



**SMITHY BRIDGE ROAD
ROCHDALE
ECOLOGICAL ASSESSMENT 2022**

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Executive Summary

1. TEP was commissioned in April 2021 by Taylor Wimpey UK Ltd to undertake updated surveys and ecological assessment of a site known as Smithy Bridge Road, Rochdale. This assessment is required to support a detailed planning application for 199 dwellings and the first phase of a residential relief road, associated public open space, internal highways, car parking, gardens and landscaping with access to be taken from Smithy Bridge Road and pedestrian / cycle access from Brooklyn Avenue.
2. The site lies to the east of Smallbridge, Rochdale and comprises a large area of semi-improved neutral grazed grassland, along with smaller areas of other grassland types, swamp, a pond, a number of scattered trees and remnant sections of hedgerow. The southern boundary is bordered by the River Roch.
3. The site supports one functional pond (P4). Another on-site waterbody (P2) is no longer present. A further two ponds (P1, P3) are located within 500m of the site, both of which are dry. Great crested newt (GCN) are not considered to be present (although common frog is), based on the current survey, the isolated nature of the site and low quality terrestrial habitat. One dead tree (T2), which will be lost, has moderate bat roost potential and two confirmed pipstrelle day roosts. Three mature sycamore trees (T1, T3, T4), all of which will be retained, were identified as having low bat roost potential. The site provides habitat for foraging and commuting bats, a number of foraging and nesting birds and hedgehog. A low population density of water vole is present on the River Roch. Badger and otter are not currently present.
4. The public open space within the development and along the River Roch will include a range of diverse grassland enhancement, hedgerow creation, tree planting and retention of the pond and swamp habitats.
5. The following recommendations have been identified:
 - Retained trees and scrub will be protected in accordance with current standards (BS5837:2012).
 - Other retained habitats (grassland, pond and swamp) will also be protected.
 - Construction Environmental Management Plan (CEMP) to minimise potential for site runoff/ pollution incidents will be produced and adhered to.
 - Wildlife friendly management of retained, enhanced and created habitats within the site will be implemented.
 - Production of an Invasive Species Management Plan for Himalayan balsam *Impatiens glandulifera*, variegated yellow archangel *Lamium galeobdolon* subsp. *Argentatum* and Japanese knotweed *Fallopia japonica* will be produced and adhered to.
 - Pre-construction badger survey to confirm whether they have moved into the area.
 - Reasonable Avoidance Measures Method Statement (RAMMS) to ensure no killing or injury to amphibians and hedgehog which may be present on the site during site clearance will be produced and adhered to.

- Removal of tree T2 with confirmed bat roosts must be undertaken under a European Protected Species mitigation licence, with supervision of a licensed ecologist and mitigated with installation of bat boxes on retained trees.
 - Production of a Sensitive Lighting Strategy for both construction activities and the completed development to maintain dark corridors along retained features.
 - Installation of outfalls must be undertaken under a Natural England mitigation licence for water vole, due to their presence on the River Roch. Conservation gain via habitat enhancement for water vole is also required.
 - Pre-commencement otter survey, if works have not commenced within 12 months of this report.
 - Vegetation clearance to be undertaken outside the bird nesting season (March to August inclusive), if not then nesting bird checks to be undertaken a maximum of 24 hours in advance of clearance, with works delayed if nests present.
 - Incorporation of a comprehensive nest box scheme into the masterplan layout to replace lost breeding opportunities for a range of species.
6. Further enhancements can be achieved by installing additional bat and bird boxes on site to provide roosting and nesting opportunities, creation of log piles from removed trees and creation of gaps in fences to allow free movement of hedgehogs and other wildlife between gardens.

1.0 Introduction

- 1.1 TEP was commissioned in April 2021 by Taylor Wimpey UK Ltd, to undertake updated surveys and ecological assessment of a site known as Smithy Bridge Road, Rochdale. A previous ecological assessment was produced in 2019, based on surveys undertaken in 2017 and 2018.
- 1.2 This assessment is required to support a Full planning application for 199 dwellings and the first phase of a residential relief road, associated public open space, internal highways, car parking, gardens and landscaping with access to be taken from Smithy Bridge Road and pedestrian / cycle access from Brooklyn Avenue.
- 1.3 The ecological assessment has been undertaken using the following methods:
 - Desktop study;
 - Extended Phase 1 habitat survey;
 - Great crested newt Habitat Suitability Index assessment;
 - Daytime and nocturnal bat assessment;
 - Bat activity transect survey;
 - Breeding bird survey; and
 - Riparian mammals survey.
- 1.4 The objectives of this report are to:
 - Describe the existing vegetation and give an overview of the habitats present on the site;
 - Identify whether there are any features of conservation value such as legally protected species or habitats of biodiversity importance;
 - Advise on further surveys or mitigation requirements that may be needed prior to development of the site; and
 - Outline opportunities to provide biodiversity enhancements within site proposals.

2.0 Site Description

- 2.1 The site lies to the east of the town of Smallbridge, Rochdale. The central grid reference is SD 920 153 and the location of the site is shown in Figure 1 below.
- 2.2 The site comprises a large area of semi-improved neutral grazed grassland, populated by common grasses, tall ruderal and scrub species. A number of scattered broad-leaved trees are present around the site boundary. Two defunct hedgerows are present in the west of the site. The southern boundary is bordered by the River Roch corridor.
- 2.3 The site is surrounded to the north and west by residential development, to the east by industrial and residential development and by open farmland to the south.

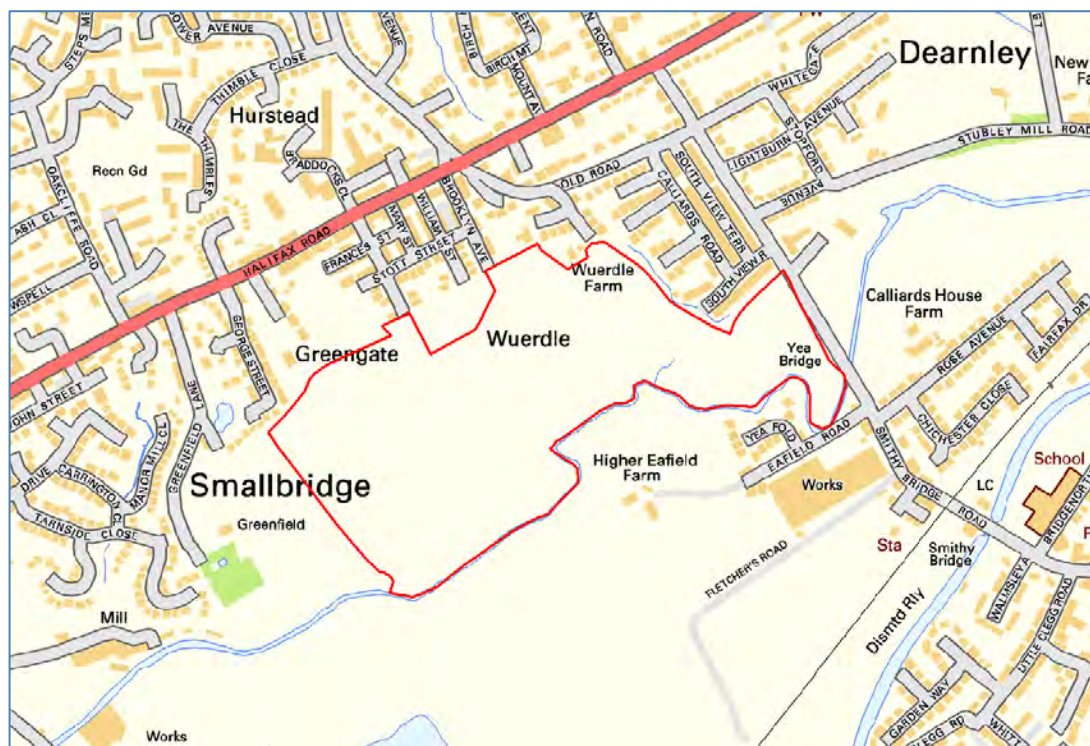


Figure 1: Site Location and Approximate Boundary (OS Street View ®)

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3.0 Methods

Desk Based Assessment

- 3.1 Information regarding historic species records and protected sites within a 2km buffer of the site boundary was requested/gathered from the sources listed in Table 1.
- 3.2 This collated data gives a useful indication of the distribution and abundance of ecological receptors at a given locale. It should, however, be noted that an absence of records does not indicate the absence of protected species from the search area. Our survey work has sought to identify the potential for any protected species.

Table 1: Sources of Ecological Desk Based Information.

Source of Information	Nature of Information
Magic Map	Statutory designated wildlife sites of international importance within 10km Statutory designated wildlife sites of national importance within 5km Statutory designated wildlife sites of local importance within 2km Natural England licences within 2km of the site Habitats of value to biodiversity within and adjacent to the site Great crested newt survey pond records 2017 - 2019 within 2km of the site
Greater Manchester Ecology Unit (GMEU)	Protected species records within 2km Non-statutory designated wildlife sites of local importance within 2km
Rochdale Council	Land allocations and relevant policies
ArcMap10	Ordnance & Aerial survey mapping

Extended Phase 1 Habitat Survey

- 3.3 An extended Phase 1 habitat survey was initially completed by TEP principal ecologist Marj Nadouce on 25th May 2017. A further extended Phase 1 habitat survey of an extension to the east of the site was undertaken on 3rd May 2018 by TEP principal ecologist Anne Pritchard (FISC Level 4). An updated extended Phase 1 habitat survey of the whole site was undertaken on 15th June 2021, with a further visit undertaken on 30th May 2022. The surveys were carried out following Phase 1 habitat survey methods. Phase 1 habitat survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit (JNCC, 2010¹).
- 3.4 The Phase 1 survey method was extended through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance, including invasive species, in accordance with Guidelines for Preliminary Baseline Ecological Appraisal (CIEEM, 2013²).

Great Crested Newt Surveys

- 3.5 Great crested newts *Triturus cristatus* (GCN) are a European Protected Species (EPS). Distances associated with GCN ecology that have been considered include:
- 500m - the generally accepted maximum range of amphibians from a specific waterbody that is not cut off by barriers which prevent amphibian migration; and
 - 250 m - the distance from a waterbody within which GCN will spend the majority of their time.
- 3.6 Waterbodies within the application site and within 500m of the site boundary, which were not separated from the site by barriers to amphibian dispersal (such as the River Roch), were identified from the desk study information, Ordnance Survey (OS) maps and contemporary satellite imagery, in conjunction with information from the Extended Phase 1 habitat survey.
- 3.7 Waterbodies within influencing distance of the site were surveyed by ecologists Anthony Carr and Emma Hickson on 25th May 2021 using the Habitat Suitability Index (HSI) assessment by Oldham *et al* (2001)³.
- 3.8 The HSI for GCN incorporates ten suitability indices, all of which are factors thought to affect GCN presence in a waterbody with regard to breeding. The ten characteristics are as follows:
- SI.1 Geographical location
 - SI.2 Area
 - SI.3 Permanence
 - SI.4 Water quality

¹ Joint Nature Conservation Committee. Handbook for Phase 1 Habitat Surveys - A technique for environmental audit. Peterborough, 2010.

² Chartered Institute of Ecology and Environmental Management. Guidelines for Preliminary Ecological Appraisal. (CIEEM <http://www.cieem.net/>), 2013.

³ Oldham, R. S., Keeble, J. and Swan, M. J. S. & Jeffcote, M. (2000) Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*). The Herpetological Journal 10(4): 143-155

- SI.5 Shading
- SI.6 Presence of water fowl
- SI.7 Presence of fish
- SI.8 Pond dispersion
- SI.9 Terrestrial habitat quality
- SI.10 Proportion of macrophyte vegetation

3.9 In general, ponds/waterbodies with high HSI scores are more likely to support breeding GCN than those with low scores. Table 2 below sets out a simple system for using HSI scores to define pond suitability for GCN.

Table 2. Categorisation of HSI scores for GCN habitat suitability.

HSI Score	Pond Suitability for GCN
<0.50	Poor
0.50 – 0.59	Below Average
0.60 – 0.69	Average
0.70 – 0.79	Good
>0.80	Excellent

- 3.10 The HSI for each waterbody was calculated and the suitability for GCN was determined.
- 3.11 It was intended that an environmental eDNA survey would be carried out at each of these ponds at the same time as the HSI Assessment, however the conditions of the ponds (being either dry or too shallow) prevented these surveys from being completed in 2021.
- 3.12 HSI Assessments, eDNA surveys, and additional torching surveys followed by the placement of 20 artificial refugia around the ponds were also carried out in 2017 and 2018 by licenced GCN surveyors Marj Nadouce, Anthony Carr and John Crowder.

Daytime Bat Assessment

- 3.13 A daytime bat assessment involved the ground based assessment of trees within and adjacent to site to confirm their potential to support roosting bats and an assessment of the suitability of habitats within the site to support commuting and foraging bats. The assessment was undertaken alongside the Extended Phase 1 habitat survey on 15th June 2021. The assessment was carried out in accordance with the Bat Conservation Trust (BCT) Good Practice Guidelines (Collins, 2016)⁴.
- 3.14 The trees were assessed for potential to support roosting bats in line with the criteria set out in Table 3.

⁴ Ref 23-10: Collins, J. (ed.), (2016), Bat Surveys for Professional Ecologists: Good Practise Guidelines (3rd edn). The Bat Conservation Trust, London.

Table 3: Bat Roosting Habitat Categories (BCT, 2016).

Suitability	Potential Roost Features (PRF)
High	A tree with one or more PRF that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time (e.g., maternity/hibernation) due to their size, shelter, protection, conditions, and surrounding habitat.
Moderate	A tree with one or more PRF that could be used by bats, but which are unlikely to support a roost of high conservation status (i.e., not suitable for maternity or hibernation use).
Low	One or more PRF that could be used by individual bats opportunistically, but which is not suitable to be used on a regular basis or by larger numbers of bats.
Negligible	No PRF present.

Survey Constraints

- 3.15 Some PRFs could not be fully categorised from the ground due to the angle of view or elevation of the PRF. In these instances, trees were categorised based on the ground-based view of the PRF.
- 3.16 The inspection was undertaken outside the optimal survey season, and so foliage may have been present which would obscure any potential PRFs. In this case, trees were categorised using a precautionary approach. At the time of the GLTA the weather conditions were dry and bright.

Nocturnal Roost Surveys

- 3.17 One tree (T2) identified from the Daytime Bat Assessment as having moderate roost habitat suitability regarding bats may be impacted by the development proposals. The tree was therefore subject to two nocturnal roost surveys in accordance with the roost habitat suitability categorisation (moderate or high suitability receiving two or three nocturnal surveys, respectively) and the Bat Conservation Trust 2016 Good Practice Guidelines (Collins).
- 3.18 Nocturnal roost surveys were scheduled on 22nd and 29th July 2021, and were undertaken during optimum weather conditions comprising dusk temperatures of $\geq 10^{\circ}\text{C}$, pre-dawn temperatures of $\geq 6^{\circ}\text{C}$ and no rain or strong winds (>4 on the Beaufort Scale). If temperatures $< 10^{\circ}\text{C}$ were recorded during dawn re-entry surveys, surveyors noted whether bat activity was affected to determine whether surveys remained valid.
- 3.19 The nocturnal roost surveys were led by seasoned TEP subcontractors AB Ecology - Mark and Ashley Powell.

- 3.20 Surveyors used a full spectrum (e.g., BatLogger) detector to continuously record bat activity during the nocturnal roost surveys.
- 3.21 Recorded data was used for subsequent sonogram analysis following nocturnal roost surveys. Recorded call sonograms were analysed using Kaleidoscope software by TEP Ecologist Emma Hickson.

Survey Constraints

- 3.22 One of the BatLogger units used during the dusk emergence nocturnal roost survey of tree T2 on 22nd July 2021 did not record any data due to an SD card failure. This limitation did not significantly constrain the survey as surveyors had made observational records and a further BatLogger unit used by the other surveyor positioned nearby continued to record for additional verification of species present when required. The data loss represents only a small proportion of the overall survey effort and does not significantly impair confidence in the interpretation of the baseline data.

Bat Activity Transect Survey

- 3.23 Three bat activity survey visits were undertaken along a single transect route by a suitably experienced lead surveyor and health and safety second on 31st May 2017 (Visit 1), 6th July 2017 (Visit 2), 10th August 2017 (Visit 3). Static monitoring was undertaken for three monitoring periods (31st May – 4th June 2017 (Visit 1), 6th July – 10th July 2017 (Visit 2), 12th August – 16th August 2017 (Visit 3)) at a single location along the defunct hedge in the western half of the site in conjunction with the activity surveys, to provide further information about bat species assemblage within the site.
- 3.24 Recorded sonograms were then analysed using Analook W4.2d software by Lindsey Roberts, trained to Analook Analysis Advanced Level 3.
- 3.25 Following a consultation with Greater Manchester Ecology Unit (GMEU) in 2021, it was agreed that the bat activity transect survey did not need updating in the 2021 survey season.

Breeding Bird Survey

- 3.26 A Breeding Bird Survey of the entire survey area was carried out between May and July 2017. Surveys were conducted by TEP ornithologist Lausanne Jenkins.
- 3.27 The first visit was carried out on 12th May 2017, the second visit on 1st June 2017 and the third visit on 3rd July 2017. The surveyor recorded all birds seen, including their activity patterns. Particular note was made any of Birds of Conservation Concern, notably species listed under Section 41 (S41) of the Natural Environment and Rural Communities Act (NERC) 2006 as Species of Principal Importance.
- 3.28 The survey also included an inspection of the River Roch, to assess for the presence of riparian birds, including kingfisher *Alcedo atthis* a Schedule 1 species identified under the Wildlife and Countryside Act 1981 (as amended).

- 3.29 Following a consultation with Greater Manchester Ecology Unit (GMEU) in 2021, it was agreed that the breeding bird survey did not need updating in the 2021 survey season.

Riparian Mammals

- 3.30 A survey of the River Roch for water vole *Arvicola amphibius* (S41) was conducted by experienced surveyors Stephanie Davies and Rosie Langley, accompanied by a health and safety assistant, on 4th June and 22nd September 2021 respectively. The survey followed the standard methodology as outlined within the latest guidance by Dean *et al.* (2006)⁵ and Strachan *et al* (2011)⁶, extending along approximately 900m of the watercourse and 100m up and downstream of the proposed development works. The watercourse was searched on each occasion for signs of water vole including burrows, runs, feeding remains and latrines. Access was obtained from the banks and from within the channel.
- 3.31 The watercourse had previously been surveyed in 2017 following the same method.
- 3.32 In parallel with the water vole survey, the watercourse was also surveyed for otter *Lutra lutra* (S41). The method broadly followed the approach used in the national otter survey (EA, undated)⁷, encompassing the banks of the River Roch and areas of suitable riparian habitat up to 200m up and downstream of the work areas, where access was permitted. Surveyors recorded evidence of otter activity including spraints (droppings), footprints, feeding remains and laying up areas (couches) on the immediate banksides. Other signs include potential dens or holts within exposed tree roots on riparian banks. It is acknowledged that otters have large home ranges and even if holts, shelters or other field signs are not found during survey, the watercourse may be used by the species as ranging/commuting habitat. Therefore, considerable attention is given to otter records for the wider area and the potential for this species to range through the local landscape.

Survey Constraints

- 3.33 Permission to access the river within a survey buffer of 200m upstream and downstream of the site was not possible during the survey season.
- 3.34 Access to all parts of the river, where permission was granted, was not possible due to high water levels in some areas and deep mud sediment at the bases of the banks. Livestock within fields and within the river also acted as a constraint to the survey. The river was accessed as far as possible and where the surveyors could not survey from within the river, bankside observations were made.

⁵ Dean, M, Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) (2016).Eds Fiona Mathews and Paul Chanin. The Mammal Society.

⁶ Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water vole conservation handbook (3rd Ed.). Wildlife Conservation Research Unit, Oxford

⁷ Environment Agency (undated) Fifth Otter Survey of England 2009-2010 - Technical Report

4.0 Results

Desk Based Assessment

- 4.1 A summary of the desk based assessment results are set out below. Detailed results are presented in Appendix A, which shows data within a 2km buffer of the site. An absence of records does not preclude the absence of protected species from the search area.

Relevant Planning Policies and Guidance

- 4.2 The site is designated as Protected Open Land (policy D/10) and a greenspace Corridor (Policy G/8). The land adjacent to the River Roch is designated as Development and Flood Risk (policy EM/7) within the Rochdale Core Strategy Local Plan (adopted October 2016) and supporting key. The following planning policies are most relevant to this assessment (see Appendix A for further details):

- G6 - Enhancing Green Infrastructure; and
- G7 - Increasing the Value of Biodiversity and Geodiversity.

Designated Sites

- 4.3 Three internationally designated sites are present within 10km of the site. These are:
- Rochdale Canal Special Area of Conservation (SAC), 200m south east, designated for its extensive colonies of the nationally scarce floating water plantain *Luronium natans*;
 - South Pennine Moors SAC, 2.5km east, designated for its diverse range of upland habitats; and
 - South Pennine Moors Special Protection Area (SPA), 2.5km east, designated for its upland breeding bird assemblage including golden plover and merlin.
- 4.4 Two nationally designated sites are present within 5km of the site. These are:
- Rochdale Canal Site of Special Scientific Interest (SSSI), 200m south east, designated for its submerged aquatic plants and emergent vegetation and extensive colonies of the nationally scarce floating water plantain *Luronium natans*; and
 - South Pennine Moors SSSI, 2.5km east, designated for its diverse range of upland habitats.
- 4.5 The site lies within the Impact Risk Zone (IRZ) for Rochdale Canal SSSI and South Pennine Moors SSSI. Residential development over 100 houses falls within the criteria of concern within the IRZ for these SSSIs.
- 4.6 There are no statutory locally designated sites within 2km of the site.
- 4.7 There are five non-statutory locally designated sites within 2km of the site. These are:
- Rochdale Canal (Scowcroft to Warland) Site of Biological Importance (SBI), 200m south east, designated for its submerged aquatic plants and

emergent vegetation and extensive colonies of the nationally scarce floating water plantain *Luronium natans*;

- Hollingworth Lake and Surrounds SBI, 1km south east, designated for its bird populations;
- Slopes by River Beal, Fir Grove Farm SBI, 1.1km south, designated for its valuable grassland habitat;
- Shaw Moss SBI, 1.6km south east, designated for its breeding bird populations including lapwing, mallard and swallows; and
- Buckley Wood Reservoir, 1.8km north west, designated for its ancient woodland and bird population.

Notable Habitats

4.8 The following habitats of principal importance under Section 41 (S41) of the NERC Act (2006) and Biodiversity Action Plan (BAP) priority habitats do not occur within the site boundary, however occur within the 1km search area:

- Deciduous Woodland Habitat is present within 1km of the site. The nearest to the site is approximately 150m west located at the end of Greenfield Lane.
- Lowland Fen habitat is also present within 1km of the site and is associated with the Rochdale Canal.

4.9 The River Roch is noted as a main river.

Protected Species

4.10 There are numerous records of notable species within 2km. Desk based records are indicative of a ten year period (2020-2010). These are discussed below. Species include those listed under any of the following:

- European Protected Species (EPS);
- Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
- Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
- Schedule 8 of the Wildlife and Countryside Act 1981, as amended (WCA8);
- Schedule 9 of the Wildlife and Countryside Act 1981, as amended (WCA9);
- Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (S41);
- Protection of Badgers Act 1992 (POB); and
- Red and Amber listed Birds of Conservation Concern (BRd/BAm).

Amphibians

4.11 Great crested newts have been recorded 1.9km from the site south east and beyond the Rochdale Canal. Common toad *Bufo bufo* has been recorded 1km to the north east of the site.

Badger

4.12 Badger *Meles meles* have been identified within 1km of the site, though the exact locations are confidential none have direct connectivity to the site.

Bats

4.13 The following bat species have been recorded within 1km of the site:

- Pipistrelle species *Pipistrellus* sp. (EPS, WCA5);
- Common Pipistrelle *Pipistrellus pipistrellus* (EPS, WCA5);
- Daubentons *Myotis daubentonii* (EPS, WCA5);
- Soprano pipistrelle *Pipistrellus pygmaeus* (EPS, WCA5);
- Nathusius's pipistrelle *Pipistrellus nathusii* (EPS, WCA5);
- Whiskered/Brandt's bat *Myotis* sp. (EPS, WCA5); and
- Unidentified bat species (EPS, WCA5).

Water vole

4.14 Water vole (WCA5, S41) have been recorded within 2km of the site. The closest record is approximately 200m southeast and is associated with the Rochdale Canal.

Otter

4.15 Otter (EPS, WCA5, S41) have been recorded within 2km of the site. The closest record is approximately 200m southeast and is associated with the Rochdale Canal.

Birds

4.16 Several WCA1 bird species have been recorded within 2km of the site including barn owl, little ringed plover, kingfisher, bittern and peregrine within 1km and hobby, scaup, black-tailed godwit and common scoter between 1km and 2km from the site. The kingfisher records are largely associated with the River Roch, which runs along the south of site.

4.17 A number of other birds of conservation concern have been recorded within 2km of the site with the full list being included within the Desk Study in Appendix A. Those of most relevance to the site include:

- Bullfinch *Pyrrhula pyrrhula* (S41, BAm);
- Dunnock *Prunella modularis* (S41, BAm);
- Grasshopper warbler *Locustella naevia* (S41, BRd);
- Grey partridge *Perdix perdix* (S41, BRd);
- House sparrow *Passer domesticus* (S41, BRd);
- Lapwing *Vanellus vanellus* (S41, BRd);
- Linnet *Linaria cannabina* (S41, BRd);
- Reed Bunting *Emberiza schoeniclus* (S41, BAm);
- Skylark *Alauda arvensis* (S41, BRd)
- Song Thrush *Turdus philomelos* (S41, BRd).

Invertebrates

4.18 A range of S41 moths and two butterflies, small heath and wall, have been identified within 2km of the site. The full list is provided in Appendix A.

Notable Flora

4.19 Floating water plantain (WCA8) has been identified in Rochdale Canal.

Other Notable Fauna and Flora

- 4.20 The S41 species brown hare and hedgehog have been recorded 500m and 1km from the site respectively.

Phase 1 Habitat Survey

- 4.21 The results of the habitat survey are illustrated in the Phase 1 habitat map Drawing 8776.007.1-2, with Target Notes (TNs) presented in Appendix B.
- 4.22 The following habitats are present within or adjacent to the survey area and listed in order of abundance:

- Semi-improved neutral grassland;
- Poor semi-improved grassland;
- Modified neutral grassland;
- Marshy grassland;
- Dense/continuous and scattered scrub;
- Swamp;
- Tall ruderal vegetation;
- Running water;
- Standing water;
- Semi-improved acid grassland;
- Species-poor defunct hedgerow; and
- Scattered broad-leaved trees.

Semi-improved neutral grassland

- 4.23 The majority of the site comprises semi-improved neutral grassland which is grazed by cattle (TN1, 2, 14, 15). At the time of the 2021 and 2022 surveys grazing pressure was low and some areas were ungrazed. Key species include crested dog's tail *Cynosurus cristatus*, Yorkshire fog *Holcus lanatus*, rough meadow grass *Poa trivialis*, perennial rye-grass *Lolium perenne*, meadow foxtail *Alopecurus pratensis* and sweet vernal-grass *Anthoxanthum odoratum*. Other regularly occurring species include sorrel *Rumex acetosa*, field wood-rush *Luzula campestris*, meadow buttercup *Ranunculus acris*, creeping buttercup *R. repens* and red clover *Trifolium pratense*.
- 4.24 Small lenses of damper grassland supporting soft rush *Juncus effusus* and tufted hair-grass *Deschampsia cespitosa* occurred occasionally within this grassland, on the slopes or base of slopes to the floodplain, although these were too small to map separately.

Semi-improved acid grassland

- 4.25 A small area of semi-improved acid grassland is present on a steep slope in the south central area of the site (TN17). Species include sheep's fescue *Festuca ovina*, mat-grass *Nardus stricta*, heath speedwell *Veronica officinalis* and sheep's sorrel *Rumex acetosella*.

Poor semi-improved grassland

- 4.26 Two areas of poor semi-improved grassland (TN12) are present in the east of the site which were unmanaged at the time of the survey, with abundant cock's-foot *Dactylis glomerata*, frequent meadow foxtail and occasional common sorrel.

Modified neutral grassland

- 4.27 An area of species-rich modified grassland is present in the east of the site which appears to have developed over a covered reservoir and other concrete features within the ground (TN13). Sweet vernal-grass dominates with abundant meadow foxtail and red fescue *Festuca rubra* along with a number of forbs including bistort *Persicaria bistorta*, meadow buttercup and sorrel.

Marshy grassland

- 4.28 An extensive area of marshy grassland is present in the east of the site (TN7) which is dominated by soft rush, with frequent Himalayan balsam *Impatiens glandulifera* and rarely a number of other species including cuckoo flower *Cardamine pratensis*, tufted hair-grass and colt's-foot *Tussilago farfara*.
- 4.29 A linear area of marshy grassland (TN9) has developed along a blocked ditch, linked to and to the west of a shallow pond in the east of the site. This area is dominated by soft-rush, with Himalayan balsam. A small, central area is developing a bog-type habitat (TN18) with frequent bog pondweed *Potamogeton polygonifolius*, occasional common cottongrass *Eriophorum angustifolium* and marsh horsetail *Equisetum palustre* and rare *Sphagnum* species and marsh thistle *Cirsium palustre*.

Dense/continuous and scattered scrub

- 4.30 A small area of dense scrub interspersed with tall ruderal vegetation is located to the north of the site, while scattered scrub is present along the River Roch and some field boundaries. Scrub predominantly comprises species such as bramble *Rubus fruticosus* and hawthorn *Crataegus monogyna*.

Swamp

- 4.31 A large area of swamp lies adjacent to the River Roch and surrounds, to the south, east and north, the waterbody in the east of the site. This swamp is wet underfoot and consists of two distinct types: the southern and northern areas (TN8) comprising reed sweet-grass *Glyceria maxima*; and the eastern area (TN10) comprising greater reedmace *Typha latifolia*.

Tall ruderal vegetation

- 4.32 Tall ruderal vegetation dominates the northern river bank of the River Roch in the eastern extent of the site (TN6) and is scattered across the site in other areas. Key species along the River Roch include hogweed *Heracleum sphondylium*, the invasive species Himalayan balsam and nettle *Urtica dioica*, alongside false oat-grass *Arrhenatherum elatius* and Yorkshire fog.

Running water

- 4.33 The River Roch runs along the southern boundary of the site (TN3). Along the majority of the river bank the grassland runs down to the water's edge and the banks are well vegetated with tall ruderal and grassland species. Some parts of the bank are reinforced with pipes and bricks. A small number of overhanging broad-leaved trees are present along the southern bank. The substrate comprises silt and pebbles.
- 4.34 The River Roch in the eastern extent of the site (TN6) is approximately 3m wide, 50cm deep and relatively fast flowing with a stony bottom. It has brick reinforced banks up to 50cm or more above water level and steep banks above this with a mixture of grasses, tall herbs, garden escapes such as daffodil, cherry laurel and grape hyacinth) as well as mature and younger broad-leaved trees overhanging the banks.

Standing water

- 4.35 A waterbody is present in the east of the site (TN11) which comprises shallow, orange discoloured water with stands of greater reedmace and soft rush. It is surrounded by swamp vegetation and marshy grassland. Evident from the 2022 site visit, bog pondweed is present within this waterbody.

Species-poor defunct hedgerow

- 4.36 Two species-poor defunct hedgerows border the semi-improved neutral grassland field in the west of site (TN5 and TN16). These are hawthorn dominated and are growing on eroded banks.

Scattered broad-leaved Trees

- 4.37 There is a single dead tree present on site adjacent to the waterbody and remains of a drystone wall in the centre of site. Other broad-leaved trees are situated predominantly around the northern boundary of the site, many of which are associated with adjacent residential gardens.
- 4.38 Several broad-leaved trees are present in the eastern section of the site just within the retaining wall on Smithy Bridge Road, along the northern bank of the River Roch and overhanging from the southern bank. Species include ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and willow species *Salix sp.*.

Protected and invasive flora

- 4.39 No protected plant species (WCA8) were identified during the extended Phase 1 habitat survey.
- 4.40 Frequent Himalayan balsam was recorded along the banks of the River Roch in the eastern section of the site and also across a number of discrete locations within the site. Japanese knotweed was also recorded on the northern bank of the River Roch in the east of the site. Variegated yellow archangel was recorded to the east of the pond described by TN10. These are non-native invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA9) or Invasive Alien Species (Enforcement and Permitting) Order 2019.

Connectivity within the wider landscape

- 4.41 The application site is fairly isolated to the north, south and east by the towns of Smithybridge and Smallbridge. The River Roch runs along the southern boundary of the site and provides good linkages to the wider area, acting as a wildlife corridor for a range of species.

Fauna

Amphibians

- 4.42 There are two desktop records of GCN within 2km of the site boundary, the closest being 1.9km south east of the site, separated by a major road.
- 4.43 Full details of the amphibian survey are provided in Appendix C. Four potential waterbodies were identified from the desk study within 500m of the site with no physical barriers to dispersal (Drawing G8776.008 in Appendix C).
- 4.44 The attenuation pond located off Greenfield Lane adjacent to the north-west corner of the site (P1) is densely overgrown with greater reedmace across 95% of the surface, and completely dry at the time of survey. The pond achieved a HSI score of 0.31 determining the habitat suitability with regard to breeding GCN as being 'poor'.
- 4.45 The waterbody in the centre of the site (P2) is located in a steep-sided dip and was dry at the time of survey but the ground surrounding it was damp, meaning the pond could hold water following periods of heavy rain. The pond achieved a HSI score of 0.41 determining the habitat suitability with regard to breeding GCN as being 'poor'.
- 4.46 The small waterbody located approximately 150m to the west of the site (P3) is located within a large area of woodland. The pond was dry at the time of survey and achieved a HSI score of 0.32 determining the habitat suitability with regard to breeding GCN as being 'poor'.
- 4.47 The large waterbody (P4) in the east of the site was very shallow at the time of survey and is surrounded by reed sweet-grass and greater reedmace swamp. There is a large dead tree on the edge of the pond and the water is discoloured orange. The ponds achieved a HSI score of 0.72 determining the habitat suitability with regard to the breeding GCN as being 'good'.
- 4.48 The water levels at all four ponds were too low to undertake eDNA or traditional surveys. With respect to pond P4, following an inconclusive eDNA result in 2018, additional torch survey was undertaken which recorded one adult frog, no GCN and no eggs following a search of accessible vegetation. A refugia survey was also undertaken and no amphibians were recorded on either of two survey visits.
- 4.49 The site itself offers limited terrestrial habitat for commuting and foraging amphibians, with the eastern part of the site offering most suitability. The site is also largely isolated due to the presence of roads to the east and west, housing to the north and the River Roch to the south thereby impeding potential amphibian movement across the site to or from the wider area and more suitable breeding habitats further afield.

Badgers

- 4.50 There are desktop records of badger within 1km of the site. However, there was no evidence of badger found during the extended Phase 1 habitat survey such as setts, snuffle holes, latrines, scratch marks etc.

Bats

- 4.51 The results of the bat activity and bat roost surveys are summarised below with the full survey results presented in the Bat Survey 2017 report (TEP Ref: 8776.003) at Appendix D and the Bat Survey Technical Report 2021 (TEP Report 6409.004) at Appendix E respectively.

Bat roost surveys

- 4.52 One dead tree (T2) located to the north-east of the site next to pond P4 was found to have Moderate potential for roosting bats due to the presence of a large fissure in the central upper branch and a broken branch on the western aspect that could lead to a cavity. Three other trees on site were assessed as having Low potential to support roosting bats (in line with BCT 2016 Guidelines⁴), due to features such as ivy cover, broken and spilt branches and knot holes. No buildings or other structures are present within the site.
- 4.53 Two common pipistrelles *Pipistrellus pipistrellus* were recorded emerging from two potential roost features (PRFs) during the dusk emergence survey on 22nd July 2021 and one common pipistrelle was recorded emerging from a feature on 29th July 2021. Due to only single individuals being recorded in separate PRFs, the two roosts have been characterised as day roosts.

Bat activity surveys

- 4.54 The site was assessed as having Low suitability to support commuting and foraging bats in 2017 (in line with BCT 2016 Guidelines⁴). The habitats within the site provide foraging opportunities for local bat species including grassland, hedgerows and the riparian habitat. The linear feature of the River Roch also provides commuting habitat for bats between the site and wider area. However, the site is considered likely to be used by small numbers of commuting bats having limited linear features across the site such as defunct hedgerows, few mature trees and limited floristic diversity within grassland areas.
- 4.55 The activity transects revealed at least three species of bat across the site; common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus* and *Myotis* species. Common pipistrelle was predominantly recorded within the site, accounting for almost all the bat contacts across all three activity transect monitoring periods. Bat activity was distributed across the site, with concentrations along the River Roch in particular during all three activity transect survey visits. Some bat activity was also associated with the scrub in the east of the site and the defunct hedgerow within the western half of the site.

4.56 The species recorded on site during the 2017 static detector surveys included those recorded during the activity surveys and then sonograms which could be attributed to *Myotis* and *Plecotus* species. Bat activity levels consistently increased across all three static monitoring periods, with the highest activity level recorded in August 2017. As an incidental record, Noctule *Nyctalus noctula* was also recorded during the 2021 emergence surveys.

4.57 Water Vole and Otter

4.58 A detailed survey of the section of the River Roch within the development boundary, was undertaken to look for evidence of otter and water vole across two surveys the first on 4th June 2021 and the second on 22nd September 2021. Both banks of the River Roch were surveyed along the length of the southern boundary and up to 100m beyond where access allowed.

4.59 The river had some suitable habitat for supporting water vole habitat with grassed banks, soft earth, good river depth and overhanging vegetation. These features allow the watercourse to be highly suitable for foraging, commuting and burrowing water vole.

4.60 Several water vole feeding stations were observed on both survey visits and latrines were found on the second visit, giving evidence of water vole activity at the site. Based on these findings, the relative population density of water voles has been calculated as low for this section of the watercourse.

4.61 No evidence of otter activity or holts were identified during the field survey. The river and surrounding riparian habitat was identified as being suitable for otter commuting and foraging, however no habitat was identified as showing potential for den creation and resting places.

Birds

4.62 Little ringed plover and kingfisher records have been identified on site within the desktop study.

4.63 A detailed breeding bird survey was undertaken between May and July 2017, the results of which are shown in the Breeding Bird Survey Technical Report (TEP Ref: 6409.002) at Appendix F. In summary, this picked up a number of bird species that breed and nest in hedgerows including dunnoek. There is a field in the west of the site with a hedgerow along the eastern and southern boundary, where dunnoek, goldfinch *Carduelis carduelis*, great tit *Parus major*, blackbird *Turdus merula* and robin *Erithacus rubecula* were recorded, which forms an important habitat for foraging and nesting.

4.64 Three probable breeding pairs of skylark were also recorded within the site boundary, in the fields north of the River Roch. A large number of starlings *Sturnus vulgaris* were recorded using the site for foraging. Likewise, house martin *Delichon urbicum* were also recorded foraging over the site. Neither of these species are likely to use the site for breeding, due to the site lacking suitable nesting habitat.

4.65 A single reed bunting was recorded singing during Visit 3 in the area of marshland in the south-east of the site and was noted as probably breeding within the site.

- 4.66 The trees and dense/continuous and scattered scrub within the site offers potential for a range of nesting bird species.

Reptiles

- 4.67 The site mainly comprises low-intensity grazed grassland and lacks the mosaic of habitats or 'edge' habitats normally associated with supporting reptile populations. In addition to this, overall the site lacks connectivity with the wider landscape and any other reptile populations in the locality, being relatively isolated in a semi-urban setting with significant barriers to dispersal around its boundary. Further to this no desktop records were returned for reptiles within 1km of the site.

Invertebrates

- 4.68 Small heath butterfly was identified within 1km of the site. There is some suitable scrub and tall ruderal habitat around the site periphery to support invertebrates and the low intensity grazed grassland provides opportunities for a range of invertebrates including pollinators.

Other species

- 4.69 The site contains habitat suitable to support hedgehog *Erinaceus europaeus* (S41) along the defunct hedgerow and in the small areas of scrub.
- 4.70 The site is considered to be too open, with a lack of enough suitable cover in mosaic with farmland to support brown hare *Lepus europaeus* (S41).

5.0 Conclusions

- 5.1 This section concludes the potential impacts on the ecological receptors in and around the application site based on the development proposals. The Proposed Site Layout (Drawing: P21-2628-003R) indicates that the developed area will be set back from the floodplain of the River Roch which will form an extensive area of public open space (POS). The developed area will comprise 199 units with associated gardens and infrastructure. Two green wedges of more formal POS will comprise a combination of amenity grassland and wildflower meadow within and adjacent to the built areas. The extensive POS along the River Roch floodplain will comprise areas of existing semi-improved neutral grassland which will be enhanced, mainly through management, but with some specific wildflower overseeding in places to boost diversity and areas of created wildflower meadow areas seeded with Emorsgate EM1 Basic General Purpose Meadow Mixture or similar and Emorsgate EM8 meadow Mixture for Wetlands or similar in wetter areas and within the attenuation basins. While the existing hedgerows will be lost, native mix hedgerows will be planted along boundaries between built development and POS. The eastern pond and swamp habitats will also be retained and enhanced within the riverside POS.

Designated Sites

- 5.2 The Rochdale Canal is a SSSI, SAC and SBI and is located approximately 200m south-east of the site beyond the River Roch, open fields and a railway line. Given the distance of the site from these designated areas, no direct impacts as a result of development are predicted. In addition it is unlikely, given the distance between the sites that indirect impacts such as windblown debris will lead to significant effects. There is the potential for an increase in use of the canal footpaths by new residents, although it is anticipated that the POS provision along the River Roch will provide ample outdoor space for their use. In combination with the dense housing, and therefore existing visitors, already in close proximity to the Rochdale Canal SSSI, SAC and SBI it is unlikely that a small increase in visitors as a result of the development will lead to significant impacts.
- 5.3 The South Pennine Moors SSSI/ SAC is located 2.5km east of the site beyond Littleborough and Hollingworth Lake SBI. Given the distance of the site from these designated areas, no direct impacts as a result of development are predicted. In addition it is unlikely, given the distance between the sites that indirect impacts such as windblown debris will lead to significant effects. There is the potential for a small increase in visitor numbers to the SSSI/ SAC once the site is occupied, although given the POS provision adjacent to the River Roch it is anticipated that many new residents will use this area for outdoor activities. In addition, there is a rich network of public footpaths already in the area which do not enter the SSSI/ SAC and these in combination with the facilities provided at Hollingworth Lake would also deflect visitors from the SSSI/ SAC. Therefore it is anticipated that the small increase in visitors as a result of the development will not lead to significant impacts on the SSSI/ SAC.

- 5.4 The site lies within the IRZ for Rochdale Canal SSSI and South Pennine Moors SSSI which includes residential development (over 100 houses) and is therefore within the criteria of concern for this SSSI. Consultation with Natural England by the planning authority will therefore be required, as part of the planning determination process, as this threshold will be breached.
- 5.5 All of the five SBIs are separated from the site by either the Rochdale Canal and town of Smithybridge, or the town of Smallbridge, with the closest being Hollingworth Lake SBI at 1km east of the proposed site. None of these sites will be subject to direct impacts and due to the distance and lack of connectivity it is unlikely that any indirect impacts as a result of construction activities will occur e.g. pollution or site runoff. There is the potential for a small increase in visitor numbers to the SBIs once the site is occupied, although given the POS provision adjacent to the River Roch it is anticipated that many new residents will use this area for outdoor activities. All of the SBIs have public footpaths or tracks running through them and Hollingworth Lake SBI is already a Country Park and Watersports Centre with parking and existing access routes. Therefore it is anticipated that the small increase in visitors as a result of the development will not lead to significant impacts on the SBIs.

Habitats and Flora

- 5.6 The semi-improved neutral grasslands on site are of moderate ecological value, generally supporting nine or more species per metre squared. Structural diversity is limited and the fields are poached, with those in the east having a higher density of species indicative of sub-optimal condition such as creeping thistle. The modified neutral grassland in the east of the site shows the similar species diversity, however this is an artificial habitat which has developed over concrete structures within the ground. Approximately two thirds of the semi-improved neutral grassland will be lost as a result of the development, with small losses of semi-improved acid, modified and poor semi-improved grasslands. The retained and enhanced grasslands in the west of the River Roch floodplain POS, which support nine or more species per metre squared, will be enhanced further with targeted wildflower supplementation e.g. yellow rattle and ragged robin and changes in management to increase condition. The retained and enhanced grasslands in the east of the River Roch floodplain POS, which have lower species diversity, will be over-seeded with Emorsgate EM1 Basic General Purpose Meadow Mixture or similar in drier areas and Emorsgate EM8 meadow Mixture for Wetlands or similar in wetter areas. Changes in management and the removal of thistles will enable the desired condition to be achieved. Newly created wildflower meadow and newly created attenuation basins will be seeded with the same mixes as described above. Patches of wildflower meadow mix will also be created within the built areas. Himalayan balsam will also be removed from the retained marshy grassland in the east of the site. There will however, be an overall loss of grassland habitat within the site.

- 5.7 The hedgerows within the west of the site are of limited species diversity and do not qualify as Important under the Hedgerow Regulations 1997. However, all hedgerows are classified as S41 habitats of principal importance under the NERC Act 2006. These hedgerows will be lost as a result of the development proposals. The length of the proposed species-rich native hedgerow planting will exceed that which is lost and will comprise a higher species diversity (field maple *Acer campestre*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, blackthorn *Prunus spinosa*, dog rose *Rosa canina* agg. and guelder rose *Viburnum opulus*). This in combination with ornamental hedgerow planting will lead to an overall net gain for hedgerow on the site.
- 5.8 Other habitat losses will comprise a small area of dense scrub and two trees. These losses will be mitigated by the planting of a range of native shrubs and trees throughout the POS including the shrubs hazel *Corylus avellana*, dogwood *Cornus sanguinea*, elder *Sambucus nigra*, blackthorn and guelder rose and the trees silver birch, English oak, alder, beech *Fagus sylvatica* and wild cherry *Prunus avium*. All of this habitat creation will lead to net gain in these features on the site.
- 5.9 The swamp and pond adjacent to the River Roch will be retained within the POS as will scattered scrub and trees which overhang the River Roch. The pond will be enhanced by deepening, removing Himalayan balsam and removing the source of the discolouration, if possible.
- 5.10 It is proposed that two outfalls will enter the River Roch and so there will be direct effects on the river as a result of the development proposals. In addition, as the river is downslope of the development area, there is the potential for indirect effects as a result of site run-off and pollution events.
- 5.11 Himalayan balsam, variegated yellow archangel and Japanese knotweed are present in the site, predominantly within the POS along the River Roch. It is an offence to allow the growth or spreading in the wild of any plant identified under the Invasive Alien Species (Enforcement and Permitting) Order 2019 or any plant listed on Schedule 9 Part II of Section 14(2) of the Wildlife and Countryside Act 1981 (as amended) and therefore there will be implications for development of the site with respect to these species.
- 5.12 The retention of the extensive area for POS along the River Roch will ensure that this key wildlife corridor within the area will retain this function.

Fauna

Amphibians

- 5.13 Three of the four waterbodies (P1, P2 and P3) within or adjacent to the site were considered to be overgrown and/ or dry and not considered to comprise GCN or other amphibian breeding habitat as it likely that they are dry throughout the breeding season. The shallow, discoloured pond (P4) will be retained within the site design, but is also considered unsuitable to support GCN. In addition, few records of GCN within 1km of the site were returned as part of the desk study.

- 5.14 It is considered highly unlikely that GCN are present within the site based on the current survey results and evaluation. In addition, these waterbodies are isolated from others in the landscape by the River Roch, surrounding road network and existing residential development which would pose a significant barrier to GCN movement into the site. The presence of other amphibians such as common toad cannot be discounted (common frog was recorded in 2017) and there may be implications for the development during site clearance and construction activities.

Badgers

- 5.15 There was no evidence of badger within the site or the surrounding area during the extended Phase 1 habitat survey and it is considered that the site is too open, with a lack of cover to support construction of badger setts. Records of badger were identified within 1km of the site but do not have direct connectivity with it. There are currently no implications relating to badgers from the proposed development but the habitats present have potential to support badger foraging in the future and habitats in the wider survey area have the potential to support sett-building.

Bats

- 5.16 Several bat species are known to be present within 1km of the site and three trees to the east of the site (T1, T3 and T4) have been identified as having Low potential to support roosting bats. These trees are shown to be retained as part of the development proposals. The dead tree (T2) adjacent to the pond (P4) has Moderate potential to support roosting bats and confirmed common pipistrelle day roosts. This tree is shown as being lost as part of the development proposals. Therefore there are implications for the proposed development with respect to the removal of this tree.
- 5.17 Bat activity surveys identified the River Roch, areas of scrub and hedgerow as the key habitats used for commuting and foraging activity by predominantly common species. The River Roch and majority of scrub which is present along the river corridor will be retained within the POS. New hedgerows and the increased tree cover as a result of the development will provide an additional foraging resource for bats, while the River Roch commuting corridor will also be retained, leading to an overall benefit for bats as a result of development. However, this benefit to foraging and commuting activity could be affected by insensitive lighting during both construction and occupation of the site, leading to implications for the development.

Water Vole and Otter

- 5.18 Water vole and otter have been recorded within 2km of the site, with the closest record found approximately 200m to the southeast of the site. Evidence of water vole activity was found on both survey visits, and the habitats found within and surrounding the watercourse were found to be suitable for supporting foraging, commuting and burrowing water vole. Therefore, it is considered that there are implications with respect to the proposed development and water vole, given the need for outfall construction in the banks of the river.

- 5.19 No evidence of otter activity or otter holts were identified during the survey, therefore there are no implications with regards to the works and otters. However, if any otter are identified on site during construction, works must cease immediately and advice must be sought from the appointed ecologist.

Birds

- 5.20 The site supports a number of common breeding birds as well as S41 dunnock, skylark and reed bunting. The hedgerow habitats used by dunnock will be lost but will be replaced by a greater extent of hedgerow planting. Scrubby habitat which is also used by dunnock will be retained in the POS adjacent to the River Roch. The majority of the open field habitats used by skylark will be lost as a result of development. While a large amount of grassland will be retained within the POS, scattered tree planting within this area and the anticipated use of this area by new residents may preclude its use as nesting habitat for skylark. However, there is extensive similar grassland habitat to the south of the site where it is anticipated skylark would be able to continue to breed successfully. Marshy habitats used by reed bunting will be retained in the south east of the site adjacent to the River Roch. Overall, no significant impacts with respect to the local dunnock, skylark and reed bunting population is anticipated, although use of newly created habitats for nesting will be delayed until these habitats have matured.
- 5.21 The trees, grassland and dense and scattered scrub provide nesting opportunities for birds within the site. All wild birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended) whilst nesting. Any vegetation and site clearance activities which are undertaken during the bird breeding season (March to August inclusive) could result in an offence being committed and therefore implications with respect to development of the site.

Reptiles

- 5.22 There are no records of reptiles within 1km of the site and the site offers only sub-optimal habitat for reptiles. It is therefore considered that there are no implications to the proposed development with respect to reptiles.

Invertebrates

- 5.23 The site lacks a diverse range of habitats and grassland sward suitable to support an important invertebrate assemblage. The greater diversity of grassland and other habitats that will be created in the POS will ensure that existing invertebrate populations will continue. Therefore there are no implications with respect to the development and invertebrates.

Other species

- 5.24 The site supports habitat which has suitability for hedgehog although no records were returned within 1km and no sightings of this species occurred during other surveys. The retention and enhancement of the POS which includes scrubby areas along the River Roch will ensure habitats suitable for hedgehog remain within the site. There is the potential for killing/ injury of this species during site clearance should any individuals be present, therefore there are implications for development of the site.

6.0 Recommendations

- 6.1 This section provides recommendations for ecological features in relation to the mitigation hierarchy of impact avoidance, mitigation and enhancement opportunities for the site.

Habitats

- 6.2 Retained trees and scrub will be protected in accordance with current standards (BS5837:2012 Trees in relation to design, demolition and construction – recommendations). Other habitats (grassland, pond and swamp) will also be protected from encroachment during construction activities. This will minimise incidental damage and disturbance to these habitats and the species they support.
- 6.3 A Construction Environmental Management Plan (CEMP) will be produced to ensure there is no risk of site runoff, pollution or windblown debris entering the River Roch during construction or during occupation in accordance with standard Environment Agency guidance.
- 6.4 Wildlife friendly management of the retained, enhanced and created habitats within the site will be undertaken. This will include an annual grass cut and removal of arisings for the wildflower, lowland meadow and floodplain grassland areas, management of the pond to ensure it does not become choked with emergent vegetation and management of the hedgerows to ensure a dense, continuous feature is created.

Invasive Species

- 6.5 An Invasive Species Management Plan will be required to ensure that Himalayan balsam, variegated yellow archangel and Japanese knotweed are removed and managed appropriately and that appropriate biosecurity measures are undertaken to prevent their spread in accordance with current guidelines. Measures undertaken within the Management Plan will include:
- Implementation of exclusion zones around each stand of these species, consisting of orange net fencing or similar to prevent the movement of contaminated soil and debris across the site;
 - The location of invasive non-native species will be included in all site briefings and a toolbox talk will be given during the site induction to ensure that site workers are able to identify them.
 - Use of herbicide spray methods for eradication within the site, including treatment with a Glyphosate based chemical herbicide spray, undertaking manual applications during May, July and September;
 - Use of hand pulling methods for eradication of Himalayan balsam within the site. The method includes removal of the plant from the ground, in its entirety, by hand, undertaken during May, July and September ideally before has matured and seeding takes place.
 - Adhering to biosecurity measures including decontamination of vehicles and footwear when leaving areas contaminated with invasive non-native species; and

- Transporting vegetative waste material off site using a licensed waste carrier contractor and disposed of as controlled waste at a suitably licensed or permitted disposal facility.

Badger

- 6.6 There are currently no implications to development with regard to badger, however, a site walkover prior to construction will be required to ensure badgers have not moved into the area in the intervening period.

Amphibians and Hedgehog

- 6.7 As a precaution, a Reasonable Avoidance Measures Method Statement (RAMMS) will be produced in order to ensure no killing or injury to amphibians and hedgehog which may be present on the site during site clearance. These measures will include:
- Hand searching of affected areas prior to vegetation clearance by an Ecological Clerk of Works (ECoW) to confirm the absence of amphibians and hedgehog prior to cutting;
 - Staged vegetation removal, with cutting proceeding in one direction to allow amphibians, hedgehogs and any other species to vacate the affected area;
 - Site clearance or dismantling affecting any suitable amphibian/ hedgehog hibernation features e.g. log/rubble piles and scrub respectively (identified by the ECoW) will avoid the hibernation period (November to early March inclusive).

Bats

- 6.8 Removal of tree T2 will require an European Protected Species (EPS) mitigation licence to enable lawful removal with respect to the two common pipistrelle day roosts. Installation of bat boxes on suitable retained trees will mitigate for the loss of this tree roost site and will be installed prior to any works to allow bats within the locality to find these resources. A suitable box would be the 2F Schwegler general purpose bat box.
- 6.9 Should any pruning of retained low bat potential trees T1, T3 and T4 be required, or should plans change and removal be required, this must be under supervision of a licensed ecologist.
- 6.10 A Sensitive Lighting Strategy for both construction activities and the completed development will be developed to ensure the maintenance of dark corridors along retained features such as the River Roch. The Strategy will address the four design principles for bat-friendly lighting:
- Use of unnecessary lighting will be avoided. This applies to both existing and proposed habitat features of value to bats.
Spatial spread of lighting – the horizontal and vertical spread of artificial light will be minimised, and take into account both primary and reflected light sources. Directional lighting can be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these.

- Timing and duration of lighting – timers and bespoke dimming regimes may be used to ensure that luminaires are reduced at times of predicted low use. These can be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Motion sensors provide further control to ensure that areas are illuminated only when required
- Intensity and colour of lighting – light intensity will be designed to be as low as possible, ideally no more than 3 lux, whilst meeting the objectives of the intended function. The colour of lighting will need to take into account the sensitivity of the ecological receptors on site. Light sources selected should emit zero ultra-violet light wherever possible. Interim guidance from the Bat Conservation Trust (2014) recommends that white and blue spectrum light should be avoided or where white lights are required these should be of warm/neutral colour and have a peak wavelength above 550 nanometers. Narrow spectrum light sources will be used to lower the range of species affected by lighting.

Water vole

- 6.11 A mitigation strategy and Natural England licence will be required to install the outfalls in the banks of the River Roch due to the presence of water vole. A Class Licence will be suitable if vegetation clearance can be undertaken between mid-February and mid-April, otherwise a Site-Specific Licence will be required. Mitigation will include a pre-commencement survey, vegetation strip to bare earth with the cleared area being left for five days, then destructive search of any burrows within the cleared area. The cleared area is then kept clear or covered with Terram until construction takes place. A conservation gain is also required as part of the Licence, to mitigate for habitat loss as a result of the headwalls. This could include regrading and seeding of poached bare areas of the river bank, planting grassy buffer strips and sympathetic vegetation clearance to increase water vole food source.
- 6.12 Following guidance outlined in The Water Vole Mitigation Handbook (2016), precautions will be put in place to minimise the impact that the proposed development has on the populations of water vole present on the River Roch. Any pollution run-off from the site into the river will be avoided and a working buffer will be put in place to protect the banks and water vole habitat present on site.

Otter

- 6.13 Given that the river provides suitable commuting and foraging habitat for otter and there are records from the Rochdale Canal, it is recommended that a pre-commencement survey is undertaken if after 12 months from the date of this report no works have occurred.

Birds

- 6.14 It is recommended that all vegetation clearance avoids the core breeding bird season, March to August inclusive; although it should be noted that bird nesting can take place outside this period.

- 6.15 If clearance works are necessary during the core breeding bird season, or at any time when bird nesting is suspected, a nesting bird check of the affected area by an experienced ecologist will be undertaken. The nesting bird check will take place no more than 24 hours prior to the clearance works. In the event that an active nest is found the ecologist will provide advice on setting up a suitable protection area around the nest until the young have fledged. The extent of the exclusion zone will depend upon the bird species concerned and its location within the development. Extensive clearance of potential bird nesting habitat is not always practical during the core breeding season and development programmes will take this constraint into account.
- 6.16 A comprehensive nest box scheme will be incorporated into the masterplan layout, to include a range of nest box designs which are suitable for species recorded breeding or probably breeding within the site such as house sparrow, robin, blackbird, wren and great tit in order to provide nesting habitats while new landscaping matures.

Biodiversity Enhancements

- 6.17 Under the National Planning Policy Framework (NPPF), developments should aim to minimise impacts on biodiversity and provide net gains, where possible. To comply with the NPPF a number of opportunities for further habitat enhancements which will benefit biodiversity are identified below.
- 6.18 Additional nest boxes can be incorporated into the masterplan layout as an enhancement to provide nesting opportunities for species recorded as using the site for foraging, but not breeding such as starling and house martin.
- 6.19 Installation of additional bat boxes would enhance opportunities available to roosting bats. A combination of boxes designed to support a range of bat species could be incorporated into the new build design, including Schwegler 2FR Bat Tubes. These should be sited at an appropriate height and aspect, close to retained and created habitats for bats.
- 6.20 Log piles from the removed trees could be created in the vicinity of the retained pond and swamp habitat, to create refuge habitat for amphibians, invertebrates and other fauna.
- 6.21 Small gaps (approx. 15cm high) could be created in garden fences to increase the permeability of the built areas to wildlife, particularly hedgehog.

**APPENDIX A: Desk Based Assessment (TEP Ref: 8776.001) -
CONFIDENTIAL - Submitted separately**

APPENDIX B: Target Notes Report

Target Notes Report

Target Note SMITHYT001

Low intensity, cattle grazed semi-improved neutral grassland field with damper areas along bottom of initial slope before sloping down to river. Damper areas support elongated areas of soft rush and tufted hair-grass grassland. The lower slopes and floodplain in the southwestern part of this field has higher diversity than the upper north-eastern areas. Ground is poached.

<i>Alopecurus pratensis</i>	Meadow Foxtail	A
<i>Cynosurus cristatus</i>	Crested Dog's-tail	A
<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Poa trivialis</i>	Rough Meadow-grass	A
<i>Dactylis glomerata</i>	Cock's-foot	F
<i>Lolium perenne</i>	Perennial Ryegrass	F
<i>Ranunculus acris</i>	Meadow Buttercup	F
<i>Cerastium fontanum</i>	Common Mouse-ear	O
<i>Cirsium arvense</i>	Creeping Thistle	O
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	O
<i>Juncus effusus</i>	Soft Rush	O
<i>Poa annua</i>	Annual Meadow-grass	O
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Alopecurus geniculatus</i>	Marsh Foxtail	R
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	R
<i>Arrhenatherum elatius</i>	False Oat-grass	R
<i>Bromus hordeaceus</i>	Soft Brome	R
<i>Cirsium palustre</i>	Marsh Thistle	R
<i>Festuca rubra</i>	Red Fescue	R
<i>Hypochaeris radicata</i>	Common Cat's-ear	R
<i>Lathyrus pratensis</i>	Meadow Vetchling	R
<i>Luzula campestris</i>	Field Woodrush	R
<i>Plantago lanceolata</i>	Ribwort Plantain	R
<i>Plantago major</i>	Greater Plantain	R
<i>Rumex crispus</i>	Curled Dock	R
<i>Taraxacum officinale agg.</i>	Dandelion	R
<i>Trifolium pratense</i>	Red Clover	R
<i>Trifolium repens</i>	White Clover	R

Target Note SMITHYT002

Semi-improved neutral grassland field, currently ungrazed but evidence of previous grazing by cows present. Extensive poached ground.

<i>Cynosurus cristatus</i>	Crested Dog's-tail	A
<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Plantago lanceolata</i>	Ribwort Plantain	A
<i>Lolium perenne</i>	Perennial Ryegrass	F
<i>Poa trivialis</i>	Rough Meadow-grass	F
<i>Ranunculus repens</i>	Creeping Buttercup	F
<i>Alopecurus pratensis</i>	Meadow Foxtail	O
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	O
<i>Bellis perennis</i>	Daisy	O
<i>Trifolium dubium</i>	Lesser Trefoil	O
<i>Bromus hordeaceus</i>	Soft Brome	R
<i>Cardamine pratensis</i>	Cuckooflower	R
<i>Cerastium fontanum</i>	Common Mouse-ear	R
<i>Dactylis glomerata</i>	Cock's-foot	R
<i>Ranunculus acris</i>	Meadow Buttercup	R
<i>Rumex acetosa</i>	Common Sorrel	R
<i>Rumex crispus</i>	Curled Dock	R
<i>Taraxacum officinale agg.</i>	Dandelion	R
<i>Trifolium pratense</i>	Red Clover	R

Target Note SMITHYT003

River Roch in centre and west of the site has well vegetated banks, with banks supported in places with pipes and bricks. Channel substrate comprises silt/pebbles.

<i>Arrhenatherum elatius</i>	False Oat-grass	A
<i>Glyceria maxima</i>	Reed Sweet-grass	A
<i>Phalaris arundinacea</i>	Reed Canary-grass	F
<i>Anthriscus sylvestris</i>	Cow Parsley	O
<i>Epilobium hirsutum</i>	Great Willowherb	O
<i>Impatiens glandulifera</i>	Himalayan Balsam	O
<i>Ranunculus sp.</i>	Water-crowfoot species	O
<i>Rubus fruticosus agg.</i>	Bramble	O

Target Note SMITHYT004

Low intensity cattle grazed semi-improved neutral grassland. Creeping thistle more frequently distributed throughout this field. Wall along western boundary is collapsed in places. Two areas of soft-rush dominated vegetation, one in a hollow and one on upper slopes. Heavily poached.

<i>Cynosurus cristatus</i>	Crested Dog's-tail	A
<i>Poa trivialis</i>	Rough Meadow-grass	A
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Holcus lanatus</i>	Yorkshire-fog	F
<i>Lolium perenne</i>	Perennial Ryegrass	F
<i>Ranunculus acris</i>	Meadow Buttercup	F
<i>Alopecurus geniculatus</i>	Marsh Foxtail	O
<i>Bellis perennis</i>	Daisy	O
<i>Juncus effusus</i>	Soft Rush	O
<i>Poa annua</i>	Annual Meadow-grass	O
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Trifolium repens</i>	White Clover	O
<i>Alopecurus pratensis</i>	Meadow Foxtail	R
<i>Athyrium filix-femina</i>	Lady-fern	R
<i>Cardamine pratensis</i>	Cuckooflower	R
<i>Cerastium fontanum</i>	Common Mouse-ear	R
<i>Dactylis glomerata</i>	Cock's-foot	R
<i>Ficaria verna</i>	Lesser Celandine	R
<i>Lathyrus pratensis</i>	Meadow Vetchling	R
<i>Luzula campestris</i>	Field Woodrush	R
<i>Plantago lanceolata</i>	Ribwort Plantain	R
<i>Rumex acetosa</i>	Common Sorrel	R
<i>Rumex crispus</i>	Curled Dock	R
<i>Taraxacum sp.</i>	Dandelion species	R
<i>Trifolium pratense</i>	Red Clover	R
<i>Urtica dioica</i>	Nettle	R

Target Note SMITHYT005

Defunct, gappy hedgerow - On an eroded/ collapsed bank.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Anthriscus sylvestris</i>	Cow Parsley	F
<i>Urtica dioica</i>	Nettle	F
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Sambucus nigra</i>	Elder	R

Target Note SMITHYT006

River Roch~3m wide, ~ 50cm deep, relatively fast flowing with stony bottom. Brick reinforced banks up to 50cm (higher in places) above water level. Steep banks +3m beyond them with mixture of grasses, tall herbs (and garden escapes, daffodil, cherry laurel, grape hyacinth) with mature and younger trees along banks including ash, silver birch, sycamore. Also invasives Himalayan balsam and Japanese knotweed present.

<i>Arrhenatherum elatius</i>	False Oat-grass	F
<i>Heracleum sphondylium</i>	Hogweed	F
<i>Holcus lanatus</i>	Yorkshire-fog	F
<i>Impatiens glandulifera</i>	Himalayan Balsam	F
<i>Urtica dioica</i>	Nettle	F
<i>Acer pseudoplatanus</i>	Sycamore	O
<i>Alopecurus pratensis</i>	Meadow Foxtail	O
<i>Anthriscus sylvestris</i>	Cow Parsley	O
<i>Epilobium sp.</i>	Willowherb species	O
<i>Fallopia japonica</i>	Japanese Knotweed	O
<i>Festuca rubra</i>	Red Fescue	O
<i>Geranium robertianum</i>	Herb-Robert	O
<i>Geum urbanum</i>	Wood Avens	O
<i>Myosotis sp.</i>	Forget-me-not species	O
<i>Persicaria bistorta</i>	Bistort	O
<i>Phalaris arundinacea</i>	Reed Canary-grass	O
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Rumex acetosa</i>	Common Sorrel	O
<i>Stellaria holostea</i>	Greater Stitchwort	O
<i>Taraxacum officinale agg.</i>	Dandelion	O
<i>Alliaria petiolata</i>	Garlic Mustard	R
<i>Angelica sylvestris</i>	Wild Angelica	R
<i>Cardamine flexuosa</i>	Wavy Bitter-cress	R
<i>Cirsium arvense</i>	Creeping Thistle	R
<i>Ficaria verna</i>	Lesser Celandine	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Senecio jacobaea</i>	Common Ragwort	R
<i>Silene dioica</i>	Red Campion	R
<i>Stachys sylvatica</i>	Hedge Woundwort	R
<i>Veronica hederifolia hederifolia</i>	Ivy-leaved Speedwell	R

Target Note SMITHYT007

Marshy grassland - dominated by soft rush. A few areas of ephemeral standing water only several cm deep are also present.

<i>Juncus effusus</i>	Soft Rush	D
<i>Impatiens glandulifera</i>	Himalayan Balsam	F
<i>Alnus glutinosa</i>	Alder	R
<i>Cardamine pratensis</i>	Cuckooflower	R
<i>Carex pendula</i>	Pendulous Sedge	R
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	R
<i>Lathyrus pratensis</i>	Meadow Vetchling	R
<i>Tussilago farfara</i>	Colt's-foot	R
<i>Arctium minus</i>	Lesser Burdock	
<i>Cardamine flexuosa</i>	Wavy Bitter-cress	
<i>Chamerion angustifolium</i>	Rosebay Willowherb	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Phalaris arundinacea</i>	Reed Canary-grass	
<i>Ranunculus repens</i>	Creeping Buttercup	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Urtica dioica</i>	Nettle	

Target Note SMITHYT008

Area of swamp with some wetter areas down to water. Dominated by reed sweet-grass.

<i>Glyceria maxima</i>	Reed Sweet-grass	D
<i>Impatiens glandulifera</i>	Himalayan Balsam	O
<i>Phalaris arundinacea</i>	Reed Canary-grass	O
<i>Iris pseudacorus</i>	Yellow Flag Iris	R
<i>Rubus fruticosus agg.</i>	Bramble	R

Target Note SMITHYT009

Area of marshy grassland dominated by soft rush, with standing, orange discoloured water which is seeping through the ground and into the river at a point where the bank has been reinforced with hazel woven fencing.

<i>Juncus effusus</i>	Soft Rush	D
<i>Impatiens glandulifera</i>	Himalayan Balsam	O
<i>Alnus glutinosa</i>	Alder	R

Target Note SMITHYT010

Area of reedmace swamp, wet under foot.

<i>Typha latifolia</i>	Greater Reedmace	D
<i>Impatiens glandulifera</i>	Himalayan Balsam	A
<i>Lamiastrum galeobdolon argentatum</i>	Variegated Archangel	O

Target Note SMITHYT011

Pond - inaccessible due to it being surrounded by swamp vegetation. (may be possible from other land ownership). Water looks to be discoloured due to seepage in which was also noted in TN9. Stands of greater reedmace and soft rush within it. Moorhen seen.

Target Note SMITHYT012

Poor semi-improved grassland, which is currently unmanaged or farmed. Rubble piles are present in the east of the site.

<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Alopecurus pratensis</i>	Meadow Foxtail	F
<i>Urtica dioica</i>	Nettle	F
<i>Rumex acetosa</i>	Common Sorrel	O
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O

Target Note SMITHYT013

Species-rich modified grassland which appears to have developed over a covered reservoir. Concrete roof and other features visible on the ground including drain covers, large UU water management equipment and an outfall.

<i>Anthoxanthum odoratum</i>	Sweet vernal grass	D
<i>Alopecurus pratensis</i>	Meadow Foxtail	A
<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Festuca rubra</i>	Red Fescue	A
<i>Moss sp.</i>	Moss species	F
<i>Persicaria bistorta</i>	Bistort	F
<i>Juncus effusus</i>	Soft Rush	O
<i>Plantago lanceolata</i>	Ribwort Plantain	O
<i>Ranunculus acris</i>	Meadow Buttercup	O
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Rumex acetosa</i>	Common Sorrel	O
<i>Taraxacum officinale agg.</i>	Dandelion	O
<i>Ficaria verna</i>	Lesser Celandine	R
<i>Phalaris arundinacea</i>	Reed Canary-grass	R
<i>Phleum pratense</i>	Timothy	R
<i>Plantago major</i>	Greater Plantain	R
<i>Trifolium repens</i>	White Clover	R

Target Note SMITHYT014

A circular patch of *Phalaris arundinacea* approx. 5m in diameter.

<i>Phalaris arundinacea</i>	Reed Canary-grass	D
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Target Note SMITHYT015

Low intensity cattle grazed semi-improved neutral grassland field with lower diversity than TN2. Poached ground.

<i>Alopecurus pratensis</i>	Meadow Foxtail	A
<i>Cynosurus cristatus</i>	Crested Dog's-tail	A
<i>Alopecurus geniculatus</i>	Marsh Foxtail	F
<i>Holcus lanatus</i>	Yorkshire-fog	F
<i>Lolium perenne</i>	Perennial Ryegrass	F
<i>Poa trivialis</i>	Rough Meadow-grass	F
<i>Ranunculus acris</i>	Meadow Buttercup	F
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Trifolium repens</i>	White Clover	O
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	R
<i>Bellis perennis</i>	Daisy	R
<i>Cerastium fontanum</i>	Common Mouse-ear	R
<i>Plantago lanceolata</i>	Ribwort Plantain	R
<i>Rumex acetosa</i>	Common Sorrel	R
<i>Rumex crispus</i>	Curled Dock	R

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note SMITHYT016

Defunct hawthorn dominated hedgerow on collapsed/ eroded bank.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Urtica dioica</i>	Nettle	F
<i>Anthriscus sylvestris</i>	Cow Parsley	O
<i>Arrhenatherum elatius</i>	False Oat-grass	O
<i>Ilex aquifolium</i>	Holly	R

Target Note SMITHYT017

Small area of semi-improved acid grassland on steep slope before reaching floodplain area next to river.

<i>Festuca ovina</i>	Sheep's Fescue	A
<i>Rumex acetosella</i>	Sheep's Sorrel	A
<i>Hypochaeris radicata</i>	Common Cat's-ear	F
<i>Veronica officinalis</i>	Heath Speedwell	F
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	O
<i>Holcus lanatus</i>	Yorkshire-fog	O
<i>Holcus mollis</i>	Creeping Soft-grass	O
<i>Luzula campestris</i>	Field Woodrush	O
<i>Nardus stricta</i>	Mat-grass	O
<i>Lolium perenne</i>	Perennial Ryegrass	R
<i>Plantago lanceolata</i>	Ribwort Plantain	R

Target Note SMITHYT018

Small area to west of pond where ditch appears to have been blocked for some time enabling unusual habitat to develop which includes bog type species within marshy grassland - hard to access so full investigation not possible.

<i>Polytrichum sp.</i>	Moss species	A
<i>Potamogeton polygonifolius</i>	Bog Pondweed	F
<i>Equisetum palustre</i>	Marsh Horsetail	O
<i>Eriophorum angustifolium</i>	Common Cottongrass	O
<i>Cirsium palustre</i>	Marsh Thistle	R
<i>Dactylorhiza sp.</i>	Marsh-orchid species	R
<i>Sphagnum sp.</i>		R

Target Note SMITHYT019

Line of trees and scrub - most likely outgrown hedgerow. Hawthorn up to 4m. Trees higher at 5-6m. Located on a field boundary with the land dropping down to a public footpath on the northern side. Line of trees reduces to just bramble scrub to the east.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Prunus sp.</i>	Cherry species	O
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Sambucus nigra</i>	Elder	O
<i>Acer pseudoplatanus</i>	Sycamore	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Ilex aquifolium</i>	Holly	R

APPENDIX C: Amphibian Survey Technical Report (TEP Ref: 8776.002)



THE
ENVIRONMENT
PARTNERSHIP



SMITHY BRIDGE ROAD ROCHDALE AMPHIBIAN SURVEY TECHNICAL REPORT

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Document Title	Amphibian Survey Technical Report
Prepared for	Taylor Wimpey
Prepared by	TEP - Warrington
Document Ref	8776.002

Author	Jemma Chesworth
Date	October 2021
Checked	Anne Pritchard
Approved	Anne Pritchard

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APPENDICES

APPENDIX A: G8776.008 Pond Location Plan

DRAWINGS

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Executive Summary

1. The Environment Partnership (TEP) were commissioned by Taylor Wimpey Strategic Land (hereafter referred to as 'the client') in May 2021 to undertake amphibian surveys of four ponds within 500m of land known as Smithy Bridge Road in Rochdale, Greater Manchester (hereon referred to as 'the site').
2. This assessment is required to inform and support a planning application for proposed residential development of the site.
3. Data searches and Habitat Suitability Assessments (HSI) were carried out. Surveys were undertaken within the appropriate season and no limitations were encountered.
4. Only one record of great crested newt (GCN) *Triturus cristatus* was identified within the data search, 1.9km away from the site.
5. Three of the four ponds within 500m of the site were dry at the time of survey. Only one pond, P4, scored a HSI of good.
6. Common toad *Bufo bufo* have been recorded within 100m of the site, so any works must be carried out under a Reasonable Avoidance Measures Method Statement (RAMMS).
7. No further amphibian surveys are required at this time.

1.0 Introduction

- 1.1 The site is located at grid reference SD 9205 1535, approximately 3km north east of Rochdale. Four ponds were identified within 500m of the site boundaries, not separated by major barriers. Two of these ponds are present within the development footprint. A review of mapping and satellite imagery identified that the site centres around semi-rural agricultural land comprising of small hedgerow bounded pasture fields, and residential developments. The site boundary and the locations of the ponds are illustrated in Figure 1.



Figure 1: Site boundaries and pond locations

- 1.2 The surveys are designed to determine whether or not GCN are present within the site or in ponds within ranging distance of the site. Where GCN are present, survey effort is designed to allow population size class to be assessed. This information is required to inform development proposals including the design of any mitigation and consideration of any relevant legislation and policies. Although surveys target GCN, other amphibian species will also be detected by the methods employed, these species if encountered, are recorded and the results presented in this report.
- 1.3 The two ponds (P1 and P3) within 500m of the site boundaries were surveyed from publicly accessible land, while access was granted for survey of ponds P2 and P4 within the site.

2.0 Methodology

Data Search

- 2.1 Information regarding historic species records were returned from Greater Manchester Ecology Unit (GMEU) in May 2021. Data searches using MAGIC Maps confirmed the presence of protected species records to 2km from the site boundary.

Habitat Suitability Index (HSI) Assessments

- 2.2 HSI¹ surveys were undertaken at all ponds. HSI surveys were undertaken on 25th May 2021.
- 2.3 HSI is a standard measure of calculating the suitability of a pond to support breeding GCN, based on an assessment of 10 characteristics (indices), including size, shading, depth and vegetation profile. The assessment generates a number between 0 and 1 for each of the indices which are combined to provide an overall assessment of a pond's suitability to support GCN on a categorical scale (See Table 1). The assessment has not been designed for or tested on other waterbodies such as ditches.

Table 1: HSI Suitability Scores

HSI Score	Suitability	Predicted GCN Occupancy of Ponds in each Category
<0.5	Poor	3%
0.5 to 0.59	Below Average	20%
0.6 to 0.69	Average	55%
0.7 to 0.79	Good	79%
>0.8	Excellent	93%

- 2.4 Ponds with a score of below average, average, good or excellent are normally subject to a full survey. All ponds assessed to have a 'poor' suitability are reviewed and where sufficient justification² can be made, these ponds are scoped out of further surveys.

Qualifications

- 2.5 HSI surveys were undertaken by TEP ecologists and licenced surveyors Anthony Carr (2015-19056-CLS-CLS) and Emma Hickson (2020-48575-CLS-CLS).

eDNA Survey

- 2.6 While the intention was to undertake eDNA surveys of the ponds within 500m of the site, the conditions of the ponds (dry or water too shallow) prevented these surveys being completed.

¹ ARG UK Advice Note 5 (May 2010) Great Crested Newt Habitat Suitability Index

² Justifications for scoping 'poor' HSI score ponds out of survey are detailed in the results section of this report

Limitations

- 2.7 There were no limitations encountered during the survey.

3.0 Results

Data Search

- 3.1 The desktop study did not identify any NE European protected species licence (EPSL) for GCN within 2km of the Site.
- 3.2 Data search from the local records center returned two records of GCN. The closest being approximately 1.9km south east of the site, separated by major roads.
- 3.3 Review of OS data and satellite imagery identified four ponds present within 500m of the Site with no physical barriers to dispersal.

Habitat Suitability Index (HSI) Assessments

- 3.4 Pond descriptions and the results of the HSI surveys are presented in Tables 2 and 3 below. Drawing G8776.008 shows the location and status of each pond. Photographs are presented in Figures 2 to 5.

Table 2: Pond Descriptions

Pond ID	Grid ref (NGR):	Description
P1 (attenuation)	SD 91682 15339	Small sized pond in a large grassland field. Completely dry.
P2 (ephemeral)	SD 92158 15403	Small sized pond in a large grassland field. Dried out but damp ground surrounded by ephemeral growth.
P3 (woodland)	SD 91684 15266	Small sized pond in a large area of woodland. Dried out.
P4 (orange pond)	SD 92275 15386	Large pond in middle of a field. Large dead tree in middle of pond and water is orange coloured.

Table 3: HSI Assessment Results

Pond ID		1	2	3	4
SI	Measure				
SI1	Location	1	1	1	1
SI2	Area	0.05	0.05	0.05	0.7
SI3	Permanence	0.1	0.5	0.1	1
SI4	Water Quality	0.01	0.01	0.01	0.33
SI5	Shade	1	1	0.6	1
SI6	Waterfowl	1	1	1	0.67
SI7	Fish	1	1	1	1
SI8	Density	0.71	0.71	0.71	0.71

Pond ID		1	2	3	4
SI9	Terrestrial Habitat	0.67	1	1	0.33
SI10	Macrophyte	0.3	0.7	0.5	1
Overall HSI Score:		0.31	0.41	0.32	0.72
Suitability		Poor	Poor	Poor	Good

3.5 The suitability of ponds to support GCN ranged from Poor for ponds P1, P2 and P3, with only one pond P4 scoring Good.



Figure 2: Pond 1



Figure 3: Pond 2



Figure 4: Pond 3



Figure 5: Pond 4

4.0 Conclusions and Further Requirements

Additional Surveys

- 4.1 As three of the ponds (P1 to P3) were found to be dry or not exist at the time of survey, no additional surveys are required at these locations. With respect to pond P4, water levels were too low to be able to undertake eDNA survey or traditional survey methods. Survey scope and timing is sufficient to inform development proposals and review legal and policy requirements. Given the lack of GCN records in the area, the lack of ponds within 500m of pond P4 and the major barriers to movement presented by the River Roch to the south and Smithy Bridge Road to the east, it is considered that that GCN are not present within the site boundaries.
- 4.2 GCN surveys are valid for at least two seasons and potentially four seasons or more depending on the specific use of the data, local conditions and the potential impact predicted on GCN. When data is greater than two seasons old, advice should be sought from an appropriately experience ecologist.

Licensing/ Reasonable Avoidance Measures

- 4.3 There is a low risk that common amphibians may utilise terrestrial habitats within the boundary of the site, especially near to pond P4.
- 4.4 Species listed under Section 41 of the Natural Environment and Rural Communities act NERC (2006); common toad, have been recorded within 100m of the site and as such may be affected by development proposals. Reasonable Avoidance Measures should be implemented to allow works on site. Such measures should be set out in a method statement.

APPENDIX A: G8776.008 Pond Location Plan



KEY

-
- Site boundary

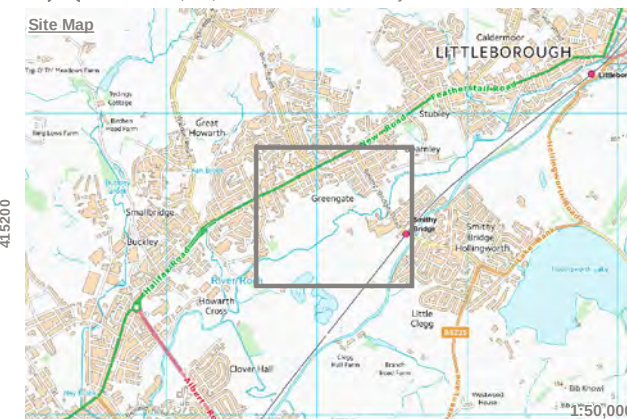
Great Crested Newt Habitat Suitability Index Survey Results

-  Pond with good result
-  Pond no longer present, with poor result



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AeroGRID, IGN, and the GIS User Community



Rev	Description	Drawn	Approved	Date



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Project
Smithy Bridge Road, Rochdale

Title
Pond Location Plan

Drawing Number
G8776.008

Drawn SP	Checked CW	Approved ACP	Scale 1:3,500 @ A3	Date 26/10/2021
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APPENDIX D: Bat Survey 2017 (TEP Report 6409.004)



THE
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SMITHY BRIDGE ROAD, ROCHDALE

BAT SURVEY 2017

TEP Technical Report October 2017

TEP

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[illegible]

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1.0 Site Details

Site Name	Smithy Bridge Road
Central NGR	SD 92043 15370
Site Location	Smithy Bridge Road, Rochdale
Survey Date(s)	Ground-based Tree Assessment: 25th May 2017 Transect Activity Surveys: 31st May 2017 (Visit 1), 6th July 2017 (Visit 2), 10th August 2017 (Visit 3) Static Monitoring Surveys: 31st May – 4th June 2017 (Visit 1), 6th July – 10th July 2017* (Visit 2), 12th August – 16th August 2017 (Visit 3) * See survey constraints
Surveyor(s)	The ground-based tree assessments were undertaken by licensed bat consultant Marj Nadouce MCIEEM (Survey Class Licence Level 2: 2015-9736-CLS-CLS). Transect Activity Survey teams were variously led by experienced TEP staff including Emma Pickering and Duncan Brown and seasoned TEP subcontractors Dave Monk and Andrew Crone.
Habitat Description	The site includes approximately 15ha of land. The red line boundary and habitats present within the site are shown at the Phase 1 Habitat Map Drawing G6409.004. The dominant habitats present within the site include semi-improved neutral grassland and improved grassland. The site lies to the north-east of the town of Smallbridge, Rochdale. A number of scattered trees are present around the site boundary and along remnant sections of now defunct hedges, the southern boundary is bordered by the River Roch. Overall the site is considered to have low ecological value with the most ecologically interesting features onsite being the defunct hedges, areas of dense/continuous scrub and the River Roch bounding the site to the south. The site is surrounded to the north and west by residential development, to the east by industrial and residential development and by open farmland to the south. The site is of low suitability for commuting and foraging bats in accordance with the Bat Conservation Trust (BCT) (2016) Guidelines, being relatively isolated with limited green linkages with the wider landscape other than the river corridor. The site may be used by small numbers of commuting and foraging bats where features such as the riparian habitats, scattered trees, scrub and defunct hedgerows are present. Nearby habitats such as those found at the Peak Forest Canal Site of Biological Importance (SBI) and Dunkirk Wood SBI provide higher quality habitats for foraging and commuting bats than those within the site.

Proposed Development	The bat surveys are required to support a planning application for the proposed residential development of the land however, detailed site proposals are currently unavailable. It is not currently known if there are any plans for tree removal.
Drawing References	G6409.004 Phase 1 Habitat Survey G6409.005 Bat Activity Transects - Visit 1 - 31.05.2017 G6409.006 Bat Activity Transects - Visit 2 - 06.07.2017 G6409.007 Bat Activity Transects - Visit 3 - 10.08.2017 G6409.008 Bat Activity Transect Route and Static Detector Location

2.0 Survey Methods

- 2.1 An assessment of habitats within the site as to their suitability for supporting foraging and commuting bats was undertaken as part of the Extended Phase 1 habitat survey on 25th May 2017 (TEP Report Ref: 6409.003). Habitats were assessed in accordance with the Bat Conservation Trust (BCT) Good Practice Guidelines (Collins, 2016)¹.
- 2.2 The site was assessed as having **low** habitat suitability for foraging and commuting bats in 2017. The habitats within the site provide foraging opportunities for local bat species including grassland, hedgerows and the bordering riparian habitat. The linear feature of the River Roch provides commuting habitat for bats between the site and wider area. However, the site is considered likely to be used by small numbers of commuting bats having limited linear features across the site such as hedgerows, scattered trees and limited floristic diversity within grassland areas.

Pre-existing Data

- 2.3 Desktop records were gathered in August 2017 from Greater Manchester Ecology Unit (GMEU). All bat species are protected under the following:
- Conservation of Habitats and Species Regulations 2010 (as amended) Regulation 41 – this includes species listed as European Protected Species (EPS) in Annex IV of the European Habitats Directive;
 - Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England; and
 - Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), Schedule 5.
- 2.4 Records of six bat species were returned from within 1km of the site. Species recorded include:
- Pipistrelle species *Pipistrellus* sp. (EPS, WCA5);
 - Common Pipistrelle *Pipistrellus pipistrellus* (EPS, WCA5);
 - Daubentons *Myotis daubentonii* (EPS, WCA5);
 - Soprano pipistrelle *Pipistrellus pygmaeus* (EPS, WCA5);
 - Whiskered/Brandt's bat *Myotis* sp. (EPS, WCA5); and
 - Unidentified bat species (EPS, WCA5).

Preliminary Ground-based Assessment of Trees

- 2.5 A ground-based assessment of the trees within the site was undertaken during the Extended Phase 1 habitat survey on 25th May 2017 to determine their suitability for providing roosting habitat for bats. The assessment was undertaken during suitable weather conditions as poor light conditions can cause Potential Roost Features (PRFs) to be missed.
- 2.6 Close focusing binoculars were used, where appropriate, to search for any field signs of bats or features with bat roosting potential. Most tree roosts are created by one or a combination of the following features:
- Old woodpecker holes;

¹ Ref 23-10: Collins, J. (ed.), (2016), *Bat Surveys for Professional Ecologists: Good Practise Guidelines* (3rd edn). The Bat Conservation Trust, London.

- Splits in trunk, bough or large branches;
- Rot holes in trunk, bough or large branches;
- Holes formed by two boughs or branches growing in contact;
- Loose or lifting bark; and
- Underneath a covering of dense latticed creeper, usually ivy (*Hedera helix*).

2.7 Trees were categorised with reference to the BCT Guidelines (Collins, 2016)¹ (see Table 1 below).

Table 1: Bat roost suitability categorisation descriptions and habitat suitability categorisation descriptions for commuting and foraging bats.

Roosting Habitats	Commuting/ Foraging Habitats
Negligible Suitability	
Negligible potential roost features are present that are likely to be used by bats	Negligible features on site likely to be used by commuting or foraging bats. A general lack of linear features and low habitat, structural or floristic diversity.
Low Suitability	
A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats (e.g. a gappy hedgerow or an un-vegetated stream) or foraging bats (e.g. a lone tree or small patch of scrub) but which is isolated from the surrounding countryside.
Moderate Suitability	
A structure or tree with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but which is unlikely to support a roost of high conservation status (maternity or hibernation).	Continuous habitat connected to the wider landscape that could be used by bats for commuting (e.g. lines of trees or scrub or linked back gardens), or foraging bats (e.g. trees, scrub, water, grassland).
High Suitability	
A structure or tree possessing one or more potential roost features that are suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time, due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high quality habitat that is strongly connected with the wider landscape that is likely to be used regularly by commuting bats (e.g. river valley, vegetated stream, woodland edge, hedgerows with trees) or foraging bats (e.g. broadleaved woodland, grazed parkland, tree-lined watercourses or ponds).

Transect Surveys

2.8 The site was assessed to have **low** habitat suitability for foraging and commuting bats in 2017. Three transect activity surveys were therefore recommended (in accordance with the BCT

Guidelines (Collins, 2016)¹ to establish species assemblage and potentially important ecological features within the site.

- 2.9 The site was covered by a single transect route with thirteen, four minute long stops. The transect route is shown in Drawing G6409.008. The transect route was devised to cover the whole site, incorporating a variety of habitats suitable for bat foraging, commuting and dispersal.
- 2.10 A pair of surveyors walked each transect route using heterodyne (Pettersson D230) and frequency division (Anabat) detectors. The surveys commenced at sunset and continued for at least 120 minutes after sunset in accordance with the BCT Guidelines (Collins, 2016)¹. The route was reversed on one of the three visits to optimise sampling efficacy.
- 2.11 The number of bat passes², species present and behaviour and flight direction observed were noted at each pre-determined four-minute stop and the intervening walks.
- 2.12 Standardised methods of measuring and recording weather parameters were used e.g. cloud cover (oktas) and wind (Beaufort scale). Weather data is presented in Appendix A.

Static Monitoring Surveys

- 2.13 To complement the three transect activity surveys, a single static detector was positioned within the site along a section of defunct hedgerow in the western half of the site.
- 2.14 The static detector location is referenced as S1 and shown in Drawing G6409.008 along with the transect activity survey route. The location was chosen as the defunct hedgerow feature monitored is likely to be impacted by development proposals, being within the centre of the site.
- 2.15 The location was monitored using an automated detector (Anabat Express) over three periods during the bat active season, which coincided with the transect activity surveys.
- 2.16 Only one static detector was positioned within the site due to the sites **low** suitability habitats for supporting foraging and commuting bats.
- 2.17 The static was left for a minimum of five nights during favourable weather conditions to monitor bat activity in accordance with the BCT Guidelines (Collins, 2016)¹. Details of timings of static monitoring surveys and recorded weather conditions are provided at Appendix B.

Sonogram Analysis

- 2.18 Recorded sonograms in 2017 were analysed using Analook W4.2d software by Lindsey Roberts, trained to Analook Analysis Advanced Level 3.
- 2.19 For transect data, bat calls were manually verified. Calls were geo-referenced, automatically where possible, and digitally mapped using GIS. Each species is colour coded and flight directions are provided where behaviour was observed.
- 2.20 Static detector monitoring data was scanned using an automated *Pipistrellus* sp. filter (developed by TEP) and all non-pipistrellus calls then manually verified. Data is presented as an activity index of average bat passes per night (total number of passes divided by the number of nights monitored).

² A bat pass is defined as the number of bat calls in a continuous sequence; each sequence or pass is separated by 1 second or more in which no calls are recorded (Hundt, 2012).

Survey Constraints

- 2.21 Optimal conditions for ground based tree assessments are often when trees are not in leaf, thus allowing optimal visibility of PRFs. However, due to the moderate size and relatively young age of the trees present within the site, this was not considered a constraint as visibility was not impaired by foliage abundance.
- 2.22 Automated static detectors were deployed each month, to complement each transect. During Visit 2 the static detector did not record the dusk hours of the first recording night due to equipment failure. During Visit 2 the monitoring therefore only recorded 4.5 nights. The bat activity calculations take the number of sampling nights into consideration to provide an average (bat passes per night). The sampling rate therefore varied from 4.5 - 5 nights. The Visit 1 and Visit 3 static detector monitoring achieved the minimum sampling period of 5 nights.
- 2.23 Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor quality recordings (e.g. brief and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis/Plecotus* and *Nyctalus/Eptesicus*) (Russ, 2012³). Where call parameters are inconclusive the species has been labelled as 'unknown'. This ensures the dataset is interpreted accurately and transparently.
- 2.24 Occasional periods of light rain were recorded whilst static detector monitoring was undertaken during dusk and dawn hours when bats are most likely to be active. These periods of light rain were not considered a constraint to survey data as bat activity continued to be recorded and rain remained light and continued for short periods only.
- 2.25 Temperatures were also below 10°C during June and August monitoring periods within a couple of dawn survey periods, however temperatures were only just below 10°C and bat activity was recorded. The low temperatures recorded were therefore not considered to be a constraint to static monitoring surveys.

³ Russ, J. (ed.), (2012), *British Bat Calls: A Guide to Species Identification*. Pelargic Publishing, Exeter.

3.0 Survey Results

Preliminary Ground-based Assessment of Trees

- 3.1 All of the trees on site were assessed as having **negligible** potential to support roosting bats in accordance with the BCT Guidelines (Collins, 2016)¹.
- 3.2 Trees noted within the site were predominantly growing along the northern site perimeter and were mainly associated with property/garden boundaries. A number of older hawthorns were present and formed part of a defunct hedge at the western end of the site. The trees surveyed were either not of a sufficient age or structure to be suitable to support roosting bats or were lacking individual suitable features likely to provide roosting habitat.
- 3.3 A single dead tree was present within the centre of the site along which, what is assumed to be, an old field boundary. This tree was also noted as having **negligible** potential to support roosting bats, having partially fallen limbs and possessing no obvious potential roost features.

Transect Surveys

- 3.4 The results of the three transect surveys are displayed in Drawings G6409.005-007. Drawings indicate the species assemblage, abundance and distribution recorded within the site during transect activity surveys.
- 3.5 The activity transects revealed at least three species of bat across the site;
 - Common pipistrelle *Pipistrellus pipistrellus*
 - Soprano pipistrelle *Pipistrellus pygmaeus*
 - *Myotis* species *Myotis* sp.
- 3.6 Common pipistrelle was predominantly recorded within the site, accounting for almost all the bat contacts across all three monitoring periods. Common pipistrelle activity was distributed across the site, with concentrations along the River Roch in particular during May, July and August. Pipistrelle activity was also associated with the scrub in the east of the site and the defunct hedgerow within the western half of the site. Activity was noted around the scattered broad-leaved trees and boundary edges within residential gardens. Common pipistrelle activity levels appeared relatively consistent across all three surveys.
- 3.7 Other than common pipistrelle, a single soprano pipistrelle contact was recorded in August 2017 (Visit 3) associated with the defunct hedgerow in the west of the site. Soprano pipistrelle was not recorded during May or July. Similarly, a single *Myotis* species contact was recorded in July 2017 (Visit 2) associated with the defunct hedgerow in the west of the site. *Myotis* species were not recorded during May or August.

Static Monitoring Surveys

- 3.8 Species recorded during the static monitoring surveys included:
 - Psp - Pipistrelle species (including common pipistrelle and soprano pipistrelle)
 - Msp - *Myotis* species
 - MspPa - *Myotis* and *Plecotus* species

3.9 A comparison of bat activity within the site across the three monitoring periods, June, July and August is shown in the bar chart below demonstrating temporal distribution (how activity changes over time).

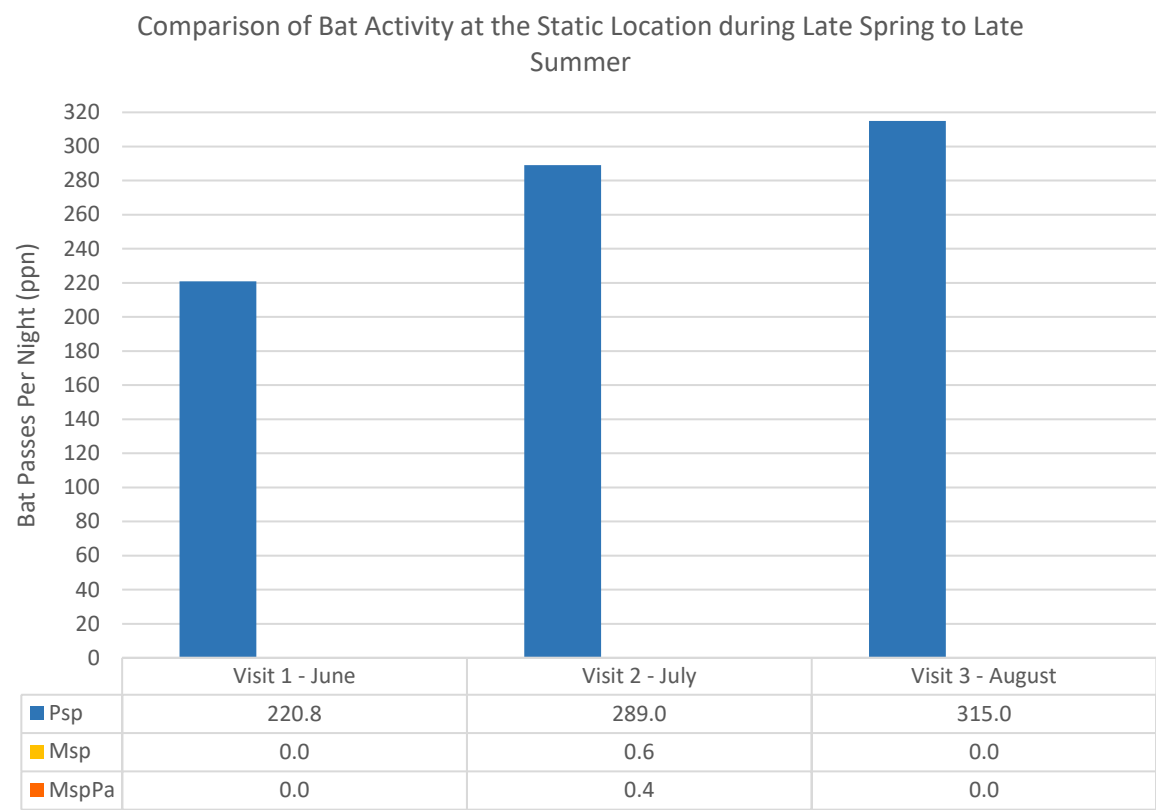


Figure 1. Temporal distribution graph of bat activity within the site.

4.0 Interpretation and Evaluation

Species Composition

- 4.1 The species recorded on site during transect surveys and static detector surveys are listed below.
- 4.2 Brown long-eared *Plecotus auritus* may have been present on site with 0.4 bat passes per night (ppn) recorded for the MspPa group during the July static detector survey. This group label includes *Myotis* species and brown long-eared bats though difficult to distinguish to species level. Brown long-eared bat can be relatively difficult to detect due to the low amplitude (i.e. quiet) calls. The activity of this species may therefore be underestimated. The conclusions and interpretation in this report takes this into consideration.
- 4.3 Species have been categorised by distribution and rarity according to Wray et al. 2010⁴.

Common (Populations over 100,000 in England)

- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared

Rarer (Populations between 10,000 - 100,000 in England)

- *Myotis* species (including Daubenton's, Natterer's and whiskered/Brandt's/Alcathoe)

- 4.4 There is also a 'Rarest' category, however no bats recorded on the site fall within this category.

Impacts

- 4.5 Bat activity was distributed across the site, concentrated along the River Roch, areas of scrub and defunct hedgerow. Activity was also noted along boundaries with residential gardens and their associated broad-leaved trees.
- 4.6 The above will be discussed in terms of potential severance impacts as a result of hedgerow loss and indirect impacts of external lighting.

River Roch

- 4.7 The transect surveys identified the site boundary with the River Roch as a relative hotspot for bat activity. Common pipistrelle were recorded and observed foraging along the watercourse and making use of the associated riparian habitats.
- 4.8 Proposals for the site are unknown but given that this linear feature is present along the southern site boundary and not within site it is unlikely that the river and associated habitats will be directly impacted. However, given that the River Roch provides foraging and commuting habitat for bats, in addition to connectivity to the wider landscape, implications from future development proposals to this feature must be considered.
- 4.9 A sensitive lighting scheme must be adopted along the River Roch to avoid any potential light spill onto the river and riparian habitats as this will have a direct impact on bat activity. There are opportunities to enhance the site boundary with the river.

⁴ Wray, S.W., Wells, D., Long, E., Mitchell-Jones, J. (2010). Valuing Bats in Ecological Impact Assessment. In Practice 70: 23-27.

Dense/continuous scrub within the site

- 4.10 The transect surveys identified bat activity along areas of dense/continuous scrub within the site and along site boundaries. As previously stated, development proposals for the site have yet to be determined and it is unknown how proposals will impact the habitats within the site.
- 4.11 Dense scrub is beneficial for promoting invertebrate diversity and therefore providing foraging habitat for bats. If areas of scrub are not to be retained within future proposals, replacement planting should be incorporated into the landscape design to provide additional foraging habitat for bats using the site and to promote connectivity across the site and with the wider landscape.
- 4.12 Sensitive lighting should be adopted around areas of scrub and replacement planting where possible.

Defunct hedgerow in the west of the site

- 4.13 Activity levels along the defunct hedge were relatively high compared to other locations within site during transect surveys, suggesting a foraging hotspot. Activity was consistently recorded along the defunct hedgerow during the May, July and August transect surveys. The hedgerow though defunct, provides a linear feature within the site, which may explain the more focused bat activity in this location.
- 4.14 Common pipistrelle were recorded along the defunct hedgerow at increasing activity levels across the three sampling periods with 220.8ppn in June, 289.0ppn in July and a peak of 315.0ppn in August.
- 4.15 The static detector located within the defunct hedgerow recorded rarer species such as *Myotis* species during July monitoring, although activity was more likely associated with commuting bats rather than those foraging within the site given the limited frequency of bat contacts from these species (0.6ppn).
- 4.16 Removal of the defunct hedge will result in the loss of commuting and foraging habitat for common species (recorded at relatively high levels) and rarer species (recorded at relatively low levels).
- 4.17 Replacement hedge planting is required to mitigate for the loss of the defunct hedge and maintain connectivity within the site.

5.0 Recommendations

- 5.1 New structural planting will replace and mitigate for the any loss of the defunct hedge in the west of the site or dense scrub throughout the site, enhancing connectivity with regard to bats and improving foraging habitat within the site.
- 5.2 New structural planting will enhance the riparian habitats along the southern site boundary with the River Roch to further improve foraging opportunities and enhance connectivity to the wider landscape. Planting will act to preserve a buffer zone between the watercourse and any development within the site. The buffer zone must be a sufficient distance so to avoid light spill onto the riparian habitats and watercourse. Screening, such as tall hedgerows would also help to reduce light spill and maintain a dark corridor. These measures will minimise any indirect impacts on bats using the linear feature for commuting and foraging.
- 5.3 Any hedges planted within the site should be managed as tall (at least 2.5m high), wide, continuous features which act as green corridors linking the most valuable habitats across the site (waterbodies, scrub and tree lines). Native species should be used, such as hawthorn and blackthorn with fruit-producing species such as bramble, rose and ivy.
- 5.4 Maintenance of dark corridors along riparian habitats along the River Roch, retained tree lines and new hedges will maintain connectivity within the site, particularly to the most valuable habitats for bats (e.g. the River Roch and linear boundary features). Dark corridors can be maintained through the implementation of a sensitive lighting scheme.
- 5.5 A sensitive lighting scheme will be included within any future development proposals and will adopt the following principals:
 - Upward lighting and light trespass should be kept to a minimum, with lighting kept near to or below the horizontal;
 - Narrow spectrum bulbs should be used, with the emission of UV light kept to a minimum;
 - Lighting columns should be short and light should be directional, lighting to a low height; and
 - Pedestrian lighting should be below 3 lux at ground level.
- 5.6 Future development proposals should include biodiversity enhancements within the site to support bats within the locality. Enhancement could be achieved through the following management practices:
 - New tree planting (e.g. oak, ash and beech) to improve diversity;
 - Creating ponds and wetland areas; and
 - Planting wildflowers, species-rich grassland mixes and nectar producing species such as honeysuckle to encourage insect abundance and create eco-passages.
- 5.7 A range of artificial roosting provisions i.e. bat boxes, should be incorporated into future proposals to enhance roosting opportunities for bats. Boxes can either be sited on retained trees or be incorporated into the structure of new build properties. Positioning and specification of any boxes should be agreed at an early stage with the project ecologist to ensure that they are fully considered in the overall scheme design.

APPENDIX A -

Weather Details on Transect Surveys

Table 1: Transect survey dates, times & weather conditions

Visit Nº	Date	Start Time	End Time	Sunset	Weather at start				Weather at end			
					Temp. °C	Rain	Wind	Cloud Cover	Temp. °C	Rain	Wind	Cloud Cover
1	31/05/17	21:27	23:57	21:27	19.5	None	2	8	18.0	None	2	8
2	06/07/17	21:40	23:58	21:40	14.8	None	4	7	14.8	None	1	5
3	10/08/17	21:34	23:37	21:34	11	None	1	0	11.1	None	1	0



APPENDIX B -

Weather Details during Static Monitoring Surveys

Table 2: Static detector survey dates, times & weather conditions.

1	01/06/17 - 06/06/17	20:58	05:11	9.0	SW/W	Mostly scattered clouds or overcast. Light rain was recorded during the dusk of 05/06/17. Temperatures dropped below 10°C on 03/06/17, 04/06/17 and 05/06/17 for an hour before sunrise. Light rain also recorded during the dusk of 05/06/17.
2	06/07/17 – 11/07/17	22:58	05:22	10.0	W	Mostly overcast or with scattered clouds. Some light rain was noted during the dusk of 08/07/17 and prior to sunrise on 11/07/17. Rainfall was minor <2.3mm.
3	12/08/17 – 17/08/17	20:13	06:21	7.0	SW	Mostly cloudy to partly cloudy weather. Light rain was noted during the dusk hours of 16/08/17 and dawn hours of 17/08/17. Temperatures remained above 10°C with the exception of on 13/08/17 when they fell to 7°C.

DRAWINGS

G6409.005 Bat Activity Transects - Visit 1 - 31.05.2017

G6409.006 Bat Activity Transects - Visit 2 - 06.07.2017

G6409.007 Bat Activity Transects - Visit 3 - 10.08.2017

G6409.008 Bat Activity Transect Route and Static Detector Location



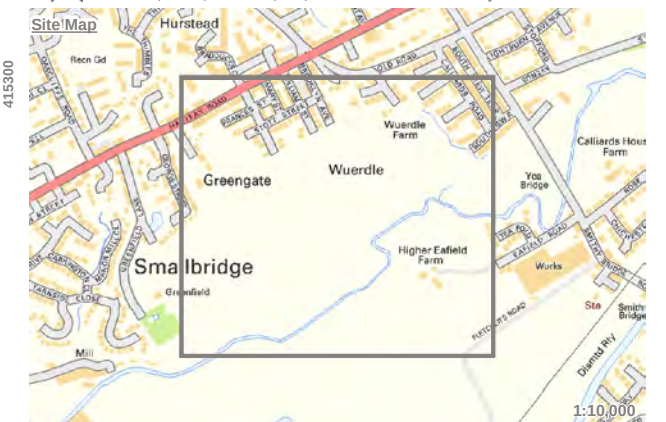
KEY

-  Site Boundary
-  Common Pipistrelle
-  Bat Flightline (Colour Denotes Bat Species)



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Smithy Bridge Road, Rochdale - Ecology

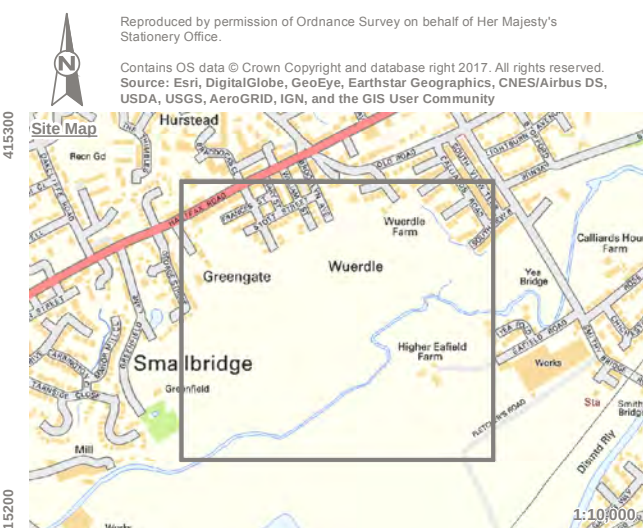
Title
Bat Activity Transect - Visit 1 - 31.05.2017

Drawing Number
G6409.005

Drawn	Checked	Approved	Scale	Date
RE	JS	LR	1:2,000 @ A3	18/10/2017



- KEY**
- Site Boundary
 - Myotis Species
 - Common Pipistrelle



Rev	Description	Drawn	Approved	Date



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Title
Bat Activity Transect - Visit 2 - 06.07.2017

Drawing Number
G6409.006

Drawn	Checked	Approved	Scale	Date
RE	JS	LR	1:2,000 @ A3	18/10/2017



KEY

Site Boundary

Soprano Pipistrelle

Common Pipistrelle

Bat Flightline (Colour Denotes Bat Species)

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Site Map

Rev	Description	Drawn	Approved	Date

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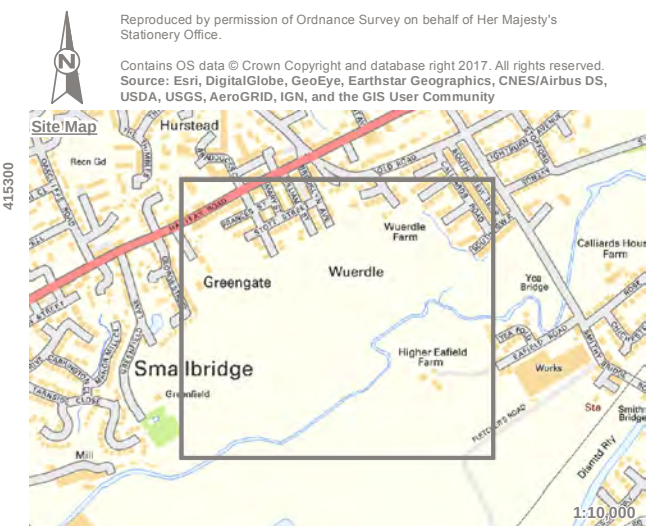
Title
Bat Activity Transect - Visit 3 - 10.08.2017

Drawing Number
G6409.007

Drawn	Checked	Approved	Scale	Date
RE	JS	LR	1:2,000 @ A3	18/10/2017



- KEY**
- Site Boundary
 - Bat Survey Stop
 - Transect Route
 - Static Detector Location



Rev	Description	Drawn	Approved	Date

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Project
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Title
Bat Activity Transect Route and Static Detector Location

Drawing Number
G6409.008

Drawn	Checked	Approved	Scale	Date
RE	JS	LR	1:2,000 @ A3	18/10/2017



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APPENDIX E: Bat Survey Technical Report (TEP Ref: 8776.003)



THE
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PARTNERSHIP



SMITHY BRIDGE ROAD ROCHDALE BAT SURVEY TECHNICAL REPORT

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Document Title	Bat Survey Technical Report
Prepared for	Taylor Wimpey
Prepared by	TEP - Warrington
Document Ref	8776.003

Author	Emma Hickson
Date	November 2021
Checked	Anne Pritchard
Approved	Anne Pritchard

[illegible]

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APPENDICES

APPENDIX A: .Recordings and Observations of Bat Activity during Nocturnal Roost Surveys.

DRAWINGS

Drawing G8776.007 - Phase 1 Habitat Survey

Map Drawing G8776.009 – Bat Tree Location Plan

1.0 Executive Summary

1. The Environment Partnership (TEP) Ltd was commissioned in May 2021 by Taylor Wimpey Strategic Land to undertake bat surveys at the Smithy Bridge Road site in Rochdale. This technical report details the bat surveys undertaken, which involved preliminary roost assessment and further nocturnal roost surveys of a single tree with bat roost habitat suitability that may be impacted during development.
2. Four trees within the site were identified as having bat roost habitat suitability ranging from low to moderate suitability. However, only one tree (T2) was categorised as having moderate bat roost habitat suitability and was carried forward for nocturnal roost surveys, as it may be directly impacted by development proposals.
3. Two common pipistrelles *Pipistrellus pipistrellus* were recorded emerging and re-entering tree T2 during Visit 1 and one common pipistrelle *Pipistrellus pipistrellus* was recorded emerging tree T2 during Visit 2. Both nocturnal roost surveys were conducted in July 2021. The roosts were characterised as a day roost which are defined as a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
4. Tree T2 is currently scheduled to be removed to make way for development. Therefore, there will be a requirement to obtain a Mitigation Licence from Natural England with regard to the common pipistrelle day roost and the removal of tree T2.
5. Where works on the three trees with low bat roost habitat suitability are required (including removal or pruning) a Precautionary Working Method Statement (PWMS) will be produced and implemented. The PWMS will include details of precautionary soft felling measures to be implemented whilst removing or pruning trees with bat roost habitat suitability. Precautionary soft felling measures will include pre-commencement checks of any potential roost features (PRFs) prior to tree removal under supervision of a licensed bat ecologist via aerial inspection, if feasible.
6. Mitigation and compensation for any future removal of tree roost habitat within the site will need to ensure no net loss of roost habitat for bats. Roost habitat loss due to the removal of trees, will be negated via the provision of replacement roost boxes.
7. Loss of trees within the site will result in a loss of foraging and commuting habitat for bats. Where linear features are removed such as hedgerows and treelines, replacement of these features must be provided within the development landscaping. Additional planting and management of the green infrastructure must enhance and maintain the foraging and commuting habitats within the site in regard to bats.
8. A sensitive lighting scheme must be included within development proposals. Artificial lighting may be required during construction, for example, where working hours extend beyond daylight hours (particularly during winter) or where security lighting is required. Lighting should only be used where and when necessary and should be appropriate, i.e. at levels that are visible and serve the intended function but that do not light excessive areas or provide light at times beyond the functional requirement.

2.0 Introduction

- 2.1 The Environment Partnership (TEP) Ltd was commissioned in May 2021 by Taylor Wimpey Strategic Land to undertake bat surveys at the Smithy Bridge Road site in Rochdale, hereafter referred to as 'the site'.
- 2.2 This technical report details the bat surveys undertaken during 2021 to inform and support a planning application for the proposed residential development of the site.
- 2.3 All bat species and their roosts are protected under The Conservation of Habitats and Species Regulations 2017 (HabRegs2, as amended 2019) and identified as European Protected Species (EPS). All bat species and their roosts are also protected under Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5). Bat species recorded within the survey area are also protected as species of principal importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (S41) and are identified as notable species listed under the Local Biodiversity Action Plan (LBAP).
- 2.4 The objectives of this report are to:
- Identify if bats are roosting within the tree identified during the GLTA that may be impacted by development proposals;
 - To confirm roosting species, roost locations and roost characteristics, if roosts are present;
 - Advise of mitigation requirements that may be needed prior to works within the site, including further bat surveys and licensing if relevant; and
 - Provide appropriate recommendations for avoidance, compensation and enhancement measures that will be required to maintain the Favourable Conservation Status (FCS) of local bat populations and net biodiversity value within the site.

3.0 Site Description

- 3.1 The site is located at Smithy Bridge Road, Rochdale (approximate central grid ref. SD 9205 1535). Agricultural land immediately bounds the site to the south, with areas of residential development to the north, east and west.
- 3.2 The habitats present within the site include semi-improved neutral grassland, acid grassland, scrub areas and the River Roch that runs along the southern boundary of the site. There are several mature trees, scattered throughout the site, though mainly along field boundaries.
- 3.3 Figure 1 shows the site in the context of the wider landscape.

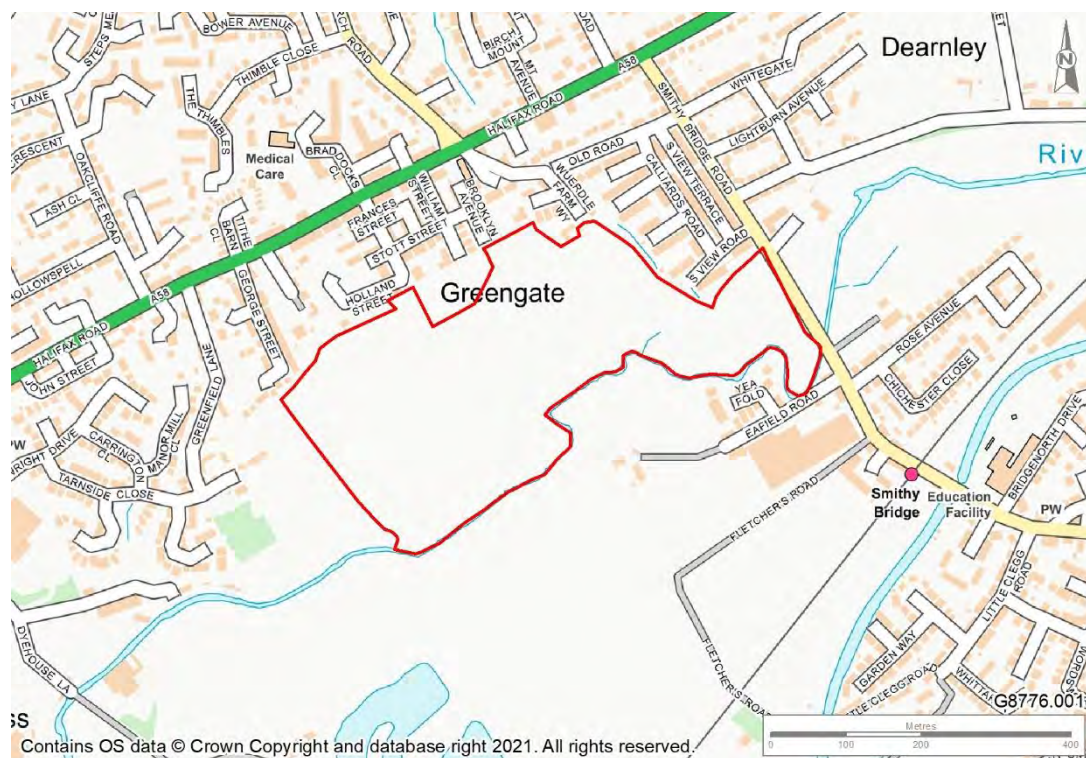


Figure 1. Site location within the context of the wider landscape.

Background Information

- 3.4 An extended Phase 1 habitat survey was undertaken at the site in June 2021 by Associate Ecologist, Anne Pritchard.
- 3.5 A total of four trees with bat roost habitat suitability were found to be present within the site, as shown on the Phase 1 Habitat Map Drawing G8776.007 during the GLTA. Three trees were identified with low bat roost habitat suitability and one with moderate bat roost habitat suitability. The results of these are outlined below.

4.0 Methods

Preliminary Roost Assessment Surveys

- 4.1 All trees within and adjacent to the development area were subject to daytime ground level assessment (GLTA) for their suitability to support roosting bats. The GLTA was completed by Associate Ecologist Anne Pritchard in June 2021.
- 4.2 Trees were viewed from the ground with the aid of binoculars and a high-powered torch (fitted with a red filter) where necessary. Where accessible from the ground, potential roost features (PRF) were closely inspected using an endoscope and torch as aids. Based on the PRF characteristics, trees were categorised for their roost suitability according to the criteria summarised in Table 1.

Table 1: Categorisation of trees for bat roost suitability

Suitability	Potential Roost Features (PRF)
High	A tree with one of more PRF that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time (e.g., maternity/hibernation) due to their size, shelter, protection, conditions, and surrounding habitat.
Moderate	A tree with one or more PRF that could be used by bats, but which are unlikely to support a roost of high conservation status (i.e., not suitable for maternity or hibernation use).
Low	One or more PRF that could be used by individual bats opportunistically, but which is not suitable to be used on a regular basis or by larger numbers of bats.
Negligible	No PRF present.

Survey Constraints

- 4.3 Some PRFs could not be fully categorised from the ground due to the angle of view or elevation of the PRF. In these instances, trees were categorised based on the ground-based view of the PRF.
- 4.4 The inspection was undertaken outside the optimal survey season, and so foliage may have been present which would obscure any potential PRFs. In this case, trees were categorised using a precautionary approach. At the time of the GLTA the weather conditions were dry and bright.

Nocturnal Roost Surveys

- 4.5 Once the GLTA was completed any trees with moderate or high roost habitat suitability to be impacted by the site development proposals were subject to nocturnal roost surveys. Nocturnal roost surveys were undertaken within the bat active season (May to September inclusive).
- 4.6 Only one tree (T2) identified from the GLTA as having moderate roost habitat suitability regarding bats may be impacted by the development proposals. The tree was therefore subject to two nocturnal roost surveys in accordance with the roost habitat suitability categorisation (moderate or high suitability receiving two or three nocturnal surveys, respectively) and the Bat Conservation Trust 2016 Good Practice Guidelines (Collins).
- 4.7 Nocturnal roost surveys were scheduled with a minimum of one week apart and were undertaken during optimum weather conditions comprising dusk temperatures of $\geq 10^{\circ}\text{C}$, pre-dawn temperatures of $\geq 6^{\circ}\text{C}$ and no rain or strong winds (>4 on the Beaufort Scale). If temperatures $< 10^{\circ}\text{C}$ were recorded during dawn re-entry surveys, surveyors noted whether bat activity was affected to determine whether surveys remained valid.
- 4.8 A pair of surveyors were positioned at tree T2. The nocturnal roost surveys were led by seasoned TEP subcontractors AB Ecology - Mark and Ashley Powell.
- 4.9 Surveyors used a full spectrum (e.g., BatLogger) detector to continuously record bat activity during the nocturnal roost surveys. Additional equipment included walkie-talkies to enable surveyors to communicate about potential roosting behaviour and activity.
- 4.10 Dusk emergence surveys commenced 15 minutes prior to sunset and finished 1.5-2.0 hours after sunset (depending on bat activity levels or reduced visibility). Dawn re-entry surveys commenced 1.5 hours before sunrise and finished 15 minutes after sunrise.
- 4.11 The details of the nocturnal roost surveys including start and finish times, weather conditions and sunset and sunrise times are provided in Table 1 below.

Table 2. Summary of nocturnal roost survey dates, start and end times and conditions for Visit 1 and 2 of tree T2 categorised as having moderate bat roost habitat suitability completed in July 2021.

Tree Ref.	Date	Start Time	End Time	Sunrise/Sunset	Moon Phase ¹	Weather Conditions at Survey Start				Weather Conditions at Survey End			
						Temp °C	Rain	Cloud ²	Wind ³	Temp °C	Rain	Cloud	Wind
T2	22/07/2021	21:05	22:50	21:20	Full moon	24.0	None	4	2	19.0	None	2	3
T2	29/07/2021	20:55	22:40	21:10	Waning Gibbous	17.0	None	6	1	13.0	None	4	1

¹ Moon Phase: New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Third Quarter, Waning Crescent.

² Cloud cover is reported in oktas or eighths (i.e. 0 oktas represents the complete absence of cloud, 1 okta cloud cover of 1 eighth or less, and so on to 8 oktas which represents full cloud cover), with the additional convention that 9 oktas represents sky obscured by fog or mist.

³ Wind strength is reported using the Beaufort Scale of Wind Force, this scale runs from 0 to 12, information on the conditions denoted by scores are as follows: 0 – Calm (vertical smoke); 1 - Light Air (slight smoke drift); 2 - Light Breeze (leaves gently rustle); 3 - Gentle Breeze (small twigs constantly move); 4 - Moderate Breeze (small branches begin to move) and 5 - Fresh breeze (small trees in leaf begin to sway).

Data Analysis and Species Identification

- 4.12 Recorded data was used for subsequent sonogram analysis following nocturnal roost surveys. Recorded call sonograms were analysed using Kaleidoscope software by TEP Ecologist Emma Hickson.
- 4.13 Not all calls can be attributed to species level, owing to the overlapping call parameters of some species, particularly in cluttered habitats. *Myotis* species have overlapping call characteristics and it is therefore not possible to identify these bats to species level with good confidence (at least 80%). However, *Myotis* data represent a small proportion of the activity recorded and therefore for the purposes of meaningful data presentation, *Myotis* species have been grouped.
- 4.14 Detectability of some bat species e.g. *Plecotus* is lower than others e.g. *Nyctalus* and *Pipistrellus* as a consequence of echolocation and hunting strategies. Careful interpretation has been applied when comparing across species.
- 4.15 In such cases, calls are attributed only to genus or as 'Unconfirmed' to allow transparency in the interpretation of each dataset.

Limitations

Detector Failure

- 4.16 One of the BatLogger units used during the dusk emergence nocturnal roost survey of tree T2 on 22nd July 2021 did not record any data due to an SD card failure. This limitation did not significantly constrain the survey as surveyors had made observational records and a further BatLogger unit used by the other surveyor positioned nearby continued to record for additional verification of species present when required. The data loss represents only a small proportion of the overall survey effort and does not significantly impair confidence in the interpretation of the baseline data.

5.0 Results

Preliminary Roost Assessment

- 5.1 The locations of the trees within the site that were subject to GLTA are illustrated in the Phase 1 Habitat Survey map D8776.007 and on the Bat Tree Location Plan DG8776.009.
- 5.2 Tree descriptions and roost suitability categorisations assigned from the GLTA are summarised in Table 2 below.

Table 3: Results for ground level tree assessments

Tree ID	Description and Photograph	Suitability
T1	Mature Sycamore of approximately 10m in height located on the site boundary in the north, adjacent to the residential estate. Potential roost features include dense ivy cover provides feature which may also mask other features. Precautionary categorisation was made based on what can be assessed. 	Low
T2	Dead tree, of approximately 12m in height. Located next to P4. Potential roost features include a large fissure in central vertical upper branch and a broken branch on the western aspect (approx. 7-10m high) that could lead to a cavity. 	Moderate

Tree ID	Description and Photograph	Suitability
T3	Mature Sycamore of approximately 20m in height located on the southeastern boundary of the site, adjacent to Smithy Bridge Road and the river. Potential roost features include a broken branch (Approx. 5m high on the southern aspect) and a knot hole. 	Low
T4	Mature Sycamore of approximately 25m in height located on the southeastern boundary of the site, adjacent to Smithy Bridge Road and the river. Potential roost features include a split branch (Approx. 4-5m high on the western aspect). 	Low

Nocturnal Roost Surveys

- 5.3 Tree T2 was carried forward for nocturnal roost surveys as it was categorised as having moderate roost habitat suitability and due to its positioning within the site has the potential to be impacted by the development (Figure 2). Aerial inspections were not possible as the tree is surrounded by great reedmace *Typha latifolia*, and so close access is difficult.



Figure 2. Tree T2 - Dead tree with fissure on main central vertical upper branch (approx. 7-10m height) and a broken branch on the western aspect of the tree.

- 5.4 T1, T3 and T4 do not require further survey due to their categorisation as having low potential to support roosting bats.

Confirmed Roosts

- 5.5 Two common pipistrelles *Pipistrellus pipistrellus* was observed emerging from two PRFs during the dusk emergence survey on 22nd July 2021 at 21:49hrs (sunset +29mins) and at 22:03 (sunset +43mins) recorded by both Mark and Ashley Powell, two common pipistrelles were then recorded re-entering the PRFs at 22:07 and 22:17. The first bat emerged from a broken fissure hole on the main vertical column branch of the tree (Figure 2), this was recorded by both surveyors due to the visual aspect of their positions. The bat was noted flying within the locality across the field to the rear of the surveyors following emergence. Sonogram analysis of the data recorded during the survey identified the first pipistrelle contact at 21:49hrs with the surveyor noting that this was the same pipistrelle which had emerged from the tree. This timing would correlate with a bat emerging from tree T2 at 21:49hrs.

- 5.6 The second bat emerged from a broken branch on the western aspect of the tree (Figure 3), and this was only recorded by the surveyor who was positioned at the west vantage point during the survey. A call identified during sonogram analysis identifies a common pipistrelle at 22:03 which correlates with the second emergence from T2.



Figure 3 - Broken branch on western aspect of the tree

- 5.7 A single common pipistrelle *Pipistrellus pipistrellus* was observed emerging from a PRF during the dusk emergence survey on the 29th of July 2021 at 21:40hrs (sunset +45 mins) by one surveyor. The bat emerged from the broken branch on the western aspect of the tree (Figure 3). Sonogram analysis of the data recorded during the survey identified a contact with a common pipistrelle at 21:40hrs, correlating with a bat emerging from the tree.
- 5.8 Due to only single individuals being recorded in separate PRFs during the July survey visits, the two roosts have been characterised as day roosts, a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer. It is likely that the bats recorded emerging during visit 1 were the same individuals then returning after having spent some time foraging.
- 5.9 No other bat roosts were identified during the nocturnal bat roost surveys.

General Activity

- 5.10 During the nocturnal roost surveys two bat species were recorded foraging and commuting around the tree T2 and nearby habitats. Bat species recorded during nocturnal roost surveys included:
- Common pipistrelle *Pipistrellus pipistrellus* (LBAP, WCA5, HabRegs2); and
 - Noctule (S41, WCA5, HabRegs2).
- 5.11 For more details regarding first and last times of bat contacts recorded during the dusk emergence surveys see the results table presented at Appendix A.

- 5.12 In general, foraging and commuting activity was frequently recorded along the scrub/grassland edge habitats, as well as near to the pond, where invertebrate prey abundance and diversity is likely to be higher than within open grassland fields.
- 5.13 First and last contact times for bat species recorded during nocturnal roost surveys can be indicative of potential distance of trees from roost sites for individual bats recorded. Typical emergence times for the species recorded during nocturnal surveys include:
- Noctule typically emerge 5-10 minutes after sunset (occasionally just before);
 - Common and soprano pipistrelle typically emerge 20-30 minutes after sunset (occasionally just before); and
- 5.14 Bats are likely to use a variety of roost sites within the wider landscape depending on variables such as their age, sex and roost habitat preferences and the season. Timings of first and last contacts for all bat species recorded by surveyors during the nocturnal roost surveys, as detailed at Appendix A, indicate bats are roosting within the surrounding locality.

6.0 Conclusions

- 6.1 Bats are legally protected under The Conservation of Habitats and Species Regulations 2017 (HabRegs2, as amended 2019). All bats and their roosts are also protected under the Wildlife and Countryside Act (1981) as amended. Under this legislation, it is an offence to:
- Disturb a bat or groups of bats in their roost;
 - Damage or destroy a bat roosting place, even if there are no bats present at the time;
 - To obstruct access to a bat roost; and
 - To capture, injure or kill a bat or possess, advertise, sell or exchange a bat, or part of a bat dead or alive.
- 6.2 Currently only one tree with bat roost suitability within the site may be impacted by development; tree T2 which has a confirmed bat roost.
- 6.3 During nocturnal roost surveys two common pipistrelle night roosts were confirmed in tree T2. There will be a requirement to obtain a European Protected Species (EPS) Mitigation Licence from Natural England (NE) regarding these night roosts if impacts to tree T2 cannot be avoided.
- 6.4 Bats are transitional in their use of tree roost habitat and also roost opportunistically when seeking shelter or refuge. The Core Sustainment Zones (CSZ) for species recorded during nocturnal roost surveys as cited in the BCT Guidelines include:
- Common pipistrelle - 2km
 - Noctule - 4km
- 6.5 The trees and habitats within the site therefore fall within the CSZ for likely roost sites within the wider landscape and bats within these populations could use the four trees identified as having bat roost habitat suitability as part of their wider roost habitat resource.
- 6.6 Pipistrelles generally use tree roosts for smaller roosts such as for mating, day, or night roosts, with maternity colonies found mainly in buildings. However, soprano pipistrelle nursery roosts have been located within tree holes, in addition to these habitats being used for mating roosts. Soprano pipistrelles are also frequently found hibernating within tree roosts (Dietz and Keifer, 2016).
- 6.7 Noctule roosts are almost exclusively found in tree holes, but sometimes found in bat boxes or buildings (Altringham, 2003). For summer roosts, woodpecker holes have been found to be heavily favoured (Dietz and Keifer, 2016). Tree roosts can also be used for hibernation during the winter. Noctule nursery roosts can also frequently be changed between trees within areas up to 200ha.
- 6.8 Where trees identified as having suitability for roosting bats require removal or pruning, this could impact bats. Bat roost habitat may be destroyed or roost functionality impacted by severance of commuting routes and indirect disturbance from external lighting.

7.0 Recommendations

- 7.1 This section sets out the recommendations for appropriate further survey, mitigation and enhancement based on the potential impacts set out in Section 6.0.

Confirmed Roosts

- 7.2 There will be a requirement to obtain an EPS Mitigation Licence from NE regarding the common pipistrelle day roosts recorded in T2 as felling cannot be avoided. EPS Mitigation Licence Applications require survey data from the most current survey season. If an EPS Mitigation Licence is required after July 2022, repeated nocturnal roost surveys will be required to inform the EPS Mitigation Licence Application.
- 7.3 Following submission of an EPS Mitigation Licence Application, NE aim to process licences and return the outcome of the application in 30 working days (this can vary at peak times). This should be taken into consideration in line with the proposed programme of works.

Trees with Bat Roost Habitat Suitability

- 7.4 Trees with bat roost habitat suitability should be retained within proposals if possible. The mitigation hierarchy requires that potential impacts are first avoided and where this is not possible, are minimised before mitigation is considered.
- 7.5 Trees with bat roost habitat suitability that are retained within proposals should be protected by implementing a buffer zone around the trees. The buffer zone around retained trees must as a minimum adhere to the root protection area in accordance with BS5837: 2012 Trees in Relation to Design Demolition and Development. Buffer zones around retained trees will assist in maintaining the health of the tree and minimising impacts on bats roosting within the locality.
- 7.6 Where works on the three trees with low bat roost habitat suitability (T1, T3 and T4) are required (including removal or pruning) a Precautionary Working Method Statement (PWMS) will be produced and implemented. The PWMS will include details of precautionary soft felling measures to be implemented whilst removing or pruning trees with bat roost habitat suitability. Precautionary soft felling measures will include pre-commencement checks of any PRFs prior to tree removal under supervision of a licensed bat ecologist via aerial inspection where possible.

Maintaining Net Roost Habitat Availability

- 7.7 Mitigation and compensation for any removal of tree roost habitat within the site will need to be provided. Loss of roost habitat for bats due to the removal of trees, should be negated via the provision of replacement roost boxes and appropriate mitigation during felling. Replacement roost boxes should be incorporated onto trees adjacent to areas where tree loss will occur prior to any works to allow for bats within the locality to find these resources.
- 7.8 Bat roost habitat enhancement should also be provided by incorporating additional roosting resources for bats within the site through placement of bat boxes on buildings and retained trees within the site.

- 7.9 Bat boxes should be positioned in areas where conditions such as temperature and humidity will be maintained by surrounding vegetation structure e.g. on trees sheltered by surrounding tree or scrub cover. Roost boxes should include a variety of designs that will support a variety of species and roost types.
- 7.10 Bat boxes should act to replicate the size, height and aspects of any tree roosts lost. Boxes should be sited in a variety of locations, ideally with multiple boxes on trees to provide a range of roost conditions. Boxes should also be situated near features to provide suitable flight-lines such as linear scrub and hedgerow features and should have an entrance close to appropriate foraging habitat.
- 7.11 Most bat species prefer to fly in dark areas straight into vegetation. All bat boxes must be positioned away from sources of external lighting or where light spillage may influence use of a box.
- 7.12 At this site, to mitigate for the loss of the two roosts in tree T2, two Schwegler 2F bat boxes (or similar) should be installed on retained trees. With respect to enhancement opportunities, one Schwegler 2FN and one Schwegler 1FD bat box (or similar) should be installed on retained trees and three Beaumaris Woodstone bat Boxes (or similar) for installation on buildings.

Maintaining Habitat Connectivity

- 7.13 Loss of habitats within the site will result in a loss of foraging and commuting habitat used by bats. A landscape masterplan should be designed to compensate and mitigate for any loss of trees and hedgerows within the site and to maintain habitat connectivity with the surrounding landscape.

Sensitive Lighting Design

- 7.14 Maintenance of dark corridors during construction works along retained treelines, scrub, ditches, streams, and hedgerows will minimise impacts on foraging and commuting bats. Artificial lighting can prevent bats from using commuting routes and using roosts due to disturbance. Artificial lighting can also cause congregation of prey under lighting therefore reducing availability for more light sensitive species such as *Myotis* species and brown long-eared *Plecotus auritus*. Dark corridors can be maintained through the implementation of a sensitive lighting scheme.
- 7.15 Direct lighting around trees must be avoided as light falling on any potential roosts would make bats unlikely to use them and disturb bats if already present.
- 7.16 A sensitive lighting scheme must be included within works proposals and should adopt the following principals:
- Contractors should avoid night-time working during key bat active hours particularly during post-dusk and pre-dawn hours;
 - Avoid lighting on key habitat and important features altogether;
 - Where lighting is required, dark buffer zones between habitats and lighting should be used with illuminance limits and zonation;
 - Narrow spectrum bulbs should be used, that do not emit UV light (peaking higher than 550nm) e.g. warm white spectrum lights (<2700Kelvin) or LED luminaires;

- Downward directional luminaires should be used to retain darkness above and using only luminaires with an upward light ratio of 0% and with good optical control; and
- Any external security lighting should be set on motion-sensors and short (1min) timers.

7.17 Artificial lighting may be required during construction, for example, where working hours extend beyond daylight hours (particularly during winter) or where security lighting is required. Lighting should only be used where and when necessary and should be appropriate, i.e. at levels that are visible and serve the intended function but that do not light excessive areas or provide light at times beyond the functional requirement.

References

Legislation and Policy

Wildlife and Countryside Act 1981 (c.69). London: HMSO.

Natural Environment and Rural Communities Act 2006 (c.16). London: HMSO.

The Conservation of Habitats and Species Regulations 2017. S.I. 2010/490. London: HMSO.
(Amendment) (EU Exit) Regulations 2019.

Best Practice and Guidance

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

Literature

Altringham, J. D. (2003). *British Bats*. Collins New Naturalist Library, Volume 93. Harper Collins, London.

Andrews, H. (2018). *BTHK 2018. Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals*. Pelagic Publishing, Exeter.

Dietz, C. and Keifer, A. (2016). *Bats of Britain and Europe*. Bloomsbury Publishing, London.

APPENDIX A: Recordings and Observations of Bat Activity during Nocturnal Roost Surveys.

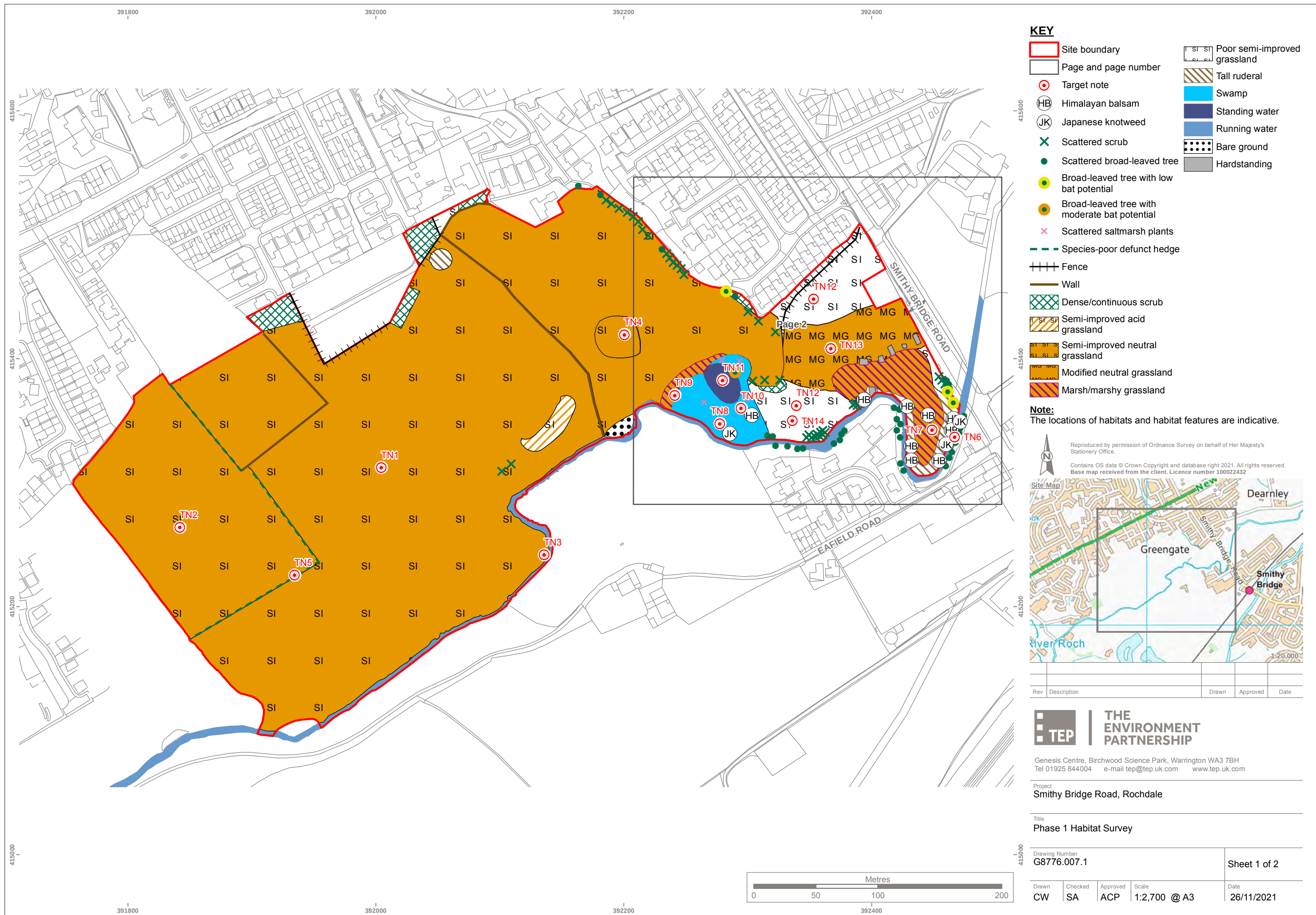
Table A. Summary of nocturnal roost survey recordings and observations of bat activity for Visits 1-2 of tree T2 categorised as having moderate roost habitat suitability and identified as being potentially impacted by development proposals.

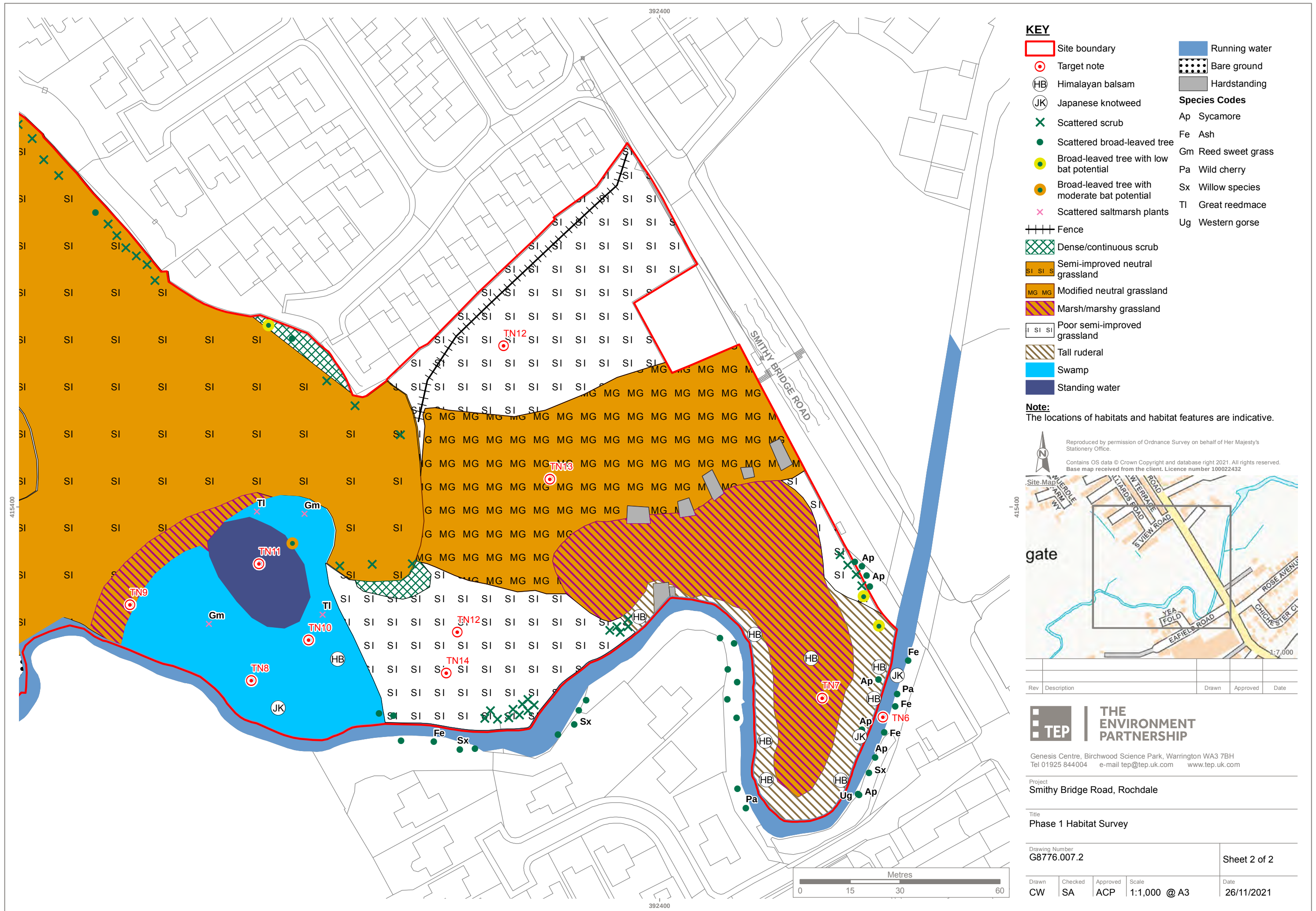
Tree Ref.	Date	Sunrise / Sunset	Time of First/ Last Contact	Minutes After Sunset/ Minutes Before Sunrise for Bat Contacts	Species	Commuting/Foraging Activity Noted.
T2	22/07/21	21:21	21:49	Sunset +28 minutes	Common Pipistrelle	General foraging activity across field to rear of surveyors.
T2	29/07/21	21:10	21:37	Sunset +27 minutes	Noctule	Noctule heard not seen, likely commuting over the site.
			21:41	Sunset +31 minutes	Common Pipistrelle	Common Pipistrelles foraging over pit/pond to the rear of the surveyor.

DRAWINGS

Drawing G8776.007 - Phase 1 Habitat Survey Map

Drawing G8776.009 – Bat Tree Location Plan







KEY

- Site boundary
- Tree with low bat roost suitability
- Tree with moderate bat roost suitability

Note:

The locations of habitats and habitat features are indicative.

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Rev	Description	Drawn	Approved	Date



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Smithy Bridge Road, Rochdale

Title
Bat Tree Location Plan

Drawing Number
G8776.009

Drawn	Checked	Approved	Scale	Date
SP	CW	ACP	1:2,500 @ A3	26/11/2021



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APPENDIX F: Breeding Bird Survey Report (TEP Ref: 6409.002)



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SMITHY BRIDGE ROAD, ROCHDALE

BREEDING BIRD SURVEY 2017

TEP Technical Report August 2017

TEP

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PLANNING | DESIGN | ENVIRONMENT

Author	Lausanne Jenkins
Date	August 2017
Checked	Mike Walker
Approved	Mike Walker

[illegible]

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2.0	Introduction	2
3.0	Method.....	4
4.0	Results	5
5.0	Evaluation and Recommendations	9

1.0 General Details

Central NGR	SD 92043 15370
Site Location	Smithy Bridge Road, Rochdale
Date(s)	Visit 1 = 12/05/2017 Visit 2 = 01/06/2017 Visit 3 = 03/07/2017
Surveyor(s)	Lausanne Jenkins (Visit 1), Lausanne Jenkins (Visit 2), Tim Ross (Visit 3)
Weather	1st visit - Dry and overcast 2nd visit – Dry and overcast 3rd visit - Mostly dry with light rain showers
Methods	Three morning survey visits using transect method, including a buffer extending 100m around the site boundary and wider survey area.
Seasonal Constraints	The survey was undertaken during the optimum breeding bird survey period. There are no constraints associated with the survey.
Drawing References	G6409.001 Breeding Bird Survey Visit 1 12.05.2017 G6409.002 Breeding Bird Survey Visit 2 01.06.2017 G6409.003 Breeding Bird Survey Visit 3 03.07.2017

2.0 Introduction

- 2.1 The breeding bird survey forms part of a wider ecological appraisal to provide input into a proposed residential development at Smithy Bridge Road, Rochdale. The drawings for the breeding bird survey include two boundaries, the survey boundary comprising the proposed development site (S) and a 100m offset buffer (SBU). Drawings G6409.001 to G6409.003 illustrate these boundaries as well as the results of each visit of the survey.

Site Description

- 2.2 The proposed development site is located to the north-east of the town of Smallbridge, Rochdale at central grid reference SD 92043 15370. Residential development borders the site to the north, east and west. The River Roch runs along the southern site boundary.
- 2.3 The main land-use is agricultural and the site includes a number of fields which are grazed by cattle. The majority of fields are bordered by dry stone walls, some of which are in a state of disrepair. A field boundary in the north-west of the site includes a mixture of dry stone wall, hedgerow and trees. The area adjacent to the River Roch south-east of the site contains a pond surrounded by scrub.

Pre-existing Site Data

- 2.4 Desktop records were gathered in February 2017 from Greater Manchester Ecology Unit (GMEU). All bird species classed as notable are those listed on any of the following:
- Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
 - Species of principal importance under Section 41 of the Natural Environment and Communities Act 2006 (S41); and
 - Red and Amber listed Bird of Conservation Concern (BoCC) species (BRd/ BAm).
- 2.5 There are historical records of 12 notable species that have been recorded within 1 km of the proposed development site. The birds identified within these records are:
- | | |
|----------------------------------|-------------------------------|
| • Bullfinch (S41, BAm) | • Lapwing (S41, BRd) |
| • Dunnock (S41, BAm) | • Linnet (S41, BRd) |
| • Grasshopper Warbler (S41, BRd) | • Little Ringed Plover (WCA1) |
| • Grey Partridge (S41, BRd) | • Reed Bunting (S41, BAm) |
| • House Sparrow (S41, BRd) | • Skylark (S41, BRd) |
| • Kingfisher (WCA1, BAm) | • Song Thrush (S41, BRd) |

3.0 Method

- 3.1 The survey was carried out applying methods based on the standard breeding bird survey and common bird census methods developed by the British Trust for Ornithology [BTO]¹.
- 3.2 Visits were carried out in the morning period, starting at least half an hour after dawn. Each survey visit was carried out approximately 4 weeks apart, over the period April to June.
- 3.3 Bird species and activity patterns were recorded and mapped using standard BTO symbology.
- 3.4 Three survey visits were undertaken using pre-determined survey routes to cover the entire site.

¹ BTO Census Unit: Breeding Bird Survey Instructions (BTO, JNCC & RSPB), 1994

4.0 Results

Visit	Date	Start Time	Finish Time
Visit 1	12/05/2017	06:40	08:15
Visit 2	01/06/2017	07:30	08:50
Visit 3	03/07/2017	07:30	08:55

Table 1: Counts of bird species recorded during the 2017 breeding bird season, including conservation and likely breeding status.

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SBU	S	SBU	S	SBU		S	SBU
Blackbird	7	10	1	4	3	5		C (1) Pr (1)	C (1) Pr (2)
Black-headed Gull			1	1	3	3	BAm	N	N
Canada Goose		6		15				N	Po
Carrion Crow	5	9	3	3	3	3		N	C (1) Pr (1)
Chaffinch				1				N	Po
Collared Dove				1				N	Po
Dunnock		2	2	2	2	3	S41 BAm	Pr (2)	Pr (3)
Feral Pigeon		2						N	Po
Goldfinch			10	12				Po	Po
Great Tit		2	1	2				Po	Pr (1)
Greenfinch	2	4	4	5	1	2		Pr (3)	Pr (4)

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SBU	S	SBU	S	SBU		S	SBU
Grey Wagtail					1	1	BRd	Po	Po
House Martin		1	14	14	3	3	BAm	N	Pr (1 colony)
House Sparrow		2	3	6		4	S41 BRd	Po	Pr (2 colonies)
Jackdaw	14	15	3	3	2	2		N	C (1) Pr (1)
Lapwing	1	1		1			S41 BRd	Po	Po
Lesser Black-backed Gull					1	1	BAm	N	N
Magpie	2	2	1	4	2	4		N	Pr (2)
Mallard	5	11	3	4			BAm	Pr (2)	Pr (3)
Moorhen			1	1				C (1)	C (1)
Oystercatcher		2		1			BAm	N	N
Pheasant		3		1				N	Po
Reed Bunting					1	1	S41 BAm	Pr (1)*	Pr (1)*
Robin	2	2	1	3	1	1		C (1)** Pr (1)	C (1)** Pr (2)
Skylark			2	3	3	3	S41 BRd	Pr (3)	Pr (3)
Song Thrush		1		1			S41 BRd	N	Pr (1)
Starling	33	51	74	76	56	60	S41 BRd	N	Pr (multiple colonies)

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SBU	S	SBU	S	SBU		S	SBU
Swallow	5	6	1	4	5	5		N	Pr (3)
Swift	1	6	3	4	3	3	BAm	N	Po
Whitethroat	1	1						Po	Po
Woodpigeon	5	8	6	14	5	16		N	Pr (4)
Wren	3	5	3	4	3	7		Pr (3)	Pr (6)
Total Species	14	23	20	27	18	19			

S: Site; SBU: Site including 100m buffer

Status Key: WCA1 = Schedule 1, S41 = Section 41; BRd = BoCC Red List; BAm = BoCC Amber List.

Likely Breeding Status Key: C = Confirmed, Pr = probably breeding within site, Po = possibly breeding within site, N = not breeding within site.

* Includes one incidental record of a reed bunting singing 10/08/17

** Includes one incidental record of a juvenile robin 09/06/17

Results Summary

- 4.1 This survey has been conducted to identify areas of importance for birds and any constraints concerning birds for the proposed residential development.
- 4.2 There are historic records of 12 notable species that have been recorded within 1km of the site. Six of these species, dunnock, house sparrow, lapwing, reed bunting, skylark and song thrush were recorded within the site and/or 100m survey buffer during the 2017 breeding bird survey.
- 4.3 A total of 32 species were recorded within the site boundary and 100m buffer during the breeding bird surveys; 23 species in visit one, 27 species in visit two and 19 species in visit three. Of those recorded seven species are listed under S41; five of these are also BRd species and two are also a BAm species. There is also one BRd species and six BAm species that are not S41 species.
- 4.4 Five species were confirmed to be breeding within the site boundary and 100m buffer. These are blackbird (one confirmed and two probable breeding pairs), carrion crow (one confirmed

and one probable breeding pair), jackdaw (one confirmed and one probable breeding pair), moorhen (one confirmed breeding pair) and robin (one confirmed and two probable breeding pairs). None of these species are considered notable.

- 4.5 Fourteen probable breeding species were recorded within the site and 100m buffer during the breeding bird survey, these are dunnoek, great tit, greenfinch, house martin, house sparrow, magpie, mallard, reed bunting, skylark, song thrush, starling, swallow, woodpigeon and wren. Of these species dunnoek (three probable breeding pairs), house martin (one probable colony), house sparrow (two probable colonies), mallard (three probable breeding pairs), reed bunting (one probable pair), skylark (three probable breeding pairs), song thrush (one probable breeding pair) and starling (multiple probable breeding colonies) are notable species.

5.0 Evaluation and Recommendations

- 5.1 The 32 species recorded within the site boundary and 100m survey buffer represents a moderate species diversity with the majority of species recorded being commonplace and widespread. Due to the moderate diversity and the site supporting a low number of confirmed and probable breeding Birds of Conservation Concern (WCA1, S41, BRd and BAm) it is considered to be of less than local importance.
- 5.2 Of the probable notable breeding species, dunnock, house sparrow and song thrush are associated with breeding and nesting in hedgerows, woodland and scrub habitats.
- 5.3 Dunnock were recorded throughout the site and 100m buffer in hedgerows and scrub. Dunnock were also present in residential gardens in the north and south east of the 100m survey buffer.
- 5.4 The two probable house sparrow colonies were also recorded in the residential gardens bordering the proposed development site.
- 5.5 Low numbers of song thrush were also recorded in the residential areas within the 100m survey buffer, but not within the site itself.
- 5.6 The majority of these species were recorded in the residential areas within 100m of the proposed site boundary. Within the proposed site boundary there is a small amount of suitable habitat, with the key area being a hedgerow along a field boundary in the north-west of the site, where other species associated with nesting in hedgerows such as robin and blackbird were confirmed to be breeding. The removal of hedgerows and scrub will reduce the amount of breeding and nesting habitat available for dunnock, house sparrow, song thrush and other species associated with these habitats and should be retained or replaced wherever possible to minimise the impact of the development.
- 5.7 A comprehensive nest box scheme including small nest boxes with holes to provide additional nesting sites for species such as house sparrow and great tit and open fronted nest boxes to attract robin should also be undertaken.
- 5.8 The probable reed bunting breeding pair was recorded adjacent to the River Roch in an area of reeds and scrub. Mallard are also likely to be nesting adjacent to the River Roch. To minimise the impact of the development on these species the vegetation adjacent to the river should be retained.
- 5.9 Foraging house martins were recorded during all three survey visits predominantly in the south of the proposed development site and 100m survey buffer. House martins nest under eaves or recesses on the outer walls of buildings with a likely breeding colony nesting at the

farm and associated buildings south of the proposed development site, within the 100m survey buffer, on Eafield Road.

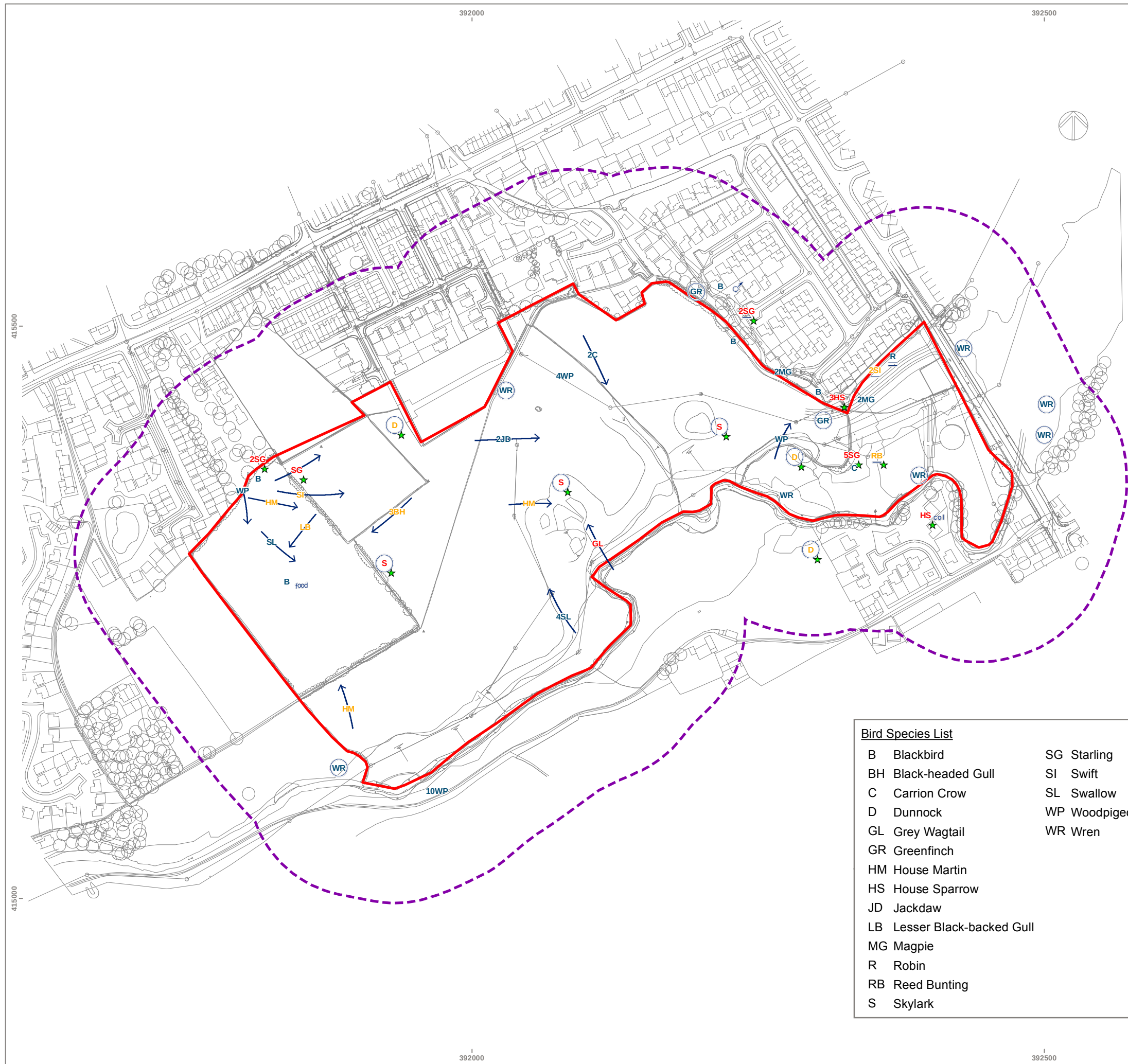
- 5.10 Three likely breeding pairs of skylark were recorded in fields within the proposed development site boundary. This Section 41, Red List BoCC species nests on the ground, usually in short vegetation 10-40cm tall. The construction of housing at the site will remove suitable breeding habitat for skylark and will result in the birds dispersing to suitable habitat nearby. Skylark were also recorded singing outside of the site boundary, on farmland south of the River Roch, confirming that suitable breeding/ nesting habitat for skylark is available in adjacent land.
- 5.11 Starlings including juvenile birds were recorded in large numbers throughout the site during all survey visits. Starlings nest in the cavities of mature trees or in buildings close to human settlements. With no suitable breeding or nesting habitat within the proposed development site boundary, it is probable that multiple colonies of starlings nested within the residential areas to the north of the site. Starlings will regularly travel in flocks to feed and therefore could not be confirmed as breeding in these locations. However, it should be noted that the proposed site provides a foraging area for starling, which will be lost once construction commences, although residential gardens will provide foraging opportunities.
- 5.12 All wild birds and their nests and eggs are protected under the Wildlife and Countryside Act 1981, as amended. It is recommended that all tree and vegetation clearance across site avoids the core breeding bird season, March to August inclusive; although bird nesting can take place outside this period. If vegetation clearance works are necessary during the core breeding bird season, or at any time when bird nesting is suspected, a nesting bird check of the affected area by an ecologist is required. Extensive clearance of potential bird nesting habitat is not always practical and development programmes should take this constraint into account.

DRAWINGS

G6409.001 Breeding Bird Survey Visit 1 12.05.2017

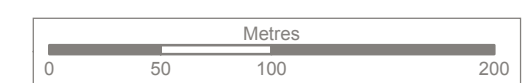
G6409.002 Breeding Bird Survey Visit 2 01.06.2017

G6409.003 Breeding Bird Survey Visit 3 03.07.2017



KEY

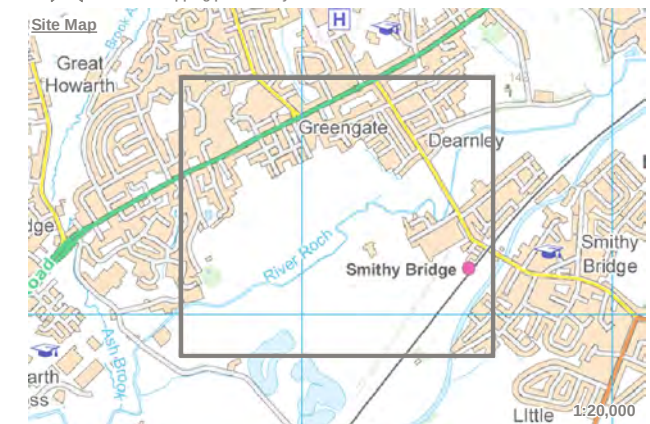
- Site Boundary
- 100m Site Boundary Offset
- ★ Section 41 Species
- col Colony
- = Alarm Call
- Calling
- food Carrying Food
- ♂ Male
- Singing
- Directional Flight Line



Note

Red Red List Species **Amber** Amber List Species

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Base mapping provided by client



Bird Species List

- | | |
|-----------------------------|---------------|
| B Blackbird | SG Starling |
| BH Black-headed Gull | SI Swift |
| C Carrion Crow | SL Swallow |
| D Dunnock | WP Woodpigeon |
| GL Grey Wagtail | WR Wren |
| GR Greenfinch | |
| HM House Martin | |
| HS House Sparrow | |
| JD Jackdaw | |
| LB Lesser Black-backed Gull | |
| MG Magpie | |
| R Robin | |
| RB Reed Bunting | |
| S Skylark | |



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Project
Smithy Bridge Road, Rochdale - Ecology

Title
Breeding Bird Survey - Visit 3 3rd July 2017

Drawing Number
G6409.003

Drawn	Checked	Approved	Scale	Date
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APPENDIX G: Water Vole Technical Report (TEP Ref: 8776.004)



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SMITHY BRIDGE ROAD ROCHDALE WATER VOLE TECHNICAL REPORT

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Document Title	Water Vole Technical Report
Prepared for	Taylor Wimpey
Prepared by	TEP - Warrington
Document Ref	8776.003

Author	Emma Hickson
Date	November 2021
Checked	Anne Pritchard
Approved	Anne Pritchard

[illegible]

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APPENDICES

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APPENDIX B:	Field Sign Surveys - One Survey or Two?
APPENDIX C:	Habitat Suitability of River

DRAWINGS

Drawing G8776.010 Visit 1 Results
Drawing G8776.011 Visit 2 Results

Executive Summary

1. TEP was commissioned by Taylor Wimpey Strategic Land in May 2021, to carry out a water vole (*Arvicola amphibius*) presence/absence survey of the River Roch running adjacent and within the site boundary on the site known as Smithy Bridge Road in Rochdale. These surveys are to inform a planning application for proposed residential development.
2. The type of proposed development works determines the baseline survey data required to prove presence or likely absence of water vole. All surveys followed the new Water Vole Mitigation Handbook 2016 (*Dean et al* 2016). Water vole surveys were undertaken along the river in June 2021 and September 2021 to determine presence/absence of water vole.
3. The survey identified habitats that are considered suitable to support water vole throughout the survey area, and water vole presence, of a low population density, was confirmed within the river.
4. Precautions should be put in place to avoid any pollution run-off from the construction site into the river and a working buffer should be put in place to protect the banks and water vole habitat on the site.
5. While residential dwellings will be set back from the river and adjacent habitats will comprise public open space, the finalised masterplan is yet to be decided there is the potential for impacts on the river, from drainage outfalls for instance.
6. If the impacts on the river are unavoidable, a licence from Natural England may be required to displace water voles prior to the proposed development works. Depending on the type of licence, displacement can only be implemented between mid-February and mid-April or mid-September to mid-November

1.0 Introduction

- 1.1 The Environment Partnership (TEP) Ltd was commissioned in May 2021 by Taylor Wimpey Strategic Land to undertake water vole surveys along a section of the River Roch running adjacent and within the site boundary in the south of the site.
- 1.2 The water vole *Arvicola amphibius* surveys have been requested to inform future residential development proposals on the site.

Site Location and Description

- 1.3 The site is located south of Rochdale and is centred on grid reference SD 9205 1535. The site comprises mostly semi-improved neutral grassland, acid grassland, scrub areas and the River Roch that runs along the southern boundary of the site. The site is waterlogged in places with marshy grassland areas and a pond within the site. The survey area and site context is shown in Figure 1 below.



Figure 1 - Survey Location Plan

Legislation

- 1.4 In England and Wales, water voles are listed on Schedule 5 of the Wildlife and Countryside Act (WCA) 1981. The WCA 1981, together with amending legislation, lists the following as offences:
 - Intentionally killing, taking, or injuring a water vole (Section 9(1));
 - Possessing or controlling any live or dead water vole, or any part or derivative (Section 9(2));
 - Intentionally or recklessly damaging or destroying a water vole's place of shelter or protection (Section 9(4)(a));

- Intentionally or recklessly disturbing a water vole whilst it is occupying a structure or place which it uses for shelter or protection (Section 9 (4)(b));
- Intentionally or recklessly obstruction access a water vole's place of shelter or protection (Section 9(4)(c));
- Selling, offering for sale, or possessing or transporting for the purposes of sale, any live or dead water vole, or any part or derivative, or advertising any of these for buying or selling (Section 9(5)).

- 1.5 Prior to February 2016 if it could be demonstrated that any action that would otherwise have been an offence was the "incidental result" of a lawful operation and could not reasonably have been avoided, this would have constituted as a defence against prosecution. However; since 2016 displacement activities are no longer covered by the "incidental result" defence. Therefore, any displacement activities (including vegetation removal) now require a licence.
- 1.6 Water voles are also listed within the Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006. Section 40(1) of the Act states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity", with particular regard to the Section 41 habitats and species.

2.0 Methodology

Desktop Study

- 2.1 Desktop records were gathered in July 2021, as part of the overall scheme (TEP Report Ref: 8776.001), from GMEU up to 2km from the Site.

Field Survey

- 2.2 The water vole surveys were undertaken by TEP Ecologists Stephanie Davies on 4th June 2021 and Rosie Langley 22nd September 2021 on the area of the river that borders the site boundary, accompanied by a health and safety assistant. The survey included the river and its embankments, where access was permitted.
- 2.3 The standard methodology as outlined within the latest guidance by Dean *et al.* (2006)¹ and Strachan *et al* (2011)² were followed, to complete a thorough search for evidence which would indicate the presence of water vole and other riparian mammals both on the site and locally, which include:

- Burrows;
- Feeding remains;
- Droppings;
- Footprints;
- Incidental evidence of other riparian mammals (including otter *Lutra lutra* and North American mink *Neovison vison*)

Survey Design

- 2.4 The type of proposed development works determines the baseline survey data required to prove presence or likely absence of water vole. The water vole survey was designed considering the proposed development and The Water Vole Mitigation Handbook 2016, see Appendix A and Appendix B for full details.
- 2.5 The survey included surveying approximately 900m of riverbanks and an in-channel survey of the watercourse up to 100m up and downstream of the proposed development works. The survey areas are shown on Drawing G8776.010 and Drawing G8776.011.

Survey Constraints

- 2.6 Permission to access the river within a survey buffer of 100m upstream and downstream of the site was not possible during the survey season.
- 2.7 Access to all parts of the river, where permission was granted, was not possible due to high water levels in some areas and deep mud sediment at the bases of the banks. Livestock within fields and within the river also acted as a constraint to the survey. The river was accessed as far as possible and where the surveyors could not survey from within the river, bankside observations were made.

¹ Dean, M, Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) (2016). Eds Fiona Mathews and Paul Chanin. The Mammal Society.

² Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water vole conservation handbook (3rd Ed.). Wildlife Conservation Research Unit, Oxford

3.0 Results

Desktop Study

- 3.1 The desk study identified seven historic records of water vole approximately 200m southeast of the site. This part of Rochdale is well documented for its populations of water voles and otter, and it is highly likely they are present in the wider landscape.

Field Survey

Habitat Suitability

- 3.2 Full results of the habitat suitability of the river section subject to survey are provided in the Appendix C.
- 3.3 In brief, the channel is approximately 1-2m wide on average with steep banks up to 3m high in some areas. Steep banks up to 3m in height. The banks are soft earth with a good river depth of around 1m and largely vegetated banks, including a good variety of grass species. These features all allow for the water course to be highly suitable for foraging, commuting and burrowing water vole.

Water Vole Presence/Likely Absence

- 3.4 The results of the water vole presence or likely absence surveys are presented in Table 1 and Table 2 below (refer to Drawings G8776.010 and G8776.011 for detailed survey results).
- 3.5 For the purpose of these surveys and to allow investigation of population estimates on the river, the surveyed section was split into four areas (A, B, C and D).

N.B. A is the quarter of the river furthest from Smithy Bridge Road and D the closest section to Smithy Bridge Road.

Table 1 - Water Vole Survey Results (Visit 1)

ID (section)	Water Vole Field Evidence:	Date:	04/06/2020
A	-		
B	2 feeding stations		
C	-		
D	-		

Table 2 - Water Vole Survey Results (Visit 2)

ID (section)	Water Vole Field Evidence:	Date:	22/09/2020
A	1 feeding station		
B	2 latrines <10 droppings		

ID (section)	Water Vole Field Evidence:	Date:	22/09/2020
C	1 feeding station		
D	-		

Relative Population Density (RPD)

- 3.6 It is not possible to calculate the number of individual water voles from the number of latrine counts; however, the number of latrines indicates a level of water vole activity and density at the site, which can be used to assess potential impacts of the proposed development and to design appropriate avoidance and mitigation (if required).
- 3.7 The number of latrines present give an indication of the relative water vole population size. The number and location of latrines also identify areas of the site most valuable for water vole. The survey area can then be divided into three categories that support water voles at a “high”, “medium” or “low” density.
- 3.8 Relative water vole population density is calculated by combining the number of latrines and other confirmatory field signs per 100m of bankside habitat during the first and second survey.
- 3.9 Table 3, below explains the relative population density calculation of water vole taken from The Water Vole Mitigation Handbook 2016 (page 16)

Table 3 - Relative Population Density (RPD)

First half of Survey season (mid-April - June)	Second half of survey season (July - September)	Relative Population Density (RPD)
10 or more	20 or more	HIGH
2 to 9	5 to 19	MEDIUM
Less than 2 or none, but with other confirmatory field signs	Less than 5 or none, but with other confirmatory field signs	LOW

- 3.10 Based on the above criteria, the 2 feeding stations (visit 1) and 2 latrines and 2 feeding stations (Visit 2) indicated that sections A, B and C all have a low population of water vole. Section D found no signs of water vole; however, this section will be used for commuting and foraging water voles and so should be assigned a precautionary low RPD.

4.0 Photographs



Figure 2: Riverbanks - Section A



Figure 3: Section A - Densely vegetated banks



Figure 4: Visit 1 feeding station



Figure 5: Use of river by livestock - Section C



Figure 6: Steep densely vegetated banks - Section D



Figure 7: Section D brick lined walls where the river meets Smithy Bridge Road



Figure 8: Visit 2 water vole feeding station



Figure 9: Visit 2 water vole latrine



Figure 10: Section B densely vegetated banks



Figure 11: Visit 2 water vole latrine



Figure 12: Densely vegetated banks and deep running water - Section B

5.0 Evaluation

- 5.1 The habitat along the banks of the majority of the river is highly suitable for water voles. Some areas along the banks were found to be highly scrubbed over with dense bramble *Rubus fruticosus agg.* This, along with areas of deep silt and high-water levels within the river channel, allowed for limited access within the river. However, this was not considered to be a significant limitation to the survey and these areas were able to be surveyed from the banks.
- 5.2 The first survey was carried out towards the start of June when water vole activity would be nearly at its highest with extensive breeding activity and colony creation. The second survey was carried out at the end of September when water voles will begin to prepare for the winter period, which could explain the increase in feeding stations during this survey. Field signs and activity recorded across the site indicates a low population density of water voles, however, there is sufficient suitable habitat for colony expansion and dispersal.
- 5.3 The highest concentration of water vole activity identified, is within section B of the ditch towards the southwest of the site. This area is closely linked with other wet areas in the wider landscape, marshy grassland and ponds and it is likely water vole are present within the wider area, expanding their territories within the River Roch adjacent to the Smithy Bridge Road site.
- 5.4 Water voles are highly transient and mobile and can move quite easily within suitable habitat. It is considered that the water vole population within the site will readily occupy all other nearby suitable habitat at some time, depending on environmental conditions.

6.0 Recommendations

- 6.1 The survey confirmed water vole presence and activity along the river at low densities. The mitigation for the works will be determined to avoid incidental harm to the water vole population. This follows guidance outlined in The Water Vole Mitigation Handbook (2016).
- 6.2 Development works are for a proposed residential development. A review of the masterplan reveals that the residential development will be set back from the river with the lower levels of the site adjacent to the river comprising extensive public open space.
7. Precautions should be put in place to avoid any pollution run-off from the construction site into the river and a working buffer should be put in place to protect the banks and water vole habitat on the site. These precautions allows avoidance of direct impact to water vole populations in the area.
- 6.3 If works are to unavoidably directly impact the river, for instance if an outfall is required, a licence from Natural England (NE) will be required in order for works to commence. The license application will also need to demonstrate a conservation gain, therefore suitable riparian habitat enhancement will need to be demonstrated within the near catchment, prior to the commencement of works for displacement of water voles from the impacted habitat.
- 6.4 Works can commence under either a Class Licence or Site-Specific mitigation Licence issued by NE. Displacement under a Class Licence can only be completed between mid- February to mid-April, whereas displacement under a Site-Specific Licence can be undertaken during this period or between mid-September and mid-November.
- 6.5 Depending on when initial development works are planned, this will influence the type of NE licence that will be required. It is advised that displacement is undertaken during the optimal period between mid-February and mid-April, however if this is not achievable then a Site-Specific licence will be required.
- 6.6 Please bear in mind that it usually takes 10 working days for NE to process Class License applications and only the "Registered Person" or "Assistant" under direct supervision of the Registered Person are authorised to act under this licence. Whereas it usually takes between 30-60 working days for NE to process a Site-Specific Licence and the "Registered Person" or "Accredited Agent" are authorised to act under this Licence.
- 6.7 A suitable mitigation strategy and method statement will be required to inform an application for a mitigation licence from Natural England (NE) and will include:
 - Prior to any works surrounding the river, all vegetation within the impacted area (10m) and appropriate buffer (10m up and down stream) must be strimmed to 150mm (under supervision of the Registered Person or Accredited Agent) and allowing at least 5 days for any water vole movement to occur.

- After these 5 days the area can then be strimmed to bare earth. The Registered Person or Accredited Agent will then inspect the length of the proposed impacted area and appropriate buffer for any burrows.
- At this point, if any burrows are found, these will be dug out by hand and any water voles will be allowed to naturally displace.
- Once all burrows have been excavated, works can proceed.
- Please note, if there will be any delay to works, the strimmed and excavated area will be covered with Terram membrane until works are ready to proceed.

6.8 Within this site, there is also scope for habitat enhancement and creation by sympathetic clearance of areas of encroaching scrub along the banks of the river to prevent ground vegetation which water vole rely on as a food source being shaded out.

6.9 Other simple management practices of existing watercourses can also enhance habitat for water voles including:

- Creating grassy buffer strips (4-6m) along the existing watercourse to provide important foraging habitat for water voles throughout the year and refuge from predators. Buffer strips also allow water voles to disperse, and they provide links between suitable patches of habitat and other water vole populations. This increases the population stability in the wider landscape.

6.10 Given that water vole are very dynamic within the riparian catchment, and the site is suitable for this species, it is recommended that a repeat of the survey should be undertaken if, after 12 months from the date of this report, no works have occurred.

References

Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

Government Circular: Biodiversity & Geological Conservation – Statutory Obligations and their impact within the Planning System. ODPM Circular 0/2005, Defra Circular 01/2005 downloadable at <http://www.communities.gov.uk/publications/planningandbuilding/circularbiodiversity>¹

Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water vole conservation handbook (3rd Ed.). Wildlife Conservation Research Unit, Oxford.

The Wildlife & Countryside Act 1981 (As amended)

The Natural England Rural Communities Act 2006. The National Planning Policy Framework, 2019 (NPPF)

UK Biodiversity Steering Group (1995) Biodiversity – the UK Steering Group Report. Volume 2: Action Plans. P89 SAP for Pipistrelle. London, HMSO.

APPENDIX A: Survey Design

Survey Design. (*The Water Vole Mitigation Handbook, Box 1, Page 9*)

1. Type of works: <i>Very small-scale works affecting up to 15m of watercourse</i>	
Example project	Construction of an outfall, bridge repair works, or installation of pipes up to 15m long within a narrow field drain (where these do not form part of a larger development)
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas plus 100m upstream and downstream. A comprehensive desk study exercise will not necessary be required.
Additional information (if water voles present)	Micro-mapping of the habitat and burrow locations to allow design to minimise impacts (when relevant). Further data may be needed to ensure that there is sufficient alternative habitat available to displace water voles into. This may be obtained through desktop study, or a habitat assessment combined with ‘spot checks’ for water voles over a wider area (1-2km upstream and downstream of the works).

2. Type of works: <i>Works temporarily affecting up to 50m of watercourse</i>	
Example project	Pipeline crossing a watercourse
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas, plus 200m upstream and downstream of the works. A comprehensive desktop study exercise will not necessarily be required.
Additional information (if water voles present)	Micro-mapping of the habitat and burrow locations to allow design to minimise impacts (when relevant). Further data may be needed to ensure that there is sufficient alternative habitat available to displace water voles into. This may be obtained through desktop study, or a habitat assessment combined with ‘spot checks’ for water voles over a wider area (1-2km upstream and downstream of the works).

3. Type of works: <i>Works temporarily affecting more than 50m of watercourse</i>	
Example project	Watercourse re-profiling or repair/reinstatement of bank stabilisation structures
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas, plus at least 200m upstream and downstream of the works. For works affecting more than 500m of watercourse, the study area should increase to 500m upstream and downstream of the works. A comprehensive desk study exercise will not necessarily be required but would be advisable for works affecting ≥ 250 m of watercourse.
Additional information (if water voles present)	Desk study – Site and up to 2-5km around it (or a habitat assessment combined with ‘spot checks’ for water voles) to inform the approach to mitigation and the assessment of fragmentation effects. The study area should be proportionate to the length of habitat affected.

4. Type of works: *Works with permanent impacts affecting 15-50m of watercourse*

Example project	Bank side revetment works
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas, plus 100-200m upstream and downstream of the works (proportionate to the length of watercourse affected). Desk study – site and up to 2km around it (or a habitat assessment combined with ‘spot checks’ for water voles).
Additional information (if water voles present)	Sufficient information is likely to have been provided by the ‘presence/likely absence’ surveys.

5. Type of works: *Works with permanent impacts affecting more than 50m of watercourse OR Works requiring permanent culverting of watercourse*

Example project	Bank side revetment works OR Highway schemes or some residential/mixed-use developments
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas, plus 200-500m upstream and downstream of the works (proportionate to the likely fragmentation effects). Desk study – site and up to 2-5km around it, or a habitat assessment combined with ‘spot checks’ for water voles.
Additional information (if water voles present)	The study area for the desk study (or habitat assessment combined with ‘spot checks’ for water voles) may need to be increased to inform the approach to mitigation.

6. Type of works: *Very large-scale works*

Example project	Coastal re-alignment projects (where there are reasonable grounds to expect the presence of water voles)
To confirm presence or likely absence of water voles	Field survey – footprint of the works, including temporary work areas, plus approximately 1km around it. Desk study – site and up to 10km around it (or a habitat assessment combined with ‘spot checks’ for water voles).
Additional information (if water voles present)	The study area for the desk study (or habitat assessment combined with ‘spot checks’ for water voles) may need to be increased to inform the approach to mitigation.

APPENDIX B: Field Sign Surveys - One Survey or Two?

Field sign surveys - one site visit or two?

The Water Vole Mitigation Handbook (Page 15)

The water vole is a mobile species that responds to habitat changes over the course of the breeding season: a single visit can therefore be insufficient to confirm likely absence in many cases. In addition, where water voles are present, survey data based on two visits will allow a more robust assessment of the impacts of the project, particularly where water voles use different parts of a site during different parts of the breeding season. This can also be important in determining the most appropriate approach to mitigation. These guidelines therefore recommend that two field survey visits are routinely undertaken. However, it is recognised that the second visit may not be required in some cases, and it may therefore be possible to make a case for an assessment based on one visit. Examples of scenarios where a single visit (before submitting a planning application) may be sufficient as follows:

1. Water vole presence is confirmed during the first survey visit.

A second visit may not be needed where the assessment of effects on water voles can be made on a precautionary basis (i.e., water voles are present throughout the site at the maximum density that the habitat could support), and the approach to mitigating incidental mortality (displacement, relocation by trapping, off-site translocation, etc.) can be determined from the first visit alone.

The assessment of the quality of the habitat, and therefore the likely maximum density of water voles, will need to consider changes to the habitat in different parts of the breeding season as a result of natural processes (e.g., changes to water level) and management activities. This can be a difficult assessment to make for many sites.

2. Water vole presence is not confirmed during the first survey visit.

A second visit may not be needed where the habitat is of very low suitability for water voles and there is a very low likelihood that water voles are present in the surrounding area - up to 2km from the area of the proposed works, or less where significant barriers to water vole dispersal are present.

The assessment of the suitability of the habitats will need to consider changes to the habitat in different parts of the breeding season as a result of natural processes and management activities. This can be a difficult assessment to make for many sites. It will be difficult to make a robust case for not undertaking a second survey where access to surrounding areas is limited or impossible.

A second visit may also not be needed where the assessment of effects on water voles can be made on a precautionary basis (as per point 1 above)

In all cases, a second visit would be advisable prior to commencing works.

APPENDIX C: Habitat Suitability of River

River	Description:
Bank Profile:	Steep banks up to 3m in height. Channel approximately 1-2m width on average with widening in some areas up to 5m
Bank Substrate:	Soft earth
Water Depth:	0.7m-1m, this fluctuates seasonally
Fluctuations:	Yes
Shading:	Little overhanging scrub
Bank Vegetation:	Grassland, marshy grassland, and tall ruderal
In-Channel Vegetation:	N/A
Management:	N/A
Constraints:	Some areas impenetrable for full in-channel search due to dense scrub, high water levels and deep silty base.
Suitability:	YES

DRAWINGS

Drawing G8776.010 Visit 1 Results

Drawing G8776.011 Visit 2 Results



KEY

- Site boundary
- Watercourse surveyed and section
- ⬠ Feeding remains

Water Vole Survey Results

- ⬠ Feeding remains



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Rev	Description	Drawn	Approved	Date



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Project
Smithy Bridge Road, Rochdale

Title
**Water Vole Survey Results - Visit 1
4th June 2021**

Drawing Number
G8776.010

Drawn	Checked	Approved	Scale	Date
CW	SA	EH	1:2,500 @ A3	01/03/2022



KEY

- Site boundary
- Watercourse surveyed and section
- ◆ Feeding remains
- ▲ Latrine

Water Vole Survey Results

- ◆ Feeding remains
- ▲ Latrine

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Rev	Description	Drawn	Approved	Date



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Project
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Title
Water Vole Survey Results - Visit 2
22nd September 2021

Drawing Number
G8776.011

Drawn	Checked	Approved	Scale	Date
CW	SA	EH	1:2,500 @ A3	01/03/2022



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APPENDIX H: Otter Survey Technical Report (TEP Ref: 8776.005)



THE
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SMITHY BRIDGE ROAD ROCHDALE OTTER TECHNICAL REPORT

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Document Title	Otter Technical Report
Prepared for	Taylor Wimpey
Prepared by	TEP - Warrington
Document Ref	8776.005

Author	Emma Hickson
Date	March 2022
Checked	Anne Pritchard
Approved	Anne Pritchard

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1.0 Introduction

- 1.1 TEP were commissioned by Taylor Wimpey Strategic Land in May 2021, to undertake an otter *Lutra lutra* survey within the riparian habitat on and adjacent to the River Roch running adjacent and within the site boundary on the site known as Smithy Bridge Road in Rochdale. The survey forms part of the ecology evaluation to provide input into the planning of residential development.
- 1.2 The site is located south of Rochdale and is centred on grid reference SD 9205 1535. The site comprises mostly semi-improved neutral grassland, acid grassland, scrub areas and the River Roch that runs along the southern boundary of the site. The site is waterlogged in places with marshy grassland areas and a pond within the site. The survey area and site context is shown in Figure 1 below.

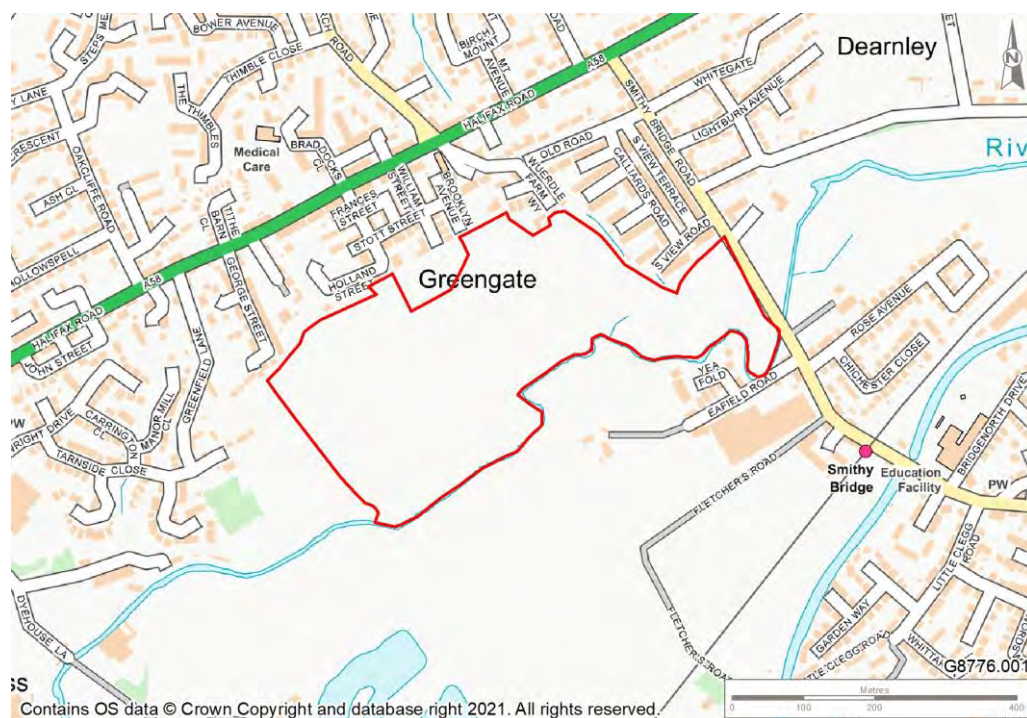


Figure 1 - Survey Location Plan

- 1.3 The River Roch provides suitable foraging habitat for otter and could provide suitable temporary resting and feeding couches for otter. As such, there is potential for disturbance of otter resting places to occur during site clearance works, should they be present.
- 1.4 The purpose of the survey was to determine the presence of otter in close proximity to the proposed works area. This information will be used to assess potential risks of the proposed works disturbing otters from their place of shelter or rest within 30m of the works, in order to inform construction methods and any necessary mitigation to ensure that disturbance, damage or destruction of active otter resting places/dens does not occur.

Legislation

- 1.5 The Eurasian otter is the only native UK otter species. It's fully protected as a European protected species (EPS) and is also protected under sections 9 and 11 of the Wildlife and Countryside Act 1981, together with amending legislation, lists the following as offences.
- Capture, kill, disturb or injure otters (on purpose or by not taking enough care)
 - Damage or destroy a breeding or resting place (deliberately or by not taking enough care)
 - Obstruct access to their resting or sheltering places (deliberately or by not taking enough care)
 - Possess, sell, control or transport live or dead otters, or parts of otters

2.0 Methods

Desktop Study

- 2.1 Desktop records were gathered in July 2021, as part of the overall scheme (TEP Report Ref: 8776.001), from GMEU up to 2km from the Site.

Field Survey

- 2.2 The otter survey was undertaken by experienced ecologist Stephanie Davies on the 4th June 2021 and Rosie Langley on 22nd September 2021 with assistants for health and safety reasons. The survey encompassed the banks of the River Roch and areas of suitable riparian habitat up to 200m up and downstream of the work areas, where access was permitted.
- 2.3 Field signs for otter include spraints (droppings), footprints, feeding remains and laying up areas (couches) on the immediate banksides. Other signs include potential dens or holts within exposed tree roots on riparian banks and within woodlands adjacent to and within 30m of the watercourse.

Survey Constraints

- 2.4 Permission to access the river within a survey buffer of 200m upstream and downstream of the site was not possible during the survey season.
- 2.5 Access to all parts of the river, where permission was granted, was not possible due to high water levels in some areas and deep mud sediment at the bases of the banks. Livestock within fields and within the river also acted as a constraint to the survey. The river was accessed as far as possible and where the surveyors could not survey from within the river, bankside observations were made.

3.0 Results

Desktop Study

- 3.1 Desktop records identified historical presence of otter within the 2km of the site, approximately 200m south east.

Field Survey

- 3.2 The survey extent is illustrated in Drawings G8776.010 and G8776.011, which relate to the water vole survey and are included in the main report.
- 3.3 No evidence of otter activity or otter holts were identified during the field survey.

Summary

- 3.4 The survey identified that the river and the surrounding riparian habitat is suitable for otter, however no evidence was found of this species commuting along the banks in the form of feeding remains and spraints (droppings).
- 3.5 No evidence was found of active or historic laying up areas or potential holts within the exposed banks, no habitat on the banks of the river within the survey range showed potential for den creation and resting places.

4.0 Evaluation and Recommendations

- 4.1 The desktop and anecdotal evidence show that otter have been noted within the area especially along the River Roch. It is highly likely that otters are present within the wider landscape.
- 4.2 No evidence of otter activity or otter holts were identified during the survey. As such, there are no implications with regard to otter and development works can proceed. However, if any otter are identified on site during construction, works must cease immediately, and advice must be sought from the appointed ecologist.

Recommendations

- 4.3 Given that no evidence was found of potential holts, it is considered there will be no impact with regards to the works and otters within the area and no mitigation is required.
- 4.4 Otters are highly transient and mobile and can move quite easily within suitable habitat within the catchment and it is considered that otter will remain active within the catchment at some time, depending on environmental conditions.
- 4.5 As a precautionary measure and if work has not commenced within 12 month of the date of this report further surveys will be required to re-assess the habitats. This may result in mitigation measures being required if outcomes of the survey have changed.

5.0 References

Natural England (NE), Otters: surveys and mitigation for development projects. Standing advice for local planning authorities to assess the impacts of development on otters. <https://www.gov.uk/guidance/otters-protection-surveys-and-licences> (accessed 22/11/19)

The Wildlife & Countryside Act 1981 (As amended)

The Natural England Rural Communities Act 2006. The National Planning Policy Framework, 2019 (NPPF)

UK Biodiversity Steering Group (1995) Biodiversity – the UK Steering Group Report. Volume



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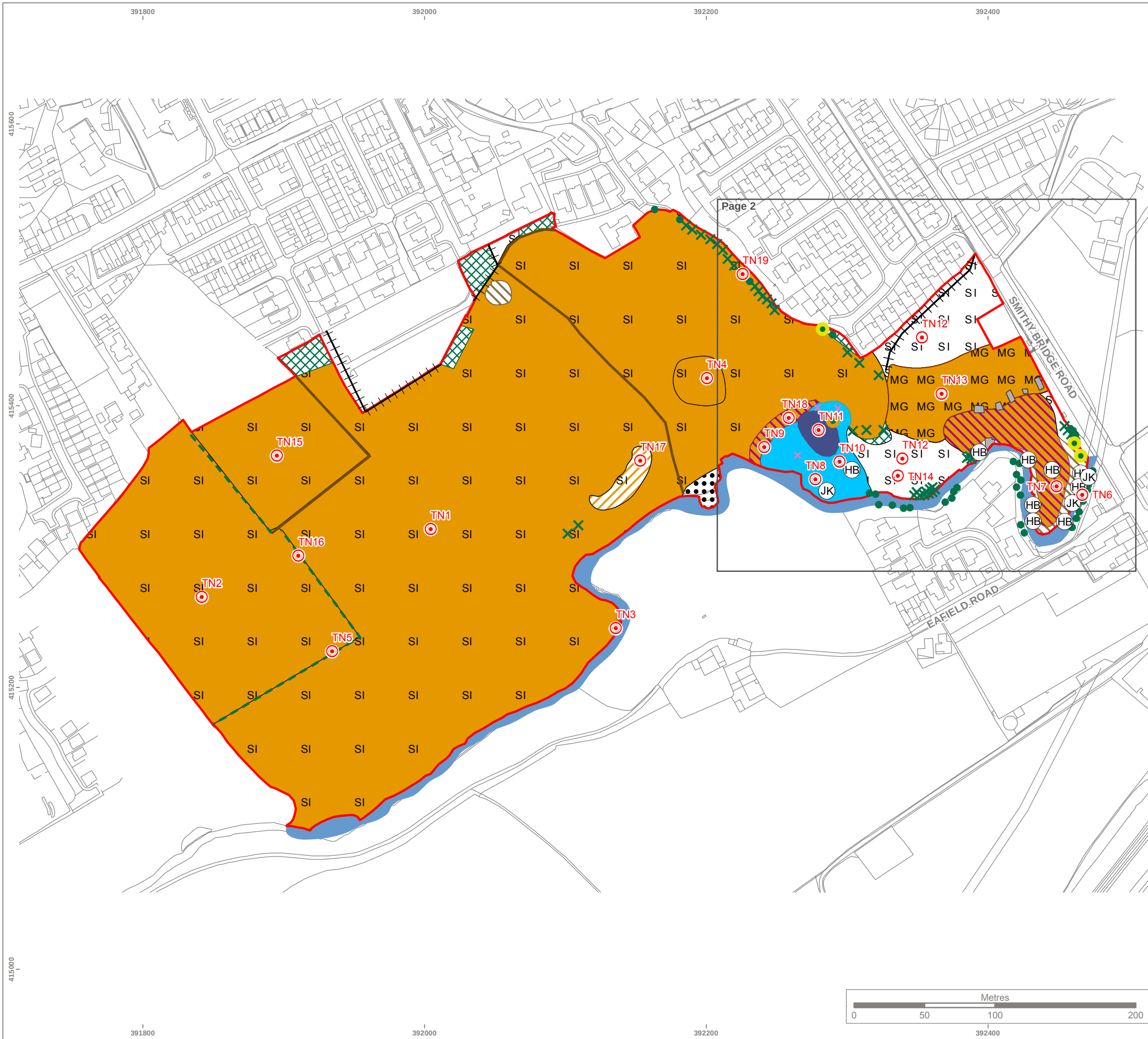
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DRAWINGS

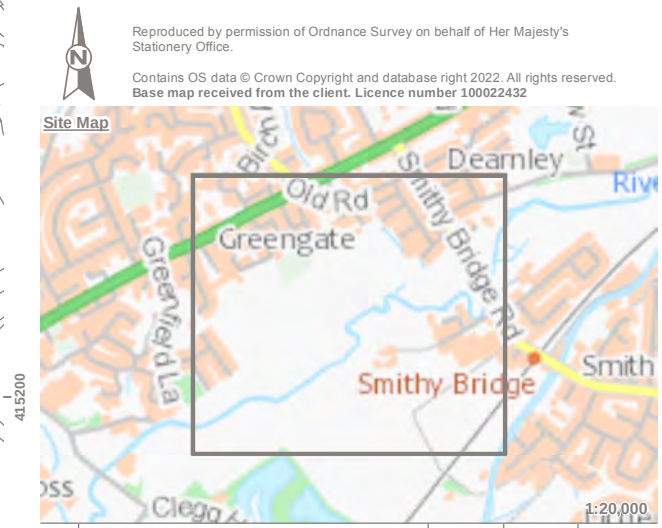
Phase 1 Habitat Map (G8776.007.1-2)



- KEY**
- Site boundary
 - Page and page number
 - Target note
 - Himalayan balsam
 - Japanese knotweed
 - Scattered scrub
 - Scattered broad-leaved tree
 - Broad-leaved tree with low bat potential
 - Broad-leaved tree with moderate bat potential
 - Scattered saltmarsh plants
 - Species-poor defunct hedge
 - Fence
 - Wall
 - Dense/continuous scrub
 - Semi-improved acid grassland
 - Semi-improved neutral grassland
 - Modified neutral grassland
 - Marsh/marshy grassland
 - Poor semi-improved grassland
 - Tall ruderal
 - Swamp
 - Standing water
 - Running water
 - Bare ground
 - Hardstanding

Note:
The locations of habitats and habitat features are indicative.

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Rev	Description	Drawn	Approved	Date

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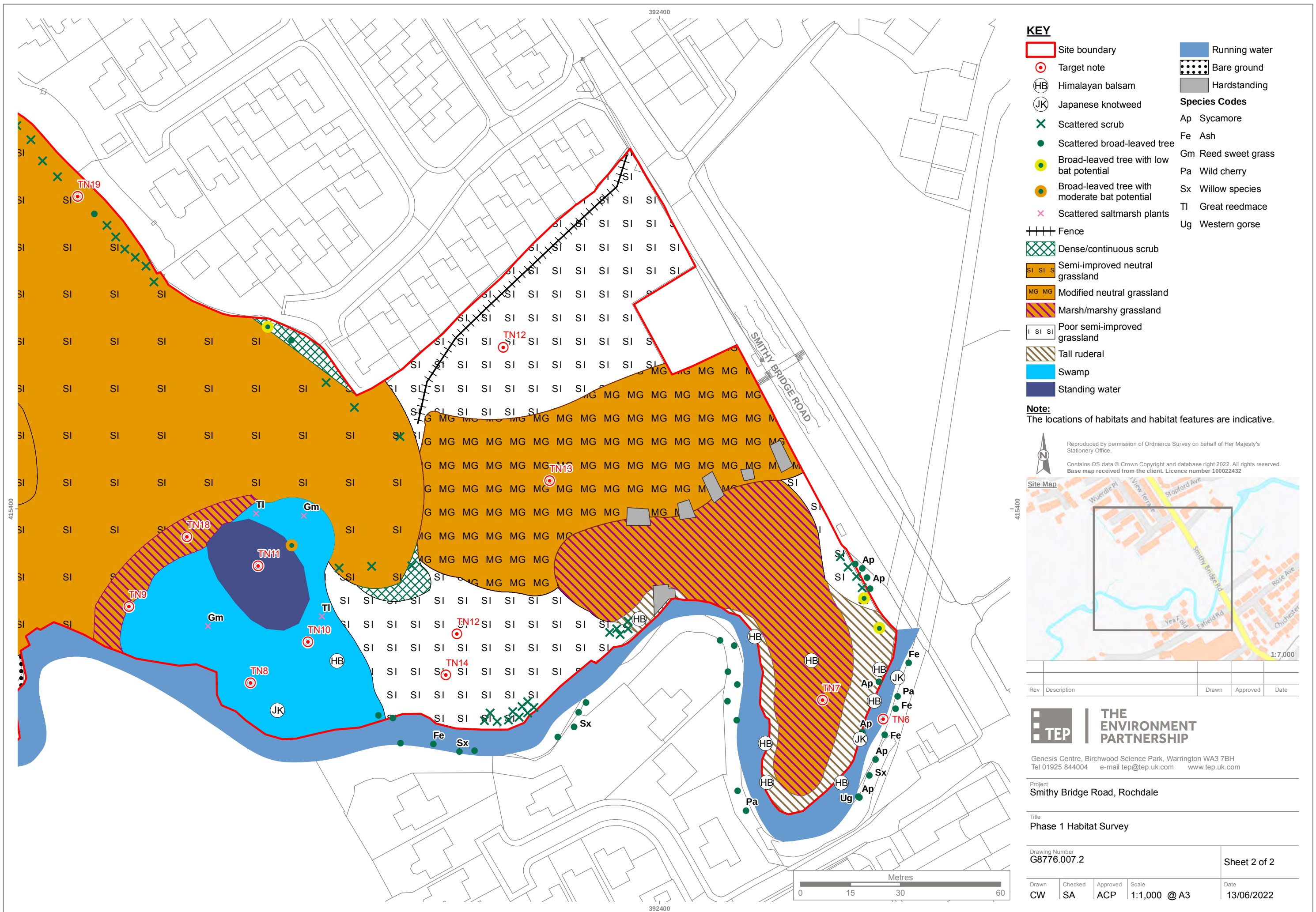
Project
Smithy Bridge Road, Rochdale

Title
Phase 1 Habitat Survey

Drawing Number
G8776.007.1

Sheet 1 of 2

Drawn	Checked	Approved	Scale	Date
CW	SA	ACP	1:2,700 @ A3	13/06/2022





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