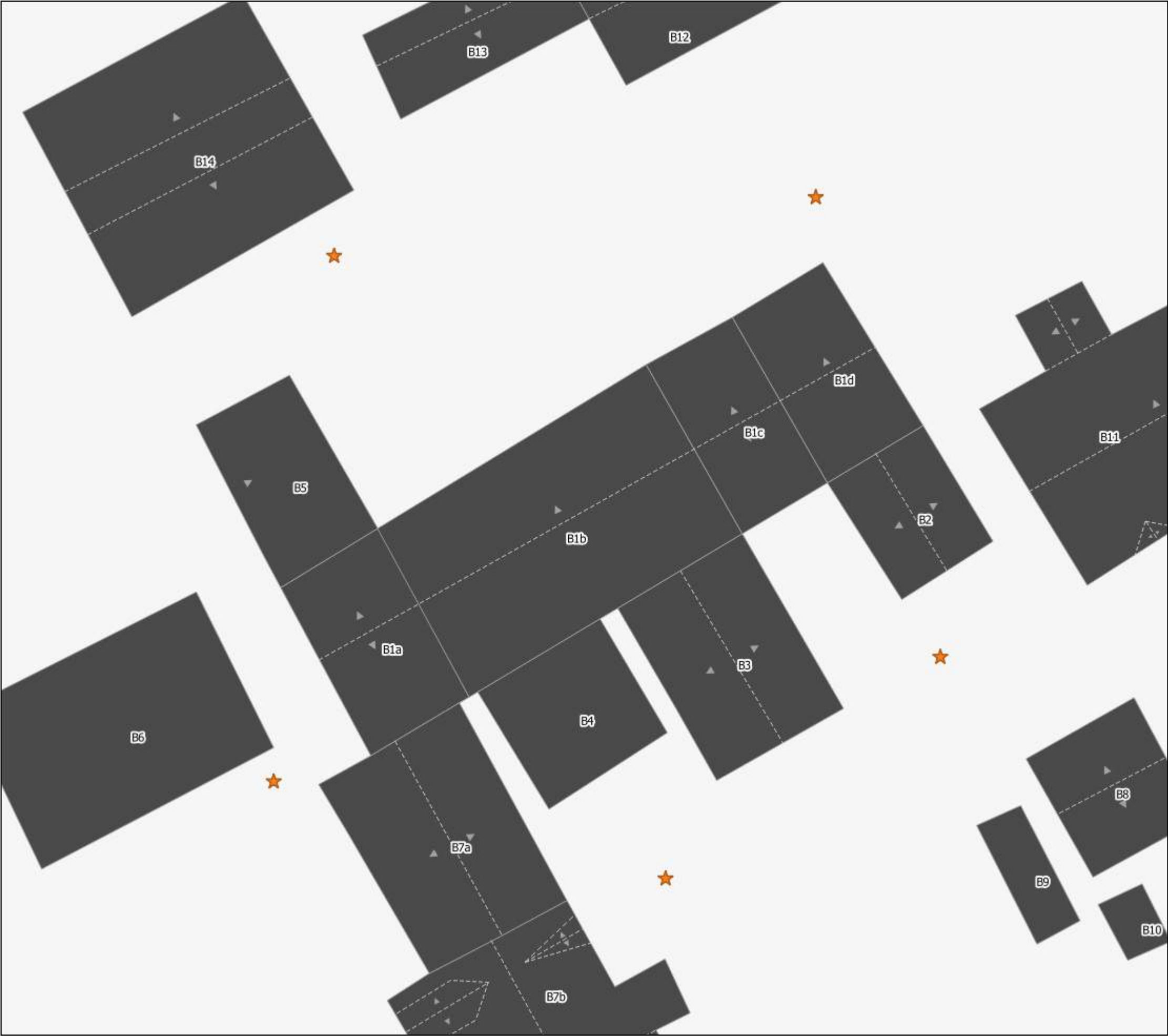


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project
Lakeside School, Liverpool

drawing title
NOCTURNAL EMERGENCE SURVEY PLAN -
DUSK 03.06.2020

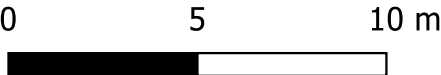
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- Key**
- Site Boundary
 - Buildings(with ref.)
 - Surveyor



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drawing title
NOCTURNAL RE-ENTRY SURVEY PLAN -
DAWN 04.06.2020

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Figure 6

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25/11/2020

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Key

- Site Boundary
- Buildings(with ref.)
- Surveyor - roost characterisation (B1)
- Surveyor - back-tracking
- BLE - entered building



client
Witherslack Group
project
Lakeside School, Liverpool

drawing title
NOCTURNAL RE-ENTRY SURVEY PLAN -
DAWN 18.06.2020

scale
NTS @ A3

drawn
MB

issue
25/11/2020

drawing / figure number
Figure 7

rev
A