12. Ecology and Biodiversity

Appendix 12.1. Summary of legislation and guidance

Appendix 12.1 Legislation and Policy

International legislation, agreements and conventions

United Nations Convention on Biological Diversity (1992)

The UN Convention on Biological Diversity (CBD) focuses on the conservation of all species and ecosystems. It requires the development of national strategies, plans or programmes for the conservation and sustainable use of biodiversity. The 'UK Biodiversity Framework' (JNCC et al., 2024), has been developed in response to the Kunming-Montreal Global Biodiversity Framework (GBF), agreed at the Fifteen Conference of the Parties (COP15) of the Convention on Biological Diversity (CBD) in December 2022.

National legislation

The Environment Act (2021)

In 2021 the Environment Act gained Royal Assent, providing a new legislative framework for developments to consider in respect of potential environmental impacts and opportunities. Within the Environment Act there is a call for all developments to deliver a 10% net gain for biodiversity using a measured approved metric approach. This became mandatory on 12th February 2024. It is also an obligation to enhance and maintain the delivered habitats with the following to be set out:

- How you will maintain the habitat;
- Who is responsible for creating and enhancing the habitats; and
- Who is responsible for maintenance, management and monitoring.

This must be set out to last at least 30 years as part of the legal agreement.

Conservation of Habitats and Species Regulations 2019 (as amended)

The Habitat Regulations implement the EU Habitats Directive and EU Birds Directive in the UK and provide for the designation and protection of European sites and the protection of European protected species (EPS). For those animal species listed on Schedule 2, it is an offence to deliberately capture, kill, disturb or take or destroy the eggs of an EPS or to damage or destroy a breeding site or resting place of an EPS.

It is also an offence under the Habitat Regulations to deliberately pick, collect, cut, uproot or destroy a wild plant listed in Schedule 5. However, these actions can be made lawful through the granting of licences by the appropriate authorities (Natural England (NE) in England) where deemed appropriate.

Wildlife & Countryside Act 1981 (as amended) (WCA)

The Wildlife & Countryside Act (WCA) is the principle mechanism for the legislative protection of wildlife in Great Britain and provides for the designation, protection and management of Sites of Special Scientific Interest (SSSIs) and for the establishment of National Nature Reserves (NNRs) in England and Wales for their flora, fauna or geological interests.

Under the Act, it is an offence to intentionally kill, injure or take any wild animal listed on Schedule 5; intentionally or recklessly damage, destroy or obstruct access to any structure or place used by a Schedule 5 species for shelter or protection; or to disturb them while using such a place.

The WCA also provides for the legal protection of wild birds. All nesting birds including their nests, eggs and young are protected from killing, injury, taking or selling with additional protection offered to species listed on Schedule 1. For these species, adult birds and their young are protected from intentional or reckless disturbance while at or near the nest.

It is an offence to intentionally pick, uproot or destroy any wild plant included in Schedule 8.

The Act is also the principal mechanism for preventing the spread of non-native plant and animal species listed on Schedule 9 such as Japanese knotweed which may be detrimental to native wildlife.

Countryside and Rights of Way Act 2000 (the CRoW Act)

The CRoW Act (HM Government, 2000) amends and strengthens the protection given to certain species under the WCA, especially reckless actions regarding disturbance.

Natural Environment & Rural Communities Act 2006 (the NERC Act)

Section 40 of the NERC Act (HM Government, 2006) requires public authorities, to have regard to the purpose of conserving biodiversity.

Section 41 (S41) of the NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the purpose of conserving biodiversity in England and to take, or promote steps to further their conservation.

Policy

National planning policy

National Planning Policy Framework (MHCLG, 2023)

The revised National Planning Policy Framework (NPPF), updated in February 2019 and revised July 2021, September 2023 and December 2023, sets out the Government's planning policies for England and how these should be applied. The revised NPPF continues to stress the importance of the local authority contribution to improving and protecting the environment through development of a systematic approach to enhancing biodiversity, minimising waste and pollution, and mitigation/adaptation to climate change impacts.

Chapter 15 requires that local planning authorities, when considering planning applications, should aim to conserve and enhance biodiversity.

Regional planning policy

The Northwest of England Plan Regional Spatial Strategy to 2021

- Policy DP7 Promote Environmental Quality;
- Policy EM1 (Integrated Enhancement and Protection of the Region's Environmental Assets); and
- Policy EM3 (Green Infrastructure).

Greater Manchester Strategy 2021-2031

The Greater Manchester strategy 2021 – 2031 sets out a route, over the next decade, to deliver a vision for the benefit of people, places and the planet. A focus of this strategy relates to creating a greener greater Manchester by responding to the climate emergency and recognising the role of the natural environment and

utilizing nature-based solutions to reduce flood risk or creating better green spaces for nature, biodiversity and people.

Greater Manchester Resilience Strategy 2020 – 2030

This Strategy sets out a vision for a resilient Greater Manchester. It describes five priority areas to guide work through to 2030 and sets out key themes within these priorities. The Strategy will be accompanied by an action plan, reviewed regularly to ensure the strategy is on track.

Priority 4, Place, includes protecting and promoting the resilience value of the natural environment through tree planting, creating habitats for wildlife and enabling greater biodiversity.

Greater Manchester 5-Year Environment Plan (2019 – 2024)

This 5-year environment plan sets out five urgent environmental challenges including:

- Contribution to mitigating climate change;
- Air quality;
- Production and consumption of resources;
- Natural environment; and
- Resilience and adaptation to the impacts of climate change.

The aim to address the natural environment challenge include to protect, maintain an enhance our natural environment, taking steps to implement and achieve environmental net gain.

Greater Manchester Spatial Framework (Draft, 2019) (GMSF)

This draft plan sets out how Greater Manchester should develop up until 2037. A key change to the rewritten plan is that it focuses more heavily on the environment including protecting the important environmental assets across the city region.

The plan seeks to deliver a net gain in biodiversity assets over the plan period and protect and enhance biodiversity and green infrastructure in line with the UK's 25 Year Environment Plan. The plan seeks to deliver major, quantifiable BNG for all developments through the application of the mitigation hierarchy and habitat protection, creation and improvement in connectivity between sites.

Relevant policies include:

- GM-G2 – Green infrastructure network;
- GM-G9 – Standards for a Greener Greater Manchester, including a GM "Green Factor" which sets out the level of on-site green infrastructure that new developments are expected to provide so as to meet their occupants' needs and contribute to the extent and interconnectedness of the wider network; and
- GM-G10 – A Net Enhancement of Biodiversity and Geodiversity, which requires that development follows the mitigation hierarchy (avoid, minimise, mitigate, compensate and finally offset) and delivers major biodiversity net gain. This could involve protection and improvement of existing habitats, creation of new habitats, and/or strengthening connections between them. The existing Defra metric will initially be used as the basis for calculating net gains, supported by best practice guidance (97). This will be superseded by a more locally-specific Greater Manchester biodiversity metric, which will be adopted as supplementary guidance to the GMSF.

Local planning policy

Manchester's Local Development Plan:

Manchester Core Strategy (2012);

Manchester's Core Strategy is the key document in the Manchester Local Plan and covers the period 2012 – 2027. It sets the out the long term strategic policies for Manchester's development and forms the framework that planning applications will be assessed against.

There are six Spatial Objectives contained within the Core Strategy, including S06 Environment. 8 This aims to protect and enhance the natural and built environment of the city and ensure the sustainable use of natural resources in order to mitigate and adapt to climate change, support biodiversity and wildlife, improve air, water and land quality, recreational opportunities, and provide networks of high quality green infrastructure. The development of networks of green infrastructure across the city and city region is key.

Relevant policies include:

- EN 9 Green Infrastructure - New development will be expected to maintain existing green infrastructure ('GI') in terms of its quantity, quality and multiple function. Where the opportunity arises and in accordance with current Green Infrastructure Strategies developers should enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between areas of green infrastructure. Where the benefits of a proposed development are considered to outweigh the loss of an existing element of green infrastructure, the developer will be required to demonstrate how this loss will be mitigated in terms of quantity, quality, function and future management.
    - EN9 Indicator: Increased levels of GI. Target: In line with emerging GM GI Strategy.
- EN 15 Biodiversity and Geological Conservation - seeks to maintain or enhance sites of biodiversity and geological value throughout the city. Developers should identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate, with reference to [inter alia]:
    - Manchester Biodiversity Strategy, which provides further details of priority habitats within Manchester and opportunities for biodiversity enhancement including corridors such as the Mersey, Medlock and Irk river valleys, the canals and disused railway lines and areas of managed greenspace particularly in parks; and
    - Green Infrastructure Framework for Greater Manchester, which encompasses an ecological framework that seeks to guide and inform habitat creation and repair.
    - EN15 Indicator: BAP priority habitats and species. Target: Increase

Our Manchester Strategy – Forward to 2025 (2022)

The Our Manchester Strategy 2016–2025 details the goals and long-term vision for Manchester's future, outlining the priorities to achieve this vision. These priorities related to ecology and biodiversity include:

- A liveable and zero-carbon city

- achieve zero-carbon ambition by 2038 at the latest, via green growth, sustainable design, low-carbon energy, retrofitting buildings, green infrastructure, and increasing climate resilience.

Manchester Climate Change Framework 2020-25

There are four objectives set out within the Manchester climate change framework to help target the goal of limiting the impacts of climate change and creating a healthy, green and socially just city. These objectives include:

- Staying within carbon budgets;
- Climate adaptation and resilience;
- Health and wellbeing; and
- Inclusive, zero carbon and climate resilient economy.

To meet these objectives six priority areas are described for action, including:

- Buildings;
- Renewable energy;
- Transport and flying;
- Food;
- The things bought and thrown away; and
- Green infrastructure and nature-based solutions.

Great Outdoors: A Green and Blue Infrastructure Strategy for Manchester 2015-2025

Manchester's green and blue infrastructure strategy sets out how the city will increase the quality, function and quantity of green infrastructure (the green and blue spaces that exist within and between urban areas) as part of plans for the city's ongoing growth and regeneration.

The four key objectives are to enhance existing GI, to deliver new GI by embedding it in development projects, to improve access to and understanding of the benefits of GI. The Implementation Plan sets out the key strategic actions and an initial set of medium to large scale projects that are required to begin to translate the GI strategy into reality over the period 2015-18. Restoration of the Medlock and improvements to biodiversity and water quality as well as reducing flood risk are a headline action

Guidance

National guidance

Planning Practice Guidance 2016 (Department for Communities & Local Government, 2016, updated 2024)

Planning Practice Guidance (PPG) states that:

- "The NPPF is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution";
- "Biodiversity enhancement in and around development should be led by a local understanding of ecological networks, and should seek to include habitat restoration, re-creation and expansion; improved links between existing sites;

buffering of existing important sites; new biodiversity features within development; and securing management for long term enhancement.";

- "Where a development cannot satisfy the requirements of the 'mitigation hierarchy', planning permission should be refused as per paragraph 118 of the NPPF."; and
- "Sufficient green infrastructure should be designed into a development to make the proposal sustainable. If this green infrastructure helps to mitigate any significant harm to biodiversity (among other benefits) then this should be considered in deciding whether compensation may also be needed."

Office of the Deputy Prime Minister Circular 06/2005, (ODPM, 2005)

This circular provides further guidance with regards to statutory obligations relating to biodiversity within the planning system. It sets out the considerations to be taken into account when planning decisions may have a significant effect on protected sites and species.

Local guidance

Biodiversity Strategy and Action Plan 2022-2030 – the City of Manchester's Nature Recovery

An updated 10-year biodiversity strategy has been developed by Manchester City Council with the support of the Lancashire Wildlife Trust. The over-riding ambition is to improve places for nature across Manchester. The strategy lays out objectives and priorities as well as key priority actions.

Objective 1 - Managing and understanding biodiversity

- Key Priorities:

  A Nature Recovery Network Strategy, which is contextualised for the urban character of Manchester, must be developed for Greater Manchester. This should guide the focus of all future habitat management work.

  All priority wildlife sites must be in active management by 2030.

  Key indicator species must be identified and action plans for each key indicator species written. These action plans should sit alongside the Nature Recovery Network Strategy to guide any habitat management work across the Recovery Network. Key indicator species will also need to be recorded regularly to measure our impact.

Objective 2 -Involving people

- Key Priorities:

  Find creative ways to connect and involve new audiences with nature and the natural environment in Manchester.

  The Manchester Biodiversity Action Group (MBAG) must support and empower local communities to take meaningful action for nature in the city.

  Land managers and practitioners in the city must be provided with the necessary knowledge and skills to protect and recover biodiversity.

Objective 3 – Planning, policy and partnerships

- Key Priorities:

Biodiversity should be embedded into Manchester City Council's policies to help protect and enhance nature.

Strong working relationships must be established with partners delivering against climate change, health and wellbeing, and air quality to ensure new and effective collaboration in the city.

Long-term funding opportunities for the recovery of nature in Manchester must be identified, particularly through the planning and development process.

The Unitary Development Plan for the City of Manchester

UDP Part 1 Policies E2.3 and E2.4 require the protection of wildlife, wildlife habitats, and where possible, the creation of new nature reserves and features which will sustain wildlife. Part 1 Policy E2.6 states that the City Council wishes to prevent the loss of existing trees.

Guide to Development in Manchester SPD (2007)

Manchester City Council produced this document as a means of guiding those involved in the development process in their preparation of these Design and Access Statements (DAS). The document sets out the City Council's stance on a wide range of issues, demonstrating, where applicable, their links to the Manchester Unitary Development Plan (UDP).

Guidance relevant to ecology and biodiversity include:

- Developers will need to contribute to Manchester's Biodiversity Strategy by demonstrating in their Environment Standards Statement how they have taken full account of the effect of their proposed development on biodiversity. This should highlight how existing species and habitats would be protected and how the proposed development would enhance the ecological value of the site. Mature trees and hedges should be retained on site wherever possible. Where this is not possible, developers will be expected to agree an appropriate scheme for replanting with the Development Control case officers.
- Developments should result in no net loss in overall biodiversity value and maximise opportunities to meet and exceed a 10% net increase in tree cover across new developments. In exceptional cases, where planting is unachievable on site, permission may be granted to plant elsewhere in the City to ensure no overall net loss in tree resources. Existing green links across the site should be maintained and the opportunity taken to create new links as appropriate. Landscaping and new planting should include species appropriate for the proposed development that will encourage wildlife.

Mayfield Strategic Regeneration Framework (2018);

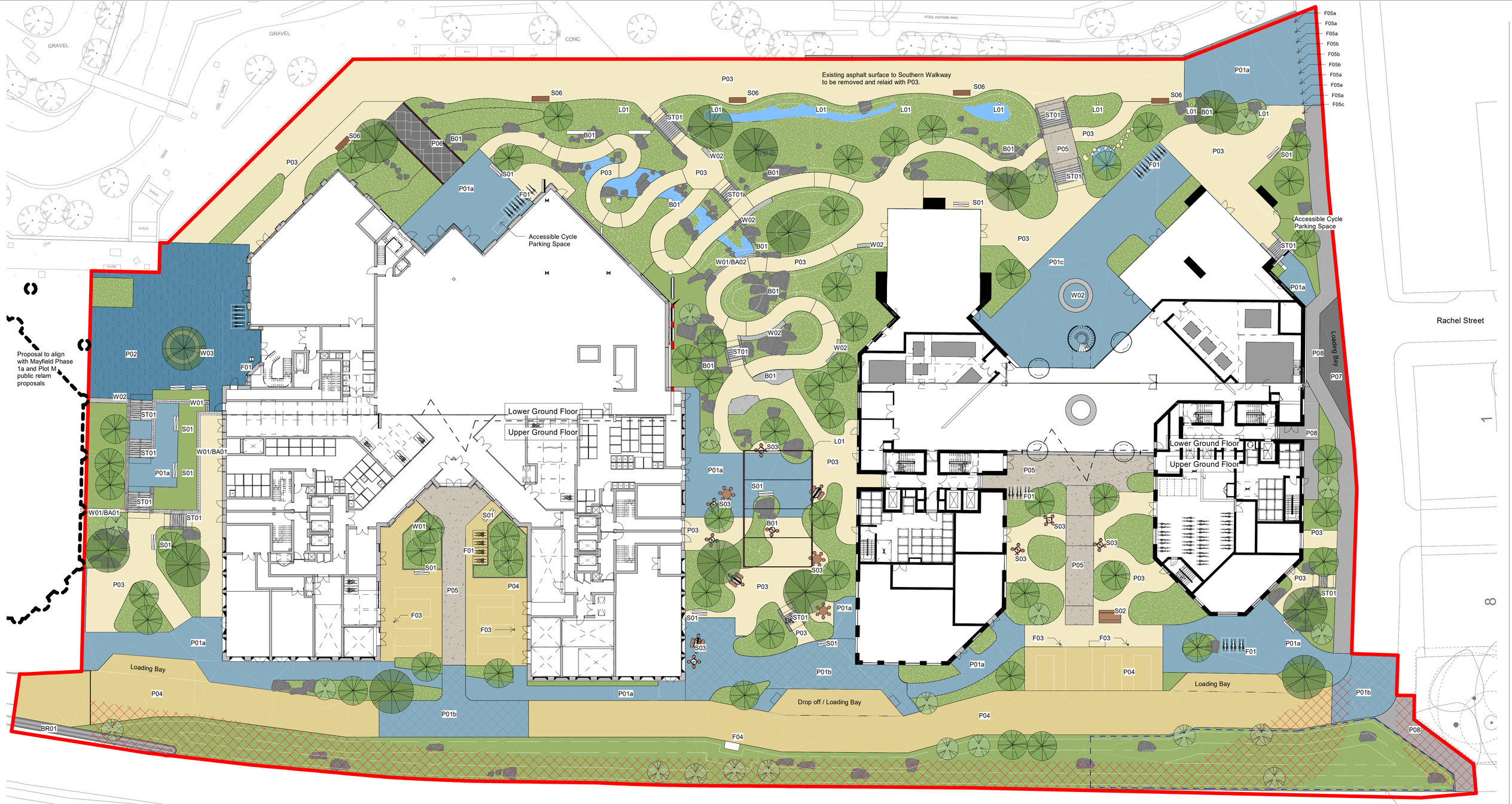
The vision for Mayfield is to deliver a world class, transformational, distinctive and imaginative commercially led neighbourhood, anchored by Mayfield Park. The 2018 Strategic Regeneration Framework (SRF) has been prepared in order to guide the future comprehensive regeneration of the Mayfield area of Manchester city centre. It supersedes the 2010 and 2014 SRFs, which have been previously endorsed by Manchester City Council (MCC), following public consultation and have now been further refined, and regeneration outcomes maximised in line with the City Council's strategic objectives and the current context.

Key Principles of the framework include: Quality of Place, Form and Layout, Scale and Massing, Use and Quantum, Site Frontages, Transport, Movement and Connectivity, and Sustainability.

Mayfield Park and other proposed developments within the SRF including Phase 1B, are transforming a derelict area of central Manchester into a new community emphasizing sustainable ecology as one of its core values.

Appendix 12.2 Landscape design

a) Landscape plans



Key

For Level information refer to drawing 198_MAY-SEW-SW1-1000-DR-L-000002

Planning Application Boundary

Paving Types

P01 Paving Type 01
Description: Proposed Clay Paving Bricks (to match Mayfield Park)
Finish: Diamond chequered pattern
Colour: Staffordshire blue
P01a - Pedestrian and Light vehicle maintenance loading
P01b - Vehicular Loaded
P01c - Permeable jointing (To civil engineer specification)

P02 Paving Type 02
Description: Proposed Clay Paving Bricks
Finish: Smooth pattern
Colour: Staffordshire blue
Allow for vehicular loading
UK sourced.

P03 Paving Type 03
Description: Resin Bound Gravel
Colour: Hazel (to match Mayfield Park)
Permeable and non-permeable subject to ground conditions.
UK sourced.

P04 Paving Type 04
Description: Asphalt road surface
Colour: Buff
Allow for vehicular loading.
UK sourced.

P05 Paving Type 05
Description: In situ reinforced Concrete surface (to match Mayfield Park)
Aggregate: UK sourced
Finish: Mixed tone aggregate with staffordshire pink to match Mayfield Park
Allow for vehicular Loading

P06 Paving Type 06
Description: Steel Grating Walkway (to match Mayfield Park)
Colour: Galvanised finish
Finish: Pressure-locked steel grating
Allowance: Weathered steel upstand (150mm)

P07 Paving Type 07
Description: Temporary asphalt road surface (to match Mayfield Park)
Finish: Asphalt with stone chippings (pink/red)
Allow for vehicular loading

P08 Paving Type 08
Description:Temporary Pavement
Finish: Asphalt
Allow for pedestrian loading

Seating Types

S01 Seating Type 01
Description: Large Timber Bench
Product: Drifter Bench
Material: Treated upcycled hardwood timber with metal fixings (to match Mayfield Park)
Supplier: Streetlife
Dimensions: 620mm x 2000mm
Accessories: 1200mm backrest, armrest and lighting to underside.

S02 Seating Type 02
Description: Large Picnic Bench
Product: Drifter
Material: Treated upcycled hardwood timber with metal fixings (to match Mayfield Park)
Supplier: Streetlife
Dimensions: 3 beam table (940mm) x 3000mm length

S03 Seating Type 03
Description: Table and Chair Set
Product: Orbit by mmcite
(LOB240, LOB260, LOB280)
Material: Powder coated steel

S06 Seating Type 06
Description: Relocated existing bench

Boulders

B01 Boulder Type 01
Description: Proposed Boulders (to match Mayfield Park)
Size: Varies (500mm-2500mm)
Locally sourced
Allowance: Allow for 5-10% of boulders to have flat top (stepping boulders)

Steps

ST01 Step Type 01
Description: Access Steps - In-Situ concrete steps
Finishes: Variety of concrete finishes to differentiate treads from risers to match Mayfield Park
Dimensions: 150mm risers x 280mm treads
Accessories: Allowance for handrails eitherside and for integrated nosing visibility detail to match Mayfield Park.

Street Furniture

F01 Furniture Type 01
Description: Proposed Cycle Stands (to match Mayfield Park)
Product: CorTen Bicycle Racks
Supplier: Streetlife

F02 Furniture Type 02
Description: Existing lighting columns to be retained

F03 Furniture Type 03
Description: EV Charging pedestal
Product: To MEP specification
Allowance: Clearance zone around charger to comply with accessible parking bay standards.

F04 Furniture Type 04
Description: Feeder Pillar
Specification to Mechanical Engineer

F05 Furniture Type 05
Description: Bollards
F05a - Existing Static Bollard
F05b - Existing retractable Bollard
F05c - Proposed Static Bollard (to match F05a)

Walls and Balustrades

W01 Wall Type 01
Description: In-situ concrete wall
Finish: Polished horizontal face and exposed aggregate vertical face
Allowance: 1100mm high powder-coated steel and mesh balustrade to match Mayfield Park

W02 Wall Type 02
Description: In-siut concrete wall
Finish: Polished horizontal face and exposed aggregate vertical face
Height: Min 450mm - 600mm
Inclusion of timber seating and armrests

BA01 Balustrade Type 01
Description: Proposed slatted metal balustrade
Height: 1100mm
Allowance: Balustrade to achieve 50% porosity.

BA02 Balustrade Type 02
Description: Proposed balustrade to match Mayfield Park
Height: 1100mm

BR01 Barrier Type 01
Description: Highway Crash Barrier
To highways engineer specification

Soft Landscape

Planting Type 01
Description: Herbaceous, ornamental grass and shrub planting.
Herbaceous perennials and ornamental grasses
Density: 9 per/sq.m (average)
Pot Size: 9cm-2litre pots
Soil Depth: 450mm

Shrub planting
Density: 3 per/sq.m (average)
Pot Size: 20l Pots (average)
Soil Depth: 650mm

Further details of planting characters to follow.

Planting Type 02
Description: Herbaceous planting with rain garden build-up
Buildup: To include free draining stone and rain garden aggregate to base.
Density: 9 per/sq.m (average)
Pot Size: 9cm-2litre pots
Soil Depth: Min 450mm

Tree Planting
Semi-Mature Tree
Size: Varied
Small: 30-40cm Girth/Multistem
Medium: 40-50cm Girth
Large: 80+cm Girth
Fixing: Underground guyed
Accessories: Rootrain precinct system
Soil depth: 1200 - 1400mm with 200mm drainage layer
Target soil volume per tree: 20m3
- An allowance for a root cell system will be required for all trees planted in hard landscape.

Area indicates MCC Highway Pavement

Current proposals assume the below utilities and services are to be retained. Tree planting subject to approvals from utility providers.

Structures

L01 Landscape Structure Type 01
Description: Reclaimed Depot Structure
Dimensions: TBC following further site investigation
Foundations and structural build up to engineers detail.

Water Channel
Description: Natural Stone 'River Bed'
Material: Natural stone cobbles and boulders
Build up to engineers detail.
Rigidly bed
UK Sourced

General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Outstanding coordination items:
- Accessible parking bay quantity reduction from 9 - 7 bays. Civic to confirm with MCC.
- Plant replacement strategy to Plot J substations.

Key Plan



0 1:250 10m

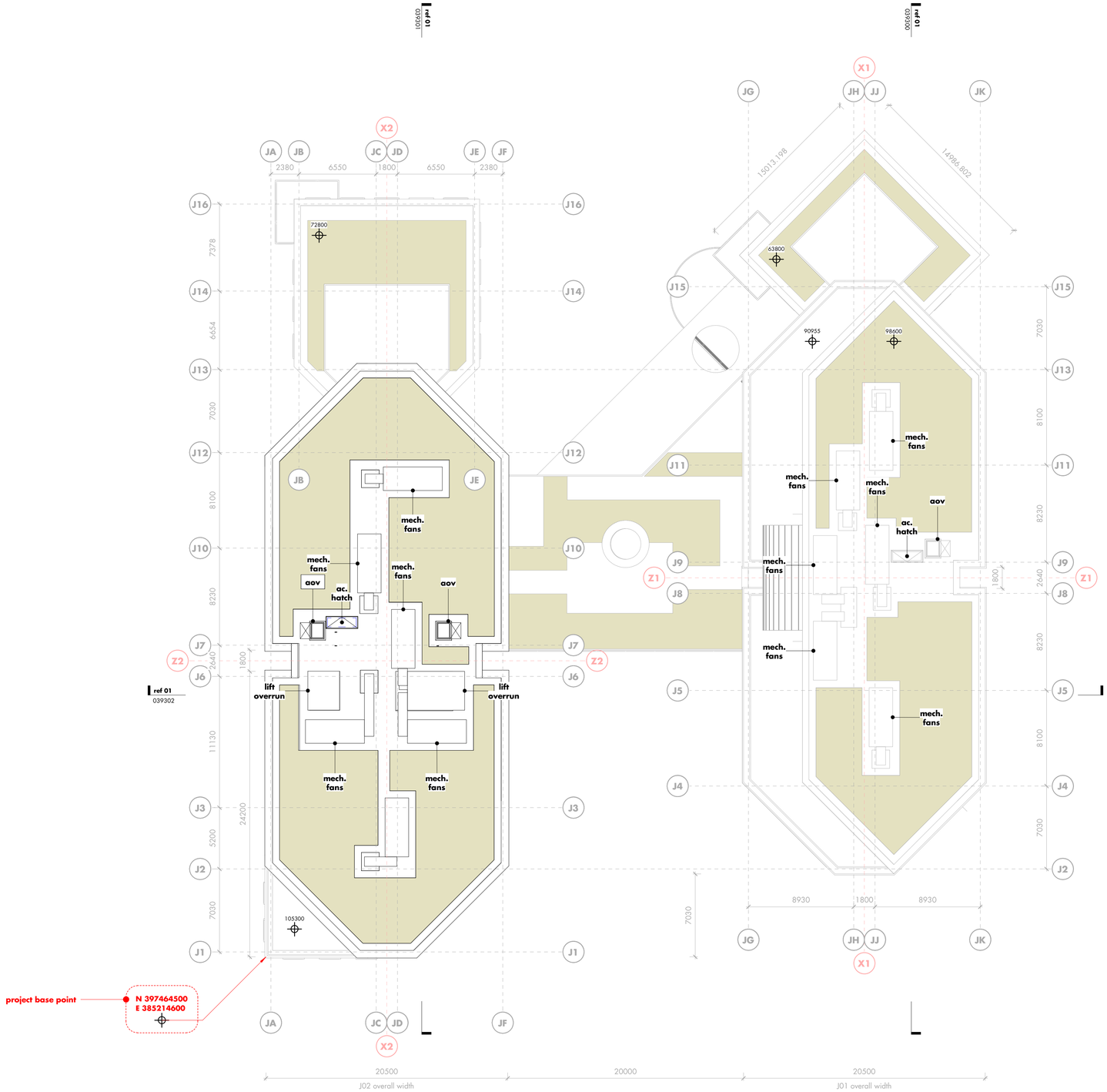
For Information

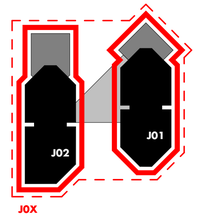
Project No.	0198_MAY
Project Name	Mayfield Phase 1b
Drawing Title	Landscape General Arrangement
Client	LandsecU+I
Scale @A1	As indicated
Date	24/05/24
Drawn by	TH
Checked by	SEW

Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1720

Rev	Date	Reason	Chk
8	19/11/24	STAGE 2B Design Freeze Update	SEW
7	11/11/24	For Information	SEW
6	06/11/24	For Information	SEW
5	01/11/24	STAGE 2b design freeze	SEW
4	22/10/24	For Information	SEW
3	27/09/24	For Information	SEW

Drawing Number	Rev
0198_MAY-SEW-SW1-1000-DR-L-000001	8





notes
• sew work in progress landscape context shown for graphical use only

consultant references
for structure refer to civic engineers drawings + specification
for MEPH refer to arcadis drawings + specifications
for fire performance refer to jensen hughes strategy report
for acoustic refer to wsp drawings + specification
for landscape refer to studio egret west drawings + specification

drawing references

SKM GA's	
- plans	039100s
- elevations	039200s
- sections	039300s
SKM enlarged GA's	
- plans	201100s

rev	description	issued	drawn	checked
P01.06	DAS draft issue	12.12.24	RG	HM
P01.05	DAS draft issue	29.11.24	RG	HM
P01.04	EIA release	18.11.24	RG	HM
P01.03	GA freeze - additional info	08.11.24	RG	HM
P01.02	GA freeze	31.10.24	RG	HM
P01.01	EIA early release	17.10.24	RG	HM

status stage 2

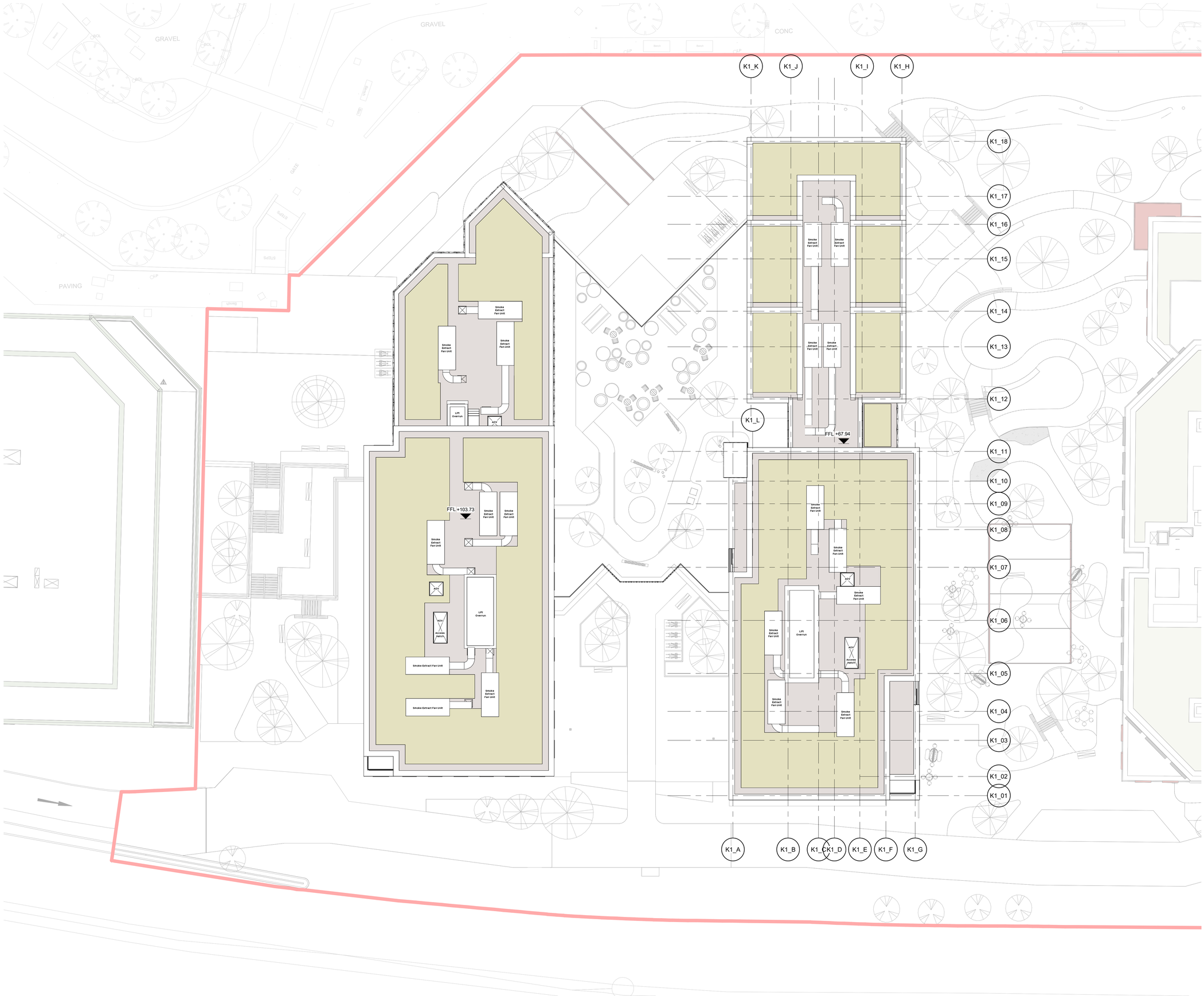
shedkm
+44 (0)151 709 8211
+44 (0)207 253 8881

project	Mayfield Park
shedkm project reference	2325
client	LandsecU+I
dwg no.	0200_MAY-SKM-J0X-123R-DR-A-039123_P01.06
scale	1 : 200@a1
drawing title	123R GA plan

do not scale from this drawing • drawing to be printed in colour • all dimensions are to be checked on site prior to work commencing • any discrepency found between information given on this drawing and that given elsewhere or recorded on site shall be notified immediately to the project architect in writing

0 20 m

01 - J02 123R 1 : 200



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

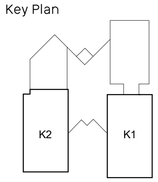
Notes

NOTE: Refer to 0198_MAY-SEW-SW1-1000-DR-L-00001 and 0198_MAY-SEW-SW1-101L-DR-L-00003 for Landscape GA Plans

DRAFT

0 10m
@ 1:200

Key Plan



Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

For Planning

Project No.	0199-MAY
Project Name	Mayfield Phase 1b
Drawing Title	Level 28 - Roof Plan
Client	LandsecU+I
Scale @A1	1 : 200
Date	18/10/24
Drawn by	MY/MI/LK
Checked by	LH

Rev	Date	Reason	Chk
	09/12/24	Revised Roof Plan/Draft planning	
P1	03/12/24	DRAFT PLANNING	

Drawing Number	Rev
0199-MAY-SEW-K01-128L-DR-A-001128	P1

b)Landscape planting strategy

Planting strategy

DRAFT

Planting inspired by the Peak district

Inspired by natural geomorphology

The Mayfield Phase 1B site, set on a slope overlooking Mayfield Park and the Medlock River, draws inspiration from the natural landscapes of the Peak District, known for its plateaus, slopes, and valleys. Our site, situated on the flank side of the valley, is influenced by these natural planting characters.

This principle is exaggerated in the diagram to the right, highlighting how the slope and plateau respond to the sites positioning adjacent to Mayfield Park.

Planting along the dry riverbed is intentionally sparse, offering open views toward Mayfield Park. Moving further away, the planting becomes denser, creating a natural frame for the view. At the summit, the ‘plateau’ showcases a heathland-inspired aesthetic, with hardy upland vegetation thriving in the sunlit, south-facing aspect.





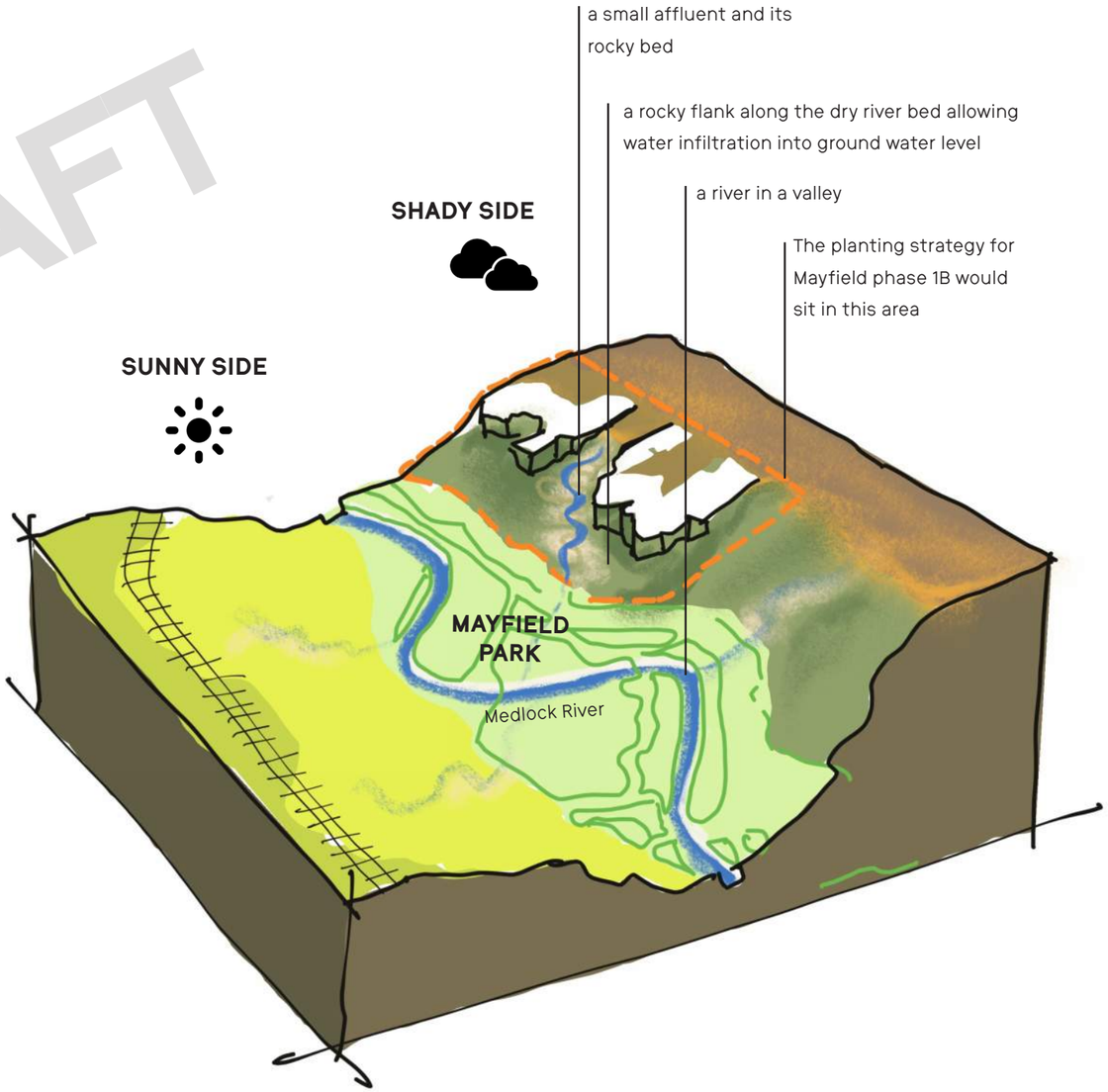


Diagram showing basic principle of slopes, valley and basin in a natural landscape







DRAFT

Creating a shade tolerant planting scheme

Unlike the sunlit, open rockeries typical of Mediterranean landscapes, this approach is adapted to a shadier context, creating a cooler, more layered planting environment.

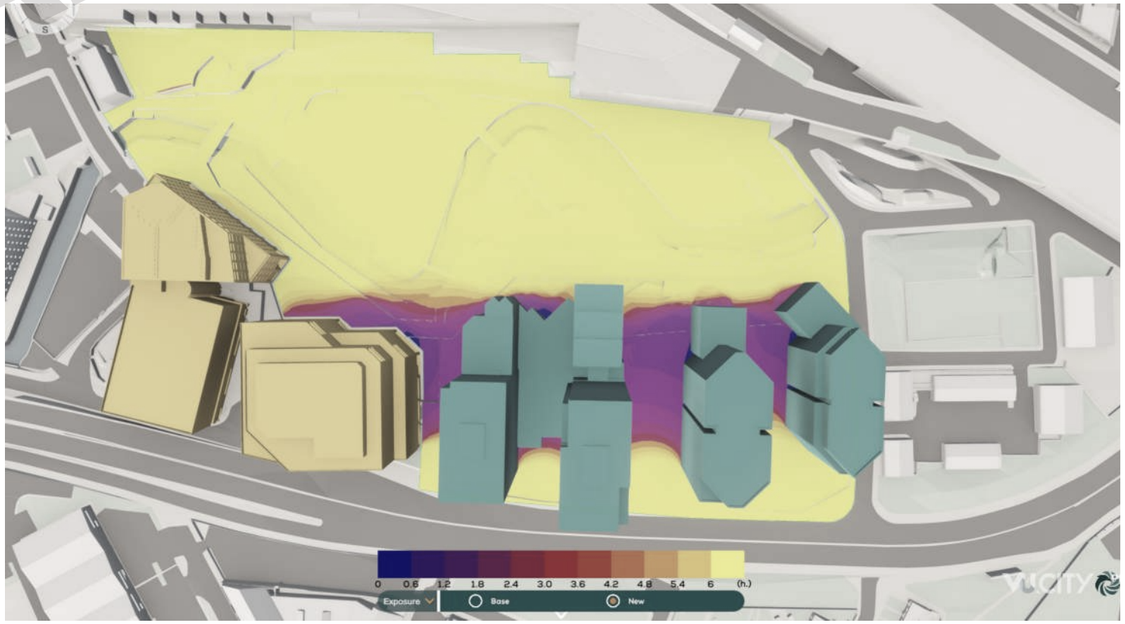
This enhances the park's existing habitats by introducing a distinct character, enriching the diverse tapestry of planting styles throughout the space. The new planting scheme brings a fresh dimension to the park, offering a year-round lushness that adds depth and vibrancy not previously present.



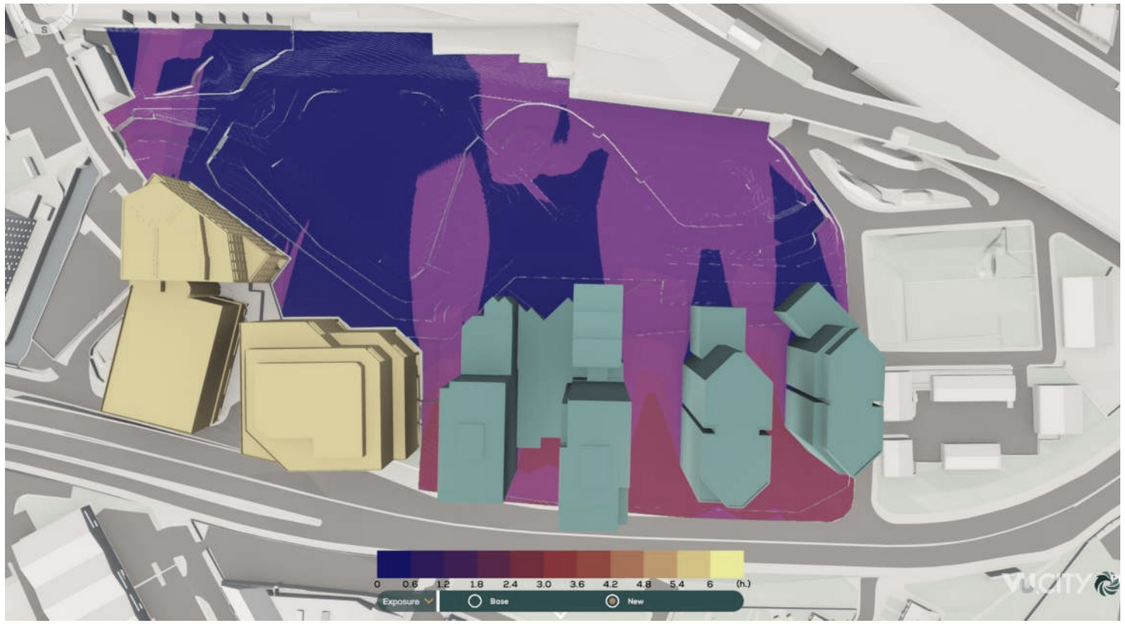
Transition from sun loving perennial to shade tolerant evergreen species



The Park's tapestry of planting characters extents south



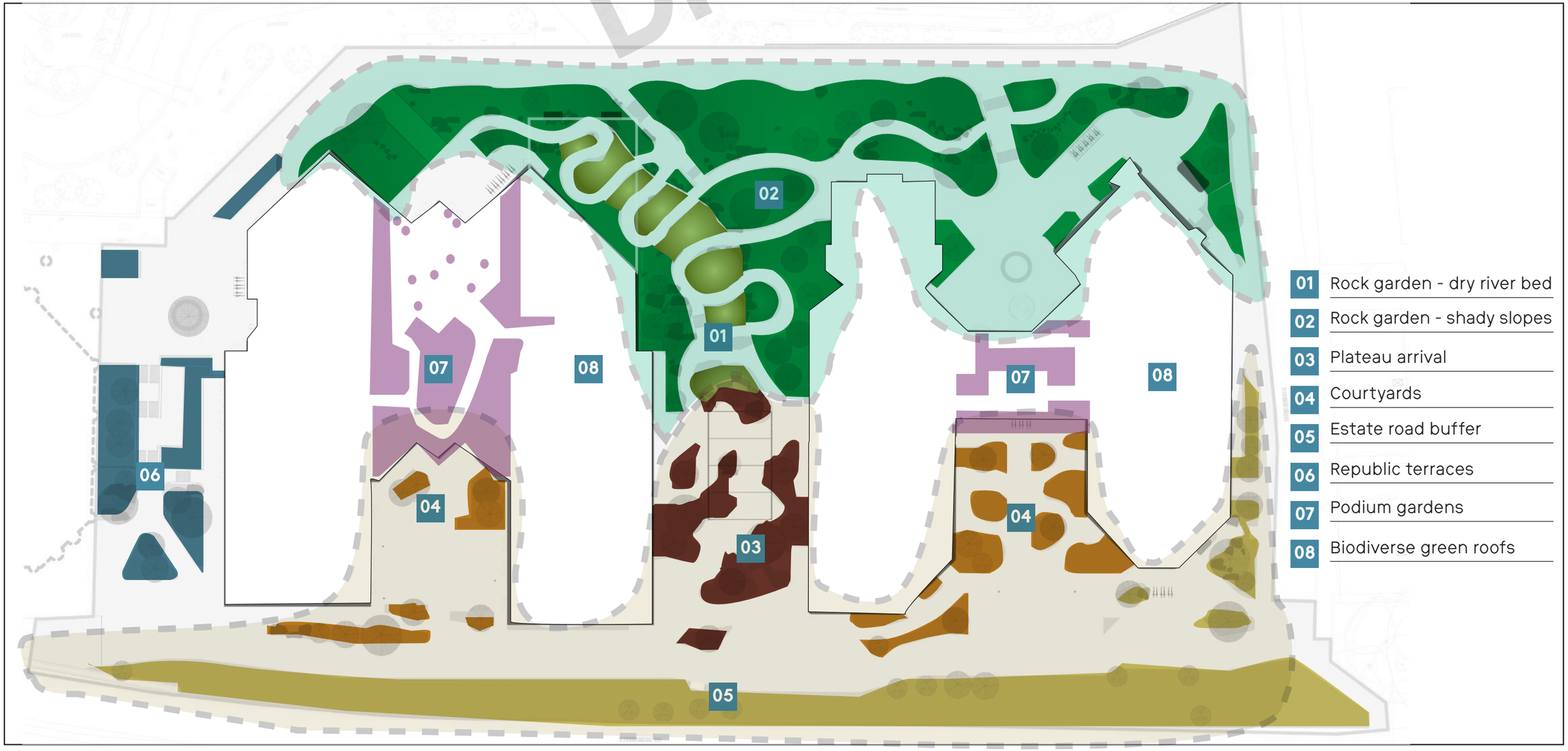
Illustrative exposure on the 21st of June



Illustrative exposure on the 21st of December

Planting characters

DRAFT



Indicative proposed plant list per character

DRAFT

01 Rock garden - dry river bed

Sesleria autumnalis
Persicaria x fennica ‘Johanniswolke’
Thalictrum ‘Black Stockings’
Phlomis tuberosa
Campanula glomerata ‘Alba’
bergenia stracheyi brahms
Monarda bradburiana
helleborus argutifolius
Polystichum Setiferum Proliferum
Geranium macrorrhizum

02 Rock garden - shady slopes

Southern Walkway Rain Garden

Hosta 'Snowden'
Pachyphragma macrophyllum
Polystichum aculeatum
liriope muscari
Primula japonica ‘Apple Blossom’
Digitalis x mertonensis
Blechnum spicant
Cyclamen coum
Polystichum setiferum
epimedium rubrum
Aruncus aethusifolius
Geranium macrorrhizum ‘Album’

Undercroft and Plot J arrival

Polystichum polyblepharum
Dryopteris ‘Cristata’ (The King)
Dryopteris wallichiana
Athyrium Felix -femina
Asplenium scolopendrium ‘Cristatum’
Polystichum setiferum
Polystichum setiferum ‘Congestum’
Polystichum Setiferum Proliferum

Shrubs

Cornus sanguinea
Pieris purity

03 Plateau arrival

Calluna vulgaris
Ulex europaeus ‘Flore Pleno’
Armeria maritima
Erica Carnea
Molinia caerulea windspiel
Dianthus arearius
Polystichum setiferum
Achillea millefolium ‘Kirschkönigin’
Thymus praecox
Nassella tenuissima
Antennaria dioica borealis

04 Courtyards

Pseudodictamnus acetabulosus
Santonlina chamaecyparissus
Helichrysum italicum
Salvia officinalis
Geranium macrorrhizum ‘Album’
Cistus creticus
Stachys Silver Carpet
Artemisia ‘Powis Castle’
Aruncus aethusifolius
Papaver orientale Pinnacle Pink
Epimedium rubrum
Crambe maritima

05 Estate road buffer

Prunus spinosa
Sorbus aucuparia
Leucanthemum vulgare
Glebionis segetum
Rosa canina
Crataegus monogyna
Viburnum lantana
Lychnis flos-cuculi
Echium vulgare
Serratula tinctoria var. seoanei
Centaurea nigra
Primula vulgaris

06 Republic terrace

Pinus mugo
Viburnum opulus ‘Compactum’
Calamagrostis × acutiflora ‘Karl Foerster’Serratula tinctoria var. seoanei
Crambe maritima
Artemisia ‘Powis Castle’
Myrtus communis
Stipa tenuissima
Deschampsia cespitosa
Helichrysum italicum
Hylotelephium telephium (Atropurpureum Group)
Serratula tinctoria var. seoanei
Juniperus squamata ‘Blue star’

07 Podium gardens

Viburnum plicatum ‘Pink Beauty’
Sedum spectabile
Daphne ‘Pink Fragrance’
Jasminum nodifolium
Saxifragia urbium
Achillea millefolium ‘Milk rock rose’
Pittosporum tenuifolium cratus
Astrantia major Ruby Wedding
Thymus serphylus
Rosmarinus officinalis
Viola labradorica purpurea

08 Biodiverse green roofs

Anthemis tinctoria
Achillea millefolium
Campanula rotundifolia
Daucus carota
Echinacea purpurea
Pilosella aurantiaca
Alyssum saxatile
Linum perene
Origanum vulgare
Sedum reflexum
Sedum acre

Indicative proposed tree planting

DRAFT

01 Rock garden - dry river bed

Corylus avellana
Salix rosmarinifolia

02 Rock garden - shady slopes

Sambucus Nigra
Corylus avalana
Sorbus aria
Salix caprea
Liquidambar
Tilia cordata
Sciadopitys verticillata
Mahonia x media
Salix rosmarinifolia
Acer miyabei
Pinus nigra
Pinus Heldrechii

03 Plateau arrival

Prunus serrula
Pinus nigra
Hippophae rhamnoides
Sambucus Nigra
Cornus sanguinea

04 Courtyards

Gleditsia triacanthos
Amelanchier arborea

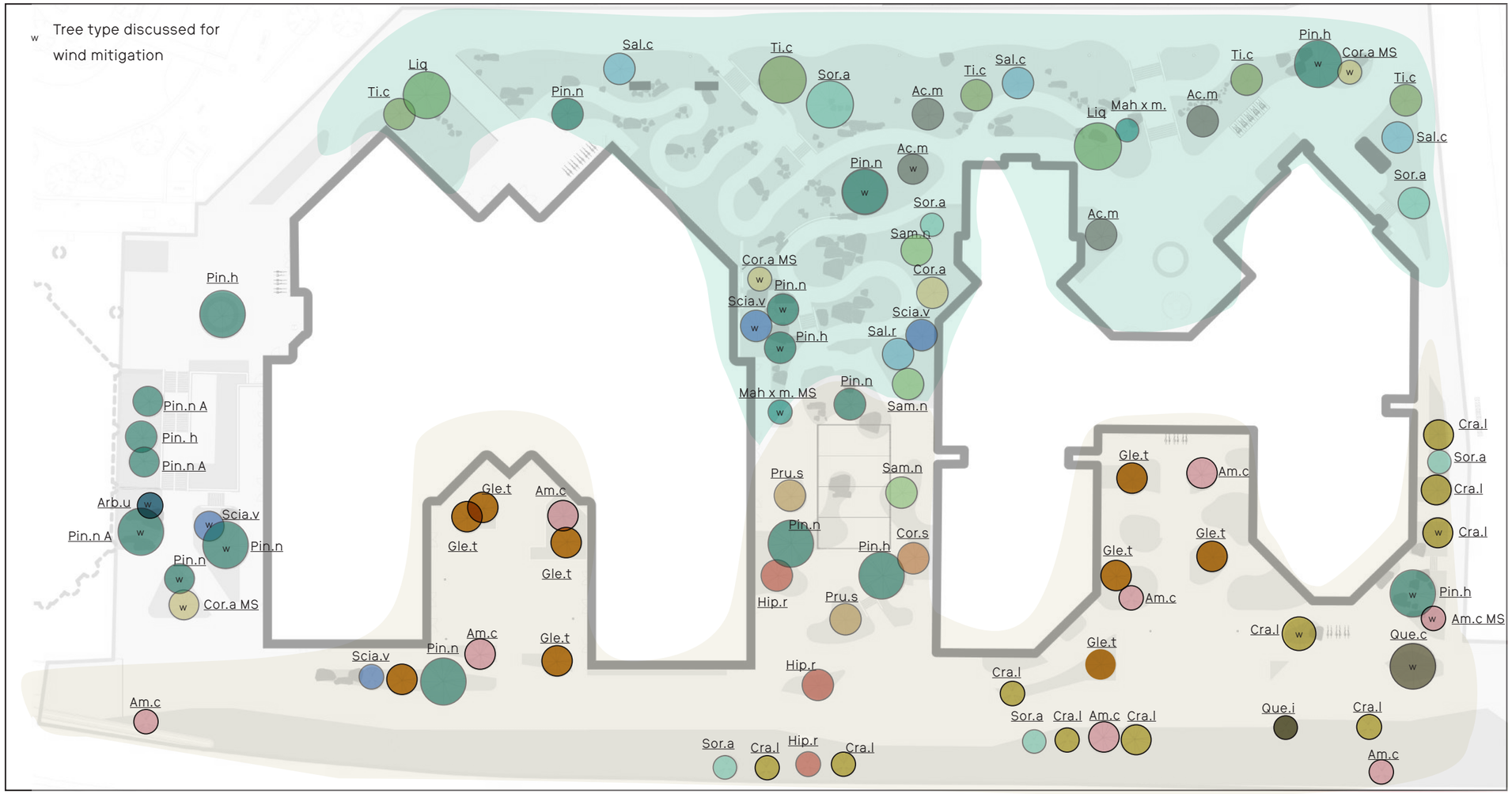
05 Estate road buffer

Crataegus laeviegata
Amelanchier arborea
Sorbus aria
Quercus cerris

06 Republic terrace

Pinus nigra ‘Austriaca’
Pinus Heldrechii
Arbutus unedo
Sciadopitys verticillata

w Tree type discussed for wind mitigation



07 Podium gardens

Prunus subhirtella ‘Fukubana’
Pyrus calleryana ‘Chanticleer’
Malus ‘Butterball’

08 Biodiverse green roofs

No trees

Indicative proposed tree planting

DRAFT

low tolerance to shade
medium shade tolerance
high tolerance to shade

low drought tolerant
medium drought tolerance
high drought tolerance

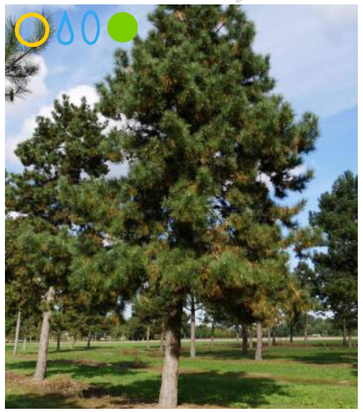
low flood tolerance
medium flood tolerance
high flood tolerance

evergreen


Liquidambar styraciflua


Tilia cordata


Quercus cerris


Pinus nigra


Gleditsia triacanthos


Arbutus undedo

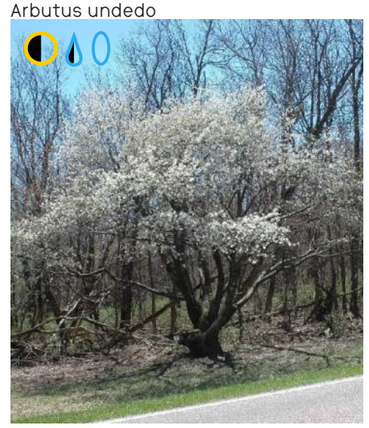

Sorbus aria


Coryllus avelana


Sambucus nigra


Acer miyabei


Mahonia x media


Amelanchier arborea


Prunus serrula

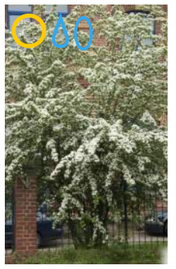

Hippophae rhamnoides


Sciadopitys verticillata


Pinus heldrechii

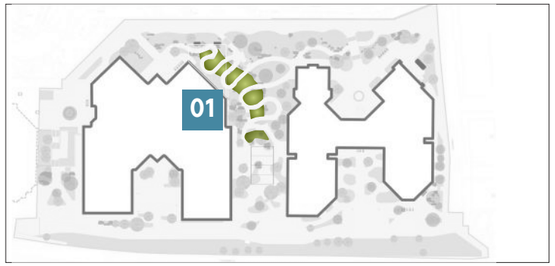

Salix rosmarinifolia


Salix caprea


Crataegus laeviegata


Cornus snaguinea


Pieris purity



DRAFT

Rock garden - dry river bed

The central dry river bed planting design draws inspiration from natural landscape features, where resilient shade- and drought-tolerant species thrive among boulders and crevices. These plants are selected for their ability to adapt to fluctuating moisture levels and limited light conditions.. The following diagram explains the dissipation of rocks as you get further away from the centre of the ‘river bed’. The limited use of shrubs/trees in this central area champions views towards the park.

Below are examples of species that could be included in this planting character...












Sesleria autumnalis


Persicaria x fennica ‘Johanniswolke’


Thalictrum ‘Black Stockings’


Phlomis tuberosa


Campanula glomerata 'Alba'

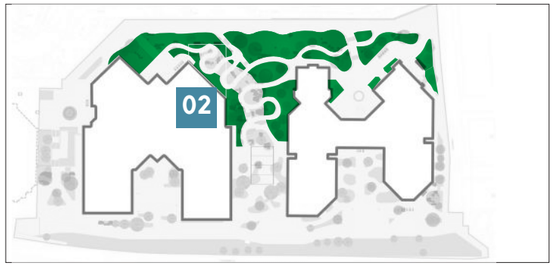

Bergenia stracheyi brahms


Monarda bradburiana


Helleborus argutifolius


Polystichum setiferum proliferum


Geranium macrorrhizum



DRAFT

Rock garden - shady slopes

Inspired from peak district hillsides

The slopes will be treated as a unified planting character, but with variations to the planting structure. The overall planting character is one of shade tolerant, leafy, year round structure, however the distribution of herbaceous planting, shrubs and trees varies across the area. See how the planting structure varies across the beds:

a. Shrubby Valley: Ornamental shade tolerant perennials and trees with clear stems sit towards the dry river bed. This is a transitional zone.

b. Woodland Valley: Towards the buildings, the intensity of shrub and tree planting builds, whilst providing a rich evergreen understorey.

c. Undercroft Area: Features a dense monoculture of evergreen, drought-tolerant ferns, with pockets of moisture to sustain them. This area will adopt a striking, minimalist aesthetic.

d. Southern Walkway Rain Gardens: The rain garden along the southern walkway will have a collate and infiltrate water, the planting will be shade and drought tolerant. The structure will be a mix of shrubs, trees and herbaceous planting, allowing interaction and play amongst the stepping stones.









DENSE SHRUBS + TREE PLANTING
20% STONE SLABS 80%PLANTING

SPARSE SHRUBS AND TREE PLANTING
30% BOULDERS 70%PLANTING

ORNAMENTAL WOODLAND COVER + TREES
30% BOULDERS 70%PLANTING

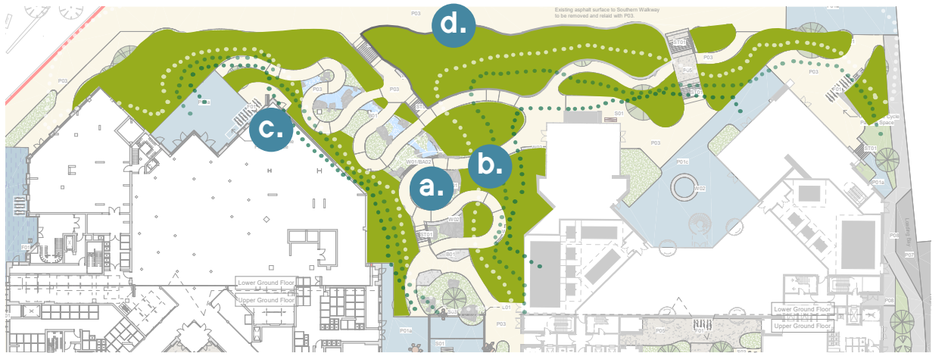


Hosta 'Snowden'



Aruncus aethusifolius











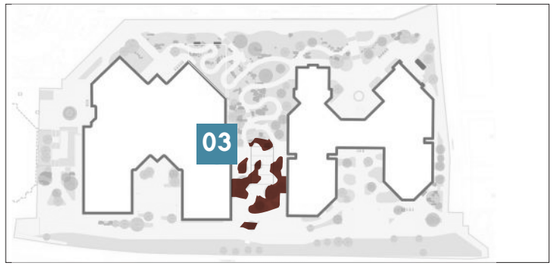


Digitalis x mertonensis Cyclamen coum





Liriope muscari



Plateau arrival

DRAFT

Inspired from peak district plateau

The proposed planting takes inspiration from heathland ecosystems, reinterpreted for an urban context to create a low-maintenance, biodiverse, and visually distinctive landscape. The design features a mosaic of hardy, drought-tolerant species such as grasses, heathers, and low shrubs, interspersed with wildflowers to introduce seasonal color and support pollinators. This planting strategy replicates the open, textured character of heathlands while integrating seamlessly into the urban environment, offering a resilient and ecologically rich landscape that thrives in poor, well-drained soils.








Calluna vulgaris


Ulex europaeus 'Flore Pleno'


Armeria maritima


Achillea millefolium 'Kirschkönigin'


Thymus praecox


Erica Carnea


Molinia caerulea windspiel

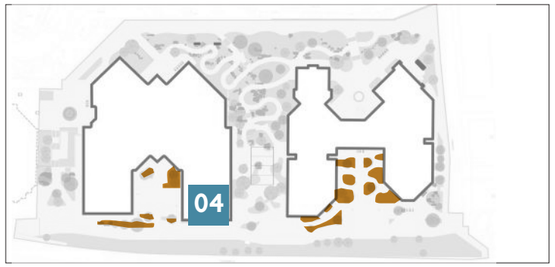

Polystichum setiferum


Nassella tenuissima


Antennaria dioica borealis

Indicative plant list:

Calluna vulgaris
Ulex europaeus ‘Flore Pleno’
Armeria maritima
Erica Carnea
Molinia caerulea windspiel
Dianthus arearius
Polystichum setiferum
Achillea millefolium ‘Kirschkönigin’
Thymus praecox
Nassella tenuissima
Antennaria dioica borealis



DRAFT

Courtyards

Inspired from a brown field

Drawing inspiration from the resilient colonizing species found on brownfield sites, the south-facing courtyards will feature a herbaceous and ornamental planting palette. Drought-tolerant species will emerge from a gravel mulch base, as did brownfield species in times gone by. The design will emphasize low-maintenance, flowering perennials, grasses, and textured foliage to provide a silvery and dynamic aesthetic. Scent will play a key part in the species choice, to ensure residents and guests can sit amongst the planting. This approach combines naturalistic and ornamental cues, providing a welcoming arrival into the plots lobby spaces.








Pseudodictamnus acetabulosus


Helichrysum italicum


Cistus creticus


Papaver orientale Pinnacle Pink


Crambe maritima


Santonlina chamaecyparissus


Salvia officinalis

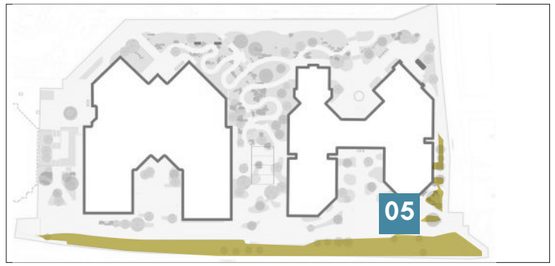

Geranium macrorrhizum 'Album'


Stachys Silver Carpet


Artemisia ‘Powis Castle’

Indicative plant list:

Pseudodictamnus acetabulosus
Santonlina chamaecyparissus
Helichrysum italicum
Salvia officinalis
Geranium macrorrhizum ‘Album’
Cistus creticus
Stachys Silver Carpet
Artemisia ‘Powis Castle’
Aruncus aethusifolius
Papaver orientale Pinnacle Pink
Epimedium rubrum
Crambe maritima



Estate road buffer

DRAFT

Native wildflowers, shrubs, and hedges are proposed to create a biodiverse habitat corridor along the length of the Estate Road. Designed for low maintenance, the planting will be managed by the Mayfield Estate team, providing ecological value while enhancing the natural character of the area.)

<u>Indicative plant list:</u>

Prunus spinosa
Sorbus aucuparia
Leucanthemum vulgare
Glebionis segetum
Rosa canina
Crataegus monogyna
Viburnum lantana
Lychnis flos-cuculi
Echium vulgare
Serratula tinctoria var. seoanei
Centaurea nigra
Primula vulgaris








Prunus spinosa


Sorbus aucuparia


Leucanthemum vulgare


Glebionis segetum


Rosa canina


Crataegus monogyna


Viburnum lantana


Lychnis flos-cuculi


Echium vulgare


Serratula tinctoria var. seoanei



Republic terraces

DRAFT

Based on the mature pine as a feature

- Expanding the southern ledge between the plots.
- Mediterranean-style pines, decorative grasses, and shrubs in a herbaceous arrangement.
- Evergreen trees including Arbutus, Pine, Myrtle, Juniper and Pinus mugo to mitigate wind
- Ornamental design to enhance the arrival area.
- Express the rock escarpment to accompany level changes








Pinus mugo


Viburnum opulus ‘Compactum’


Calamagrostis × acutiflora ‘Karl


Delosperma cooperi


Crambe maritima


Myrtus communis


Stipa tenuissima


Deschampsia cespitosa

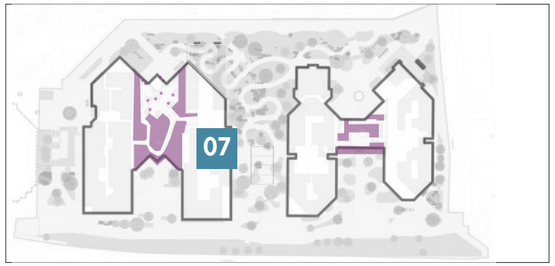

Serratula tinctoria var. seoanei


Helichrysum italicum


Hylotelephium telephium (Atropurpureum Group)

Indicative plant list:

Pinus mugo
Viburnum opulus ‘Compactum’
Calamagrostis × acutiflora ‘Karl Foerster’Serratula tinctoria var. seoanei
Crambe maritima
Artemisia ‘Powis Castle’
Myrtus communis
Stipa tenuissima
Deschampsia cespitosa
Helichrysum italicum
Hylotelephium telephium (Atropurpureum Group)
Serratula tinctoria var. seoanei
Juniperus squamata ‘Blue star’



DRAFT

Podium gardens

Using pink blossom species, mixing plants for shade and sun

XX







Indicative plant list:

Viburnum plicatum ‘Pink Beauty’
Sedum spectabile
Daphne ‘Pink Fragrance’
Jasminum nodifolium
Saxifragia urbium
Achillea millefolium ‘Milk rock rose’
Pittosporum tenuifolium cratus
Astrantia major Ruby Wedding
Thymus serphylus
Rosmarinus officinalis
Viola labradorica purpurea



Viburnum plicatum ‘Pink Beauty’



Sedum spectabile



Daphne ‘Pink Fragrance’



Jasminum nodifolium



Saxifragia urbium



Achillea millefolium ‘Milk rock rose’



Pittosporum tenuifolium cratus



Astrantia major Ruby Wedding



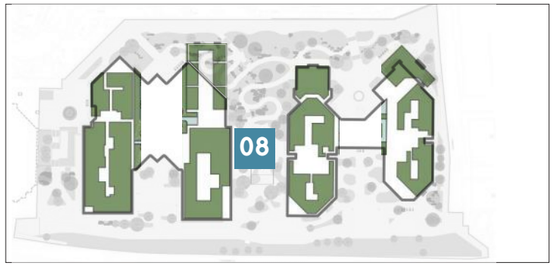
Thymus serphylus



Rosmarinus officinalis



Viola labradorica purpurea



DRAFT

Biodiverse green roof

To attract native wildlife

XX







Indicative plant list:

Anthemis tinctoria
Achillea millefolium
Campanula rotundifolia
Daucus carota
Echinacea purpurea
Pilosella aurantiaca
Alyssum saxatile
Linum perene
Origanum vulgare
Sedum reflexum
Sedum acre


Anthemis tinctoria


Achillea millefolium


Campanula rotundifolia


Daucus carota


Echinacea purpurea


Pilosella aurantiaca


Alyssum saxatile


Linum perene


Origanum vulgare


Sedum reflexum


Sedum acre

c) Habitat features plan

Introduction
Site Context
Design Evolution
Proposed Development
Landscape Design
Use and Amount
Internal Layout & Design
Strategy and Maintenance
Accessibility and Inclusive Design
Sustainability and Energy Efficiency
Appendices

5.3 Ecology

DRAFT

Habitat Features

Bird and Bat Boxes

Habitat features will be integrated into the scheme to encourage ecological enhancement. Indicative areas are shown where bird and bat boxes could be located. Custom brick faced products will be used where appropriate to match the colour of the buildings.

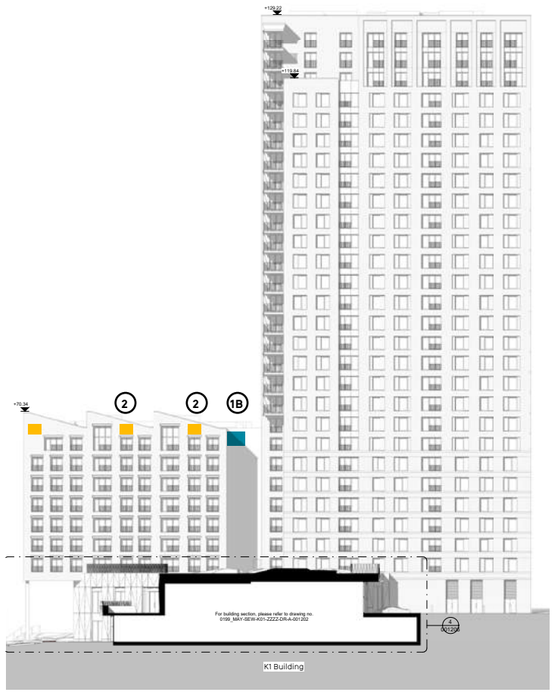
Refer to the sustainability and ecological report for further information.

Indicative Locations

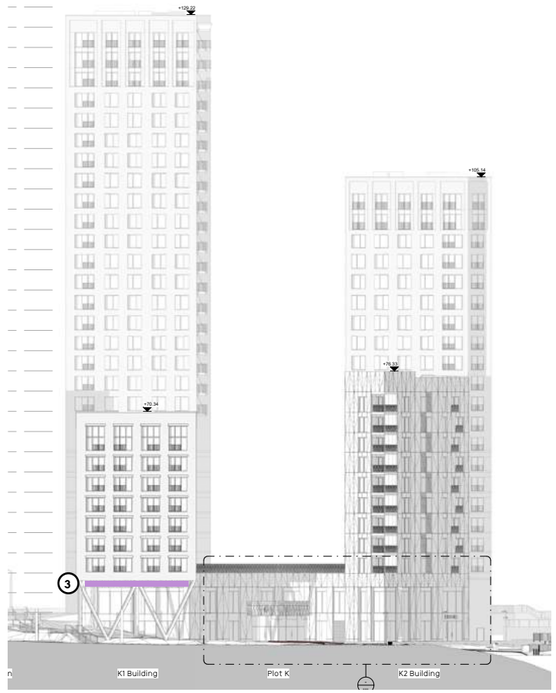
- Bat Boxes/Tubes
- Black Redstart Nest Boxes
- Swift Bird Boxes



K2 West Elevation



K1 West elevation



North Elevation

1A 1B



1) Example Bat Boxes/Tubes
Custom brick faced bat boxes to match brickwork of buildings / Surface Mounted- finish colour to match building colour.

2



2) Example Bird Box (Black Redstart Nest Boxes)
Colour/Finish to match brickwork of buildings

3



3) Example Bird Box (Swift Bird Boxes)
Colour/Finish to match buildings

Introduction
Site Context
Design Evolution
Proposed Development
Landscape Design
Use and Amount
Internal Layout & Design
Strategy and Maintenance
Accessibility and Inclusive Design
Sustainability and Energy Efficiency
Appendices

5.3 Ecology

DRAFT

Invertebrate Features

A range of invertebrate features will be provided and located on the roofs. These could include insect hotels, towers, bee blocks or logpiles.

Please refer to the sustainability and ecological report for further details.



Log Pile



Insect Hotel

Indicative Locations

- Invertebrate Features



Appendix 12.3 Previous surveys and reports

a) Mayfield, Phase 1 EIA Volume 1, Chapter 9 (2019)

9 Ecology

Introduction

9.1 This chapter of the Environmental Statement (ES) assesses the likely environmental effects of the Proposed Development with respect to terrestrial ecology. This chapter also describes the methods used to assess the effects; the baseline conditions currently existing at the Site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been adopted.

9.2 The ecological baseline presented in this chapter is based on extended Phase 1 habitat surveys of the Site, a targeted river habitat survey, protected species surveys for bats, black redstart and breeding birds, and a desk study of biological records for the Site and in the surrounding area. From these, important ecological features (e.g. Sites, species and habitats) have been identified. The ecology survey reports, and further supporting information, are available in the following Appendices:

- 9-1 Glossary and Legislation & Policy;
- 9-2 Ecological Assessment Report, November 2017;
- 9-3 Bat Survey Report, November 2017;
- 9-4 Breeding Bird Survey Report, November 2017;
- 9-5 River Survey Report, November 2017;
- 9-6 Update Ecological Assessment Report, March 2019;
- 9-7 Update Bat Survey Report, March 2019;
- 9-8 Update Ecological Assessment Report, August 2019;
- 9-9 Update Bat Survey Report, September 2019;
- 9-10 Ecology Strategy with Biodiversity Net Gain Calculations;
- 9-11 Arboricultural Impact Assessment and Arboricultural Method Statement; and
- 9-12 Consultation with Greater Manchester Ecology Unit (GMEU) and Environment Agency.

9.3 Potential impacts and effects have subsequently been assessed for each important ecological feature within the Zone of Influence (ZoI).

9.4 Cumulative effects associated with ecology have additionally been considered within the ES and can be found in Chapter 16.

Pre-submission consultation

9.5 Pre-submission consultation, presented in Appendix 9-12, has been undertaken with Greater Manchester Ecology Unit and the Environment Agency as follows:

- A telephone conversation with Derek Richardson (Greater Manchester Ecology Unit – 'GMEU'), was undertaken on 17th July 2019 and followed up by emails documenting the conversation and requesting GMEU confirmation of the proposed approach on 18th July and 5th August 2019. Although no written response was received from GMEU, the second email was worded so that in the absence of receiving a response from GMEU, it would indicate general agreement with the proposed approach.

- Preliminary technical meeting with Environment Agency on 8th September 2017 followed by a biodiversity meeting and visit to the Mayfield Site on 14th February 2019, both with Gary Morris (Biodiversity Officer, Environment Agency) present, to discuss options for naturalising the river including delivery of biodiversity enhancements.

9.6 The approach discussed with GMEU and the Environment Agency has been adopted in preparing this ecological impact assessment and the accompanying Ecology Strategy (Appendix 9-10) with biodiversity net gain calculations.

Policy Context

9.7 The following legislation and policy is relevant to and has had an influence on the assessment or mitigation proposed in the ES. A summary of relevant legislation and policy considered can be found in Appendix 9-1:

International legislation, agreements and conventions

- United Nations Convention on Biological Diversity (1992);
- The Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (Ramsar Convention); and
- European Council Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive).

National Legislation

- Conservation of Habitats and Species Regulations (2017);
- Wildlife & Countryside Act (WCA) (1981 as amended);
- Countryside and Rights of Way (CRoW) Act (2000);
- Natural Environment & Rural Communities (NERC) Act (2006);
- Protection of Badgers Act (1992); and
- Hedgerows Regulation (1997).

National planning policy and guidance

- National Planning Policy Framework (NPPF) (MHCLG, 2019);
- Planning Practice Guidance 2014 (MHCLG, updated 2018);
- Office of the Deputy Prime Minister Circular 06/2005, (ODPM, 2005); and
- Draft Planning Practice Guidance (2018) (Draft PPG).

Regional planning policy and guidance

- Greater Manchester Strategy 2009–20 (2009);
- Greater Manchester Spatial Framework (Draft, 2019) (GMSF); and
- Manchester's Local Development Framework Core Strategy Development Plan Document (MCC, 2012).

Local biodiversity strategies and action plans

9.8 Both Greater Manchester and Manchester City Council have adopted documents with their commitments to progress biodiversity conservation locally and focus on the priorities for biodiversity in Manchester. These include:

- Greater Manchester Biodiversity Action Plan (BAP) (2009);
- Wild about Manchester Biodiversity Strategy (2005);
- Manchester Biodiversity Action Plan 2012–2016; and

- Valuing Manchester's Nature (2012).

9.9 Other relevant local plans include:

- Greater Manchester Green Infrastructure Framework ('GMGIF');
- Greater Manchester Ecological Framework (GMEF);
- Urban Pioneer /Natural Capital Account and Investment Plan; and
- Manchester's Great Outdoors – a Green and Blue Infrastructure Strategy for Manchester 2015 – 2025 and Stakeholder Implementation Plan 2015-2018 (MCC, 2015).

Assessment Methodology and Significance Criteria

9.10 This assessment of potential impacts and effects on ecology has been undertaken in line with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland[8].

Assessment of Effects

Scope of the Assessment

9.11 The 'study area' includes all land within the Site. An additional 'study buffer' is also included, where appropriate, around the ecological feature being investigated. The study area can therefore vary according to the target species or species group being surveyed. Details of the study area and study buffer are provided in this section for each survey type.

9.12 The extended Phase 1 habitat survey (Appendices 9.2 Ecological Assessment Report, November 2017, 9.6 Update Ecological Assessment Report March 2019, 9.8 Update Ecological Assessment Report August 2019) area covered all accessible land within the wider Mayfield development area, including the Site. The survey area excluded the roads to the west of the development area as works were confirmed to only affect hardstanding. The ecological desk study included a search for records of protected species, habitats and species of conservation concern, and sites designated for nature conservation, within the Site and with the following additional buffers:

- 5km desk study buffer for internationally protected sites;
- 2km desk study buffer for designated sites; and
- 1km desk study buffer for non-statutory designated sites and protected/notable species and habitats.

9.13 No internationally or nationally designated sites were located within the relevant buffers. The 2km desk study buffer and locations of non-statutory designated sites are shown in Appendix 9.8.

9.14 The Zone of Influence ('ZoI') for terrestrial ecology is defined as the 'area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities'[8].

9.15 The ZoI may extend beyond the site boundary and is dependent on the receptor's sensitivity to environmental change, how mobile a receptor is, and whether there are hydrological or airborne links between planned activities and the features. The previously defined buffer distances are deemed suitable for the species or habitats present or with potential to be present on-site.

[8] Chartered Institute for Ecology and Environmental Management (CIEEM) (2018) Guidelines For Ecological Impact Assessment In The UK And Ireland: Terrestrial, Freshwater, Coastal and Marine, CIEEM, Winchester

Methodology for establishing the baseline conditions

Importance of ecological features

9.16 Under CIEEM 2018 guidelines[8,] ecological receptors (or features) are referred to in terms of their value, rather than their sensitivity. The relative value of ecological features, established through the desk study, extended Phase 1 survey and species-specific surveys, are based on the following geographic scale:

- International;
- National;
- Regional;
- County/Metropolitan;
- Local; and
- Site (negligible).

9.17 Designated sites have already been assessed for their nature conservation value. For example, sites important at the European level include those designated as Special Areas of Conservation (SAC) which are protected under the Conservation of Habitats and Species Regulations (2017)9 and sites important at the national level include those designated as Sites of Special Scientific Interest (SSSI) under the Wildlife and Countryside Act 1981 as amended[10].

9.18 Examples of designated sites that are of importance at a county/metropolitan level include Local Nature Reserves (LNR) or Grade A Sites of Biological Interest (SBIs) while those of importance at a local level include Grade B and C SBIs.

9.19 Some habitats and species located outside of designated sites also have a geographic frame of reference which has been used as an objective starting point for identifying their importance such as those:

- considered to be priorities for conservation in England and Wales;
- listed as habitats and species of principal importance under the Natural Environment and Rural Communities Act 2006 (NERC)[11]; and/or
- listed as being of local importance in local Biodiversity Action Plans (BAPs)[12,13.]

9.20 However, the final value of habitats and species outside of designated sites has been determined by considering a number of additional criteria, for example local rarity, diversity, or function as a habitat corridor[14].

Scope of the assessment

9.21 Following the baseline evaluation of the importance of ecological features described above, only those assessed as being of local or higher importance are considered within the impact assessment along with all legally protected species in order to ensure statutory compliance.

[9] The Conservation of Habitats and Species Regulations 2017. Available from: https://www.legislation.gov.uk/uksi/2017/1012/contents/made
[10] The Wildlife and Countryside Act 1981 (England and Wales), as amended. Available from: http://www.legislation.gov.uk/ukpga/1981/69/contents
[11] The Natural Environment and Rural Communities Act 2006. Available from:
[12] Greater Manchester Biodiversity Action Plan (2009) Greater Manchester Biodiversity Project
[13] Manchester Biodiversity Action Plan 2012-2016 (2012) Manchester City Council
[14] (CIEEM, 2018 based on) Ratcliffe (1977) Nature conservation review: The Selection of Biological Sites of National Importance to Nature Conservation in Britain, Cambridge University Press

9.22 Likewise, the impact assessment only considers the potentially 'significant' effects of the development on ecology and nature conservation. Impacts on important ecological features are considered during both the construction and operational phases of the development.

Assessment of significant effects

9.23 The assessment of likely significant effects presents an assessment for all ecological features that have been scoped in because they are of nature conservation importance or are legally protected and there is a reasonable potential for there to be a significant effect.

9.24 At this stage, the assessment considers the impacts and effects of the development with the scheme and landscape design, and incorporating embedded mitigation, but without the implementation of supplementary mitigation measures.

Mitigation measures and assessment of residual effects

9.25 Where a potential effect exists, supplementary mitigation measures are provided. An assessment of the significance of any residual effects after mitigation is then made.

Characterising ecological impacts

9.26 Impacts on ecological features (adverse or beneficial) can be direct or indirect. These have been characterised based on the following parameters set out in the CIEEM guidelines:

- Extent (the spatial or geographical area over which the impact may occur);
- Magnitude (size, amount, intensity or volume of the impact);
- Duration (defined in absolute terms and where relevant in relation to the species/habitat being assessed i.e. a species lifecycle or the period over which habitat succession may occur);
- Reversibility (based on whether recovery is likely within a reasonable timeframe); and
- Frequency and timing (the number of times the impact is repeated and whether the timing of an impact coincides with important seasons or life cycle stages).

Determining significance

9.27 The following definitions are used for the terms 'impact' and 'effect':

- Impact – Actions resulting in changes to an ecological feature. For example, the construction activities of a development resulting in removal of a hedgerow; and
- Effect – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from the loss of a hedgerow.

9.28 Effects can be significant at a wide range of geographical scales. CIEEM defines a significant effect to be:

'an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy, or more wide-ranging (enhancement of biodiversity)'.

9.29 Ecologically significant effects include impacts on the integrity of a designated site or the conservation status of a habitat or species within a given geographical area. If an impact is not likely to have an adverse or beneficial effect on the conservation status of a species or habitat, or stop recovering species or habitats from reaching favourable conservation status, then it is not considered to be a significant effect.

9.30 For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within

a given geographical area. The known distribution, abundance and likely trends and variations in population size are considered.

9.31 Conservation status of natural habitats is the sum of influences acting on a natural habitat, and its typical species, that may affect its long-term natural distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area.

9.32 This chapter determines significance at geographical scales in accordance with the CIEEM 2018 guidelines. As set out in Chapter 2 EIA Methodology, the significance of effect is also considered as being negligible, minor, moderate or major. Moderate and major effects are considered to be significant at the geographical level specified in this assessment. Minor or negligible effects are considered not significant.

Limitations and assumptions

9.33 Species data collated during the desk study is mainly derived from records submitted by members of the public and previous surveys undertaken by professional consultants and volunteers not associated with the Proposed Development. Therefore, it should not be taken as a definitive list of the protected species that may occur in the local area.

9.34 During some site surveys, parts of the Site were not accessible to surveyors due to other uses, safety risks and, during later surveys, parts of the Site being an active demolition area. However, across the numerous surveys on the Site, it is considered that all parts of the Site have been accessed and assessed at some point, even if not all at the same time.

9.35 No additional limitations or constraints to the surveys were identified.

Baseline Conditions

Current and assessment baselines

9.36 Ecological baseline conditions are those existing in the absence of the proposed activities associated with the development. The aim of the assessment is to determine how the ecological conditions will change in relation to the assessment baseline to facilitate a clear understanding of the effects of the development. The assessment baseline may differ from the existing (or current) baseline as conditions on the Site may have changed and/or other developments located in the surrounding area may materially affect the current baseline.

9.37 Since adoption of the Mayfield Strategic Regeneration Framework (SRF 2018), a number of meanwhile uses have been implemented on the Site which have included building demolition and removal of structures, associated vegetation clearance and temporary changes of use. These have altered some of the habitats present on the Site.

Assessment baseline (2017)

9.38 For this reason, the ecological baseline conditions which existed on site immediately prior to implementation of the meanwhile uses will be adopted as the baseline against which the impact of the development is assessed. This baseline will be known as the 'assessment baseline' and is taken as those conditions which were present on the site in 2017.

Current baseline (2019)

9.39 The existing (or current) baseline is taken to be August 2019 and comprises a partially cleared Site as a result of clearance of trees, scrub and other vegetation and removal of a bat roost to facilitate the meanwhile uses. The current baseline is assessed where relevant e.g. some buildings and habitats have been removed so assessment of demolition impacts is not applicable. However, the effects of the loss of these as habitats still requires assessment and have been included in this assessment.

Survey scope

9.40 Evaluation of the ecological baseline conditions is based on a range of site and protected species surveys as well as desk study data collected between 2017 and 2019. These are summarised below and are presented in detail in Appendices 9.2 to 9.9. A full site description is provided in Chapter 3 (Site, Surroundings and Description of Proposals).

Statutory designated sites

9.41 No statutory designated sites are located within or adjacent to the Site. Within 500m to the north of the site is the Rochdale Canal. Certain stretches of the canal have been designated as an SAC and SSSI because it supports protected species alongside other red data book and priority species. The closest designated stretch is approximately 4km downstream from the closest point of the canal to the Site.

Non-statutory designated sites

9.42 There are two non-statutory designated sites located within 2km of the Site. Both are Grade A Sites of Biological Interest (SBI). Grade A SBIs are considered to be of county or regional importance. The sites are: The Rochdale Canal, Stotts Lane – Ducie Street Basin and the Ashton Canal (West). As discussed above, the Rochdale Canal supports regionally important aquatic habitat and species while the Ashton Canal is recognised as important for its submerged aquatic flora.

Ancient woodland

9.43 No ancient woodland occurs on site or within 2km of the Site.

Habitats of Principal Importance

9.44 Two Habitats of Principal Importance (HPI)15 for the conservation of biodiversity in England, listed under Section 41 of the NERC Act, occur within the Site. The Phase 1 habitat survey identified running water, in the form of the River Medlock, and several small pockets of self-established broadleaved woodland within the Mayfield boundary.

9.45 Rivers are a UK and Manchester priority habitat. The River Medlock at Mayfield is heavily channelised with vegetation comprising tall herb species, dominated by non-native invasive Japanese knotweed and Himalayan balsam, on silt banks within the river channel with occasional semi-mature broadleaved trees adjacent to retaining walls. All of the plants recorded were common and widespread species typical of urban brownfield habitats.

9.46 The woodland pockets generally contain young trees and have a poor structure, often dominated by single (birch) or a few species (ash, sycamore, elder) with bramble dominated understorey. There are further HPI broadleaved woodlands within 2km of the Site, as identified on MAGIC. There are approximately 10 separate locations of deciduous broadleaved woodlands, most of which are isolated and surrounded by otherwise urban habitat. The closest area of woodland is approximately 260m to the south of the Site.

9.47 Open Mosaic Habitat on previously developed land (OMH) is another HPI which can occur on brownfield Sites such as the application Site. The main elements of OMH are ephemeral / short-perennial vegetation with early successional plant and species; neutral and flower-rich grassland; and heathland[16]. The habitats on Site are described in Table 9.1. Although some of the habitats present are components of general brownfield Sites, none were considered to qualify as OMH as no specific priority features of OMH were present.

[15] Joint Nature Conservation Committee (JNCC) (2011) UK Biodiversity Action Plan Priority Habitat Descriptions (Updated December 2011)
[16] JNCC (2010) Handbook for Phase 1 habitat survey: A technique for environmental audit. Joint Nature Conservation Committee, Peterborough, England

Habitats on site

9.48 A number of extended Phase 1 habitat surveys of the Site have been undertaken to assess the habitats on Site amongst the ongoing changes as part of the redevelopment of the Site (Appendices 9.2, Ecological Assessment Report, November 2017; 9.6 Update Ecological Assessment Report, March 2019; and 9.8 Update Ecological Assessment Report, August 2019). The surveys reveal that the Site is mainly buildings with associated hard standing.

9.49 The Site was previously used for a mix of industrial and commercial activities with the northern boundary of the Site consisting of a disused railway depot with associated track bed. The semi-natural vegetation is generally associated with building edge, the old track bed and Site boundaries. The semi-natural vegetation types found on Site in 2017 (Appendix 9.2 Ecological Assessment Report, November 2017) survey comprised:

- Semi-natural broadleaved woodland;
- Scattered broadleaved trees;
- Scattered scrub;
- Semi-improved neutral grassland;
- Tall ruderal
- Amenity grassland
- Ephemeral/short perennial;
- Introduced shrub; and
- Running water.

9.50 Since the 2017 survey, additional surveys in February and July 2019 (Appendices 9.6 Update Ecological Assessment Report, March 2019 and 9.8 Update Ecological Assessment Report, August 2019) indicate a deterioration in habitats on site due to the removal of vegetation.

9.51 The Site will be assessed as per its surveyed condition in 2017, with consideration taken of any changes recorded in the unaffected habitats in the 2019 surveys. The changes on site to its current condition will be taken into account when considering the presence of protected and priority species on site later in the chapter.

9.52 The distribution of the habitats recorded during the 2017 extended Phase 1 habitat survey is shown in Appendix 9.2 Ecological Assessment Report, November 2017 and the change in habitat on site due to vegetation removal and building demolition between the current and the assessment baselines is illustrated in Appendix 9.8 Update Ecological Assessment Report August 2019 Table 9.1 describes these habitats and determines the importance of each for nature conservation.

Table 9.1 Habitats on site

Habitat	Area within site (m^2)	Likely importance	Description and Justification
Running water – River Medlock	2987.3[17]	Metropolitan	A UK and Manchester biodiversity priority habitat and HPI. Also considered to form an important element of the 'ecological framework' within the GI Framework. Whilst the stretch of the river that runs through the site is heavily modified with entirely engineered banks, it is still likely to provide an important wildlife corridor through and beyond urban Manchester including Clayton Vale. An assessment of

[17] The Running Water area in m^2 excludes in-channel vegetation incl. Japanese knotweed, Himalayan balsam and tall herb, but includes Baring Street and Hoyle Street culverts.

Habitat	Area within site (m^2)	Likely importance	Description and Justification
			aerial imagery indicates that the river links to more open greenspace to the north east of the site.
Semi-natural broadleaved woodland	6426.22	Local	Several small blocks of broadleaved woodland have self-established across the site. The woodlands are largely dominated by silver birch *Betula pendula* with sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, willow *Salix sp.* and holly *Ilex aquifolium* also present. These vary in maturity but are likely to provide value to local wildlife.
Semi-improved neutral grassland	4506.12	Local	The semi-improved neutral grassland has largely colonised the ballast of the old track beds associated with the depot in the north of the site. Whilst species present are considered to indicate succession from ephemeral/short perennial habitat, the presence of marsh orchids (*Dactylorhiza praetermissa)* was noted during the 2017 survey. It is therefore considered to be of local importance.
Scattered broadleaved trees	219.78	Site	A number of broadleaved trees are present across the site ranging from immature to mature. Most mature trees occur along the south-eastern boundary of the site where there is a row of poplars (*Populus sp.*). Trees are also present at the edges of the river corridor. Whilst most trees are of a common species, they are likely to provide value to local wildlife including invertebrates and birds.
Scattered scrub	125.43	Site	There are small patches of bramble (*Rubus fruticosus agg*.) dominated scrub throughout the site in areas of low use/or and management. These are not species rich and are considered to be of site importance.
Tall ruderal	4387.91	Site	Tall ruderal vegetation is scattered largely through the southern area of the site. It consists of widespread and common species such as nettle *Urtica dioica*, willowherb *Epilobium sp.* and creeping thistle *Cirsium arvense*, and so is considered to be of importance at a site level only.
Amenity grassland	1906.46	Site	The areas of amenity grassland continue to be managed by regular mowing. They are considered to be species poor, with perennial rye-grass *Lolium perenne* abundant. It is considered to be of importance at a site level only.
Ephemeral/short perennial	1174.51	Site	Throughout the site, small patches typical of this habitat has colonized building edges areas where hard standing surfaces have degraded. The vegetation comprises mostly low growing species which are common and widespread and typically found in urban and wasteland habitats, therefore it is considered to be of importance at a site level only.
Introduced shrub	1571.48[18]	Site	Throughout the site buddleia *Buddleja davidii* has established in gaps within hardstanding and the mortar of buildings and walls. It frequently occurs within the river corridor where there is also the invasive non-native species (INNS)[19] Japanese knotweed and Himalayan balsam. As these are invasive species they are considered to have a negative importance at a site level.
Bare ground & hardstanding	45380.85	Negligible	Comprises mainly tarmac roads and gravel access tracks which support no native species and have negligible value for nature conservation.
Built structures	14580.78	Negligible (unless roosting bats or breeding	There are 23 buildings on site, of which eight haverecently been demolished,and two culverts over the River Medlock. Nine of the built structures were considered to have moderate or high potential to support roosting bats. The importance of the buildings on site in relation to bat roosts

[18] The Introduced Shrub area in m^2 includes in-channel vegetation incl. Japanese knotweed, Himalayan balsam and tall herb.
[19] Schedule 9, The Wildlife and Countryside Act 1981 (England and Wales), as amended. Available from https://www.legislation.gov.uk/ukpga/1981/69/schedule/9

Habitat	Area within site (m^2)	Likely importance	Description and Justification
		birds present)	and breeding birds is covered under the baseline assessment for each species group.

Protected and priority species

9.53 A description of the species identified during the ecological surveys and the nature conservation importance of the populations of these species within the site boundary is provided in the following sections. A full description of the survey methods and results are provided in Appendices 9.3 Bat survey Report, November 2017, 9.4 Breeding Bird Survey Report, November 2017, 9.5 River survey Report, November 2019, 9.7 Update Bat Survey Report, March 2019 and 9.9 Update Bat Survey Report, September 2019.

Bats – foraging and commuting

9.54 The desk study returned multiple records for bats within 2km of the Site. Species returned in the data search included common pipistrelle Pipistrellus pipistrellus, soprano pipistrelle P. pygmaeus, unidentified pipistrelle Pipistrelle sp., Daubenton's bat Myotis daubentonii, and unidentified bat species Chiroptera sp.. The closest records of these occur within 100m of the Site. Two walked activity transects and one passive detector monitoring period, undertaken in 2017, indicate that the wider Mayfield site is utilised predominantly by common pipistrelle bats in low numbers, with a Daubenton's bat recorded once on the river corridor. Full survey methods and results are included in Appendix 9.3 Bat Survey Report, November 2017.

9.55 Due to the demolition and vegetation clearance works that have occurred on site since the bat surveys were undertaken in 2017, it is considered likely that bat activity may have reduced on site with less foraging habitat present on site. Activity on the River Medlock corridor, however, is not anticipated to have changed. Bat surveys undertaken in 2019 confirmed that common pipistrelle bats continue to utilise the Site.

Bats - roosting

9.56 An assessment of the roosting potential of the built structures on the wider Mayfield site was completed in 2017 (full details in Appendix 9.2 Ecological Assessment Report, November 2017). Nine structures were considered to have features suitable for roosting bats and the 2017 bat roost surveys confirmed presence of roosting bats within four buildings and potentially within two culverts over the River Medlock (full details in Appendix 9.3 Bat Survey Report, November 2017)).

9.57 Further surveys in 2018 and 2019, with access to inspect the structure of the culverts, confirmed that the Baring Street culvert was likely to support roosting bats, whilst the Hoyle Street culvert was considered unsuitable and the recorded bats during the 2017 surveys had likely flown through the feature along the river corridor (Appendix 9.7 Update Bat Survey Report, March 2019).

9.58 In addition to the survey results, the data search also returned six records for pipistrelle bat roosts on site, indicating long-term faithful use of the wider Mayfield site by pipistrelle bats. Offsite, there are also records for a soprano pipistrelle bat roost within 350m of the Site and two records of a common pipistrelle bat roost within 850m of the Site.

9.59 All roosts on site are utilised by a low number (maximum count of 5 individuals) of common pipistrelle bats as summer day roosts. None of the roosts are considered likely to be maternity roosts. One of the buildings is considered to have potential to support hibernating bats.

9.60 All bats and their roosts and resting places are legally protected. As part of site clearance and demolition, one building containing a bat roost has been demolished with potential disturbance impacts to the roosts in one culvert and one building. All works affecting these roosts were covered within a European Protected Species (EPS) mitigation licence issued by Natural England (NE). Surveys during July and August 2019 (Appendix 9.9 Update Bat Survey Report, September 2019) confirmed that bats continue to use the Mayfield site for roosting despite the demolition and removal of vegetation in the vicinity.

9.61 Whilst common pipistrelle bats are considered a common and widespread species, and are not included as a Species of Principal Importance (SPI) in England, all bats are considered within the Greater Manchester BAP and have their own action plan within the Greater Manchester Biodiversity Project Therefore, the population of bats roosting, commuting and foraging on site is considered to be of local level value.

Black redstart and breeding birds

9.62 In the desk study, four Schedule 1 (WCA) species of bird were identified as occurring within 2km of the Site. These include the black redstart Phoenicurus ochruros, kingfisher Alcedo atthis, peregrine falcon Falco peregrinus and little ringed plover Charadrius dubius. However, it is not considered that the Site contains suitable nesting habitat for kingfisher and little ringed plover.

9.63 Part of the Site falls within the Black Redstart Priority Area as identified as part of the Species Action Plan which aims to maintain a breeding population in Greater Manchester.

9.64 Targeted black redstart and breeding bird surveys in 2017 (Appendix 9.4 Breeding Bird Survey Report, November 2017) did not identify use of the Site or the wider Mayfield site by black redstarts.

9.65 Peregrine falcons have been present on and off in Manchester since the early 1990s, with breeding occurring in occasional years. Although loyal to nest sites, breeding has moved location several times within the city, potentially due to loss of nest sites as a result of building demolition and disturbance. They breed in towns and cities using buildings such as churches, warehouses, tall chimneys, and tower blocks. No evidence of peregrine falcons nesting was observed on Site.

9.66 The desk study also returned a number of Section 41 (NERC Act) bird species as well as those listed on the red and amber Birds of Conservation Concern lists20 (BoCC) within the 1km search area. During the breeding bird surveys, five birds of BoCC were recorded on the wider Mayfield site including the red listed starling Sturnus vulgaris, and the amber listed bullfinch Pyrrhula pyrrhula, dunnock Prunella modularis, willow warbler Phylloscopus trochilus and mallard Anas platyrhynchos.

9.67 Whilst eleven species were identified as either possible, probable or confirmed breeders on the wider Mayfield site, the species assemblage is considered to be common and widespread and characteristic of a central Manchester site. Therefore, the bird assemblage on Site is considered to be of site importance.

Other protected species

9.68 No records of otters or water voles were returned as part of the data search. A survey of the river undertaken in 2017 (Appendix 9.5 River Survey Report, November 2017) concluded that the section of the River Medlock that runs through the Site is unlikely to support breeding or resting habitat for either species.

[20] British Trust for Ornithology (BTO) (2015) Birds of Conservation Concern 4: the Red List for Birds.

9.69 In addition, no signs characteristic of these species passing through the site, such as footprints and spraint, were identified and the river is considered to offer limited foraging opportunities. It is considered that works to facilitate improvements to the river corridor are not likely to have a direct impacts on riparian mammals.

9.70 Other protected and priority species including reptiles, great crested newts, dormice and invertebrates are not considered to be present on site due to the habitats present on, and adjacent to, the Site as well as the urban nature of the Site.

9.71 Riparian mammals and protected species, other than those discussed above, are, therefore, scoped out of any further assessment.

Invasive species

9.72 Japanese knotweed and Himalayan balsam are both listed on Schedule 9 (WCA) and have been recorded within the corridor of the River Medlock on site. Eradication of these species by a specialist contractor to prevent further spread is recommended.

9.73 Whilst not listed on Schedule 9, buddleia was also recorded across the site and is a non-native species.

Future baseline (2030)

9.74 The future baseline accounts for how the assessment baseline conditions would change in the absence of the Proposed Development; 2030 is assessed as this is the expected year of completion for the Mayfield Strategic Regeneration Area. If the development did not proceed it is expected that the buildings retained on site following the 2019 Prior Approval demolition work would continue to be in meanwhile use and the active yards would continue in their current usage also.

9.75 Derelict and less used areas of the Site would likely continue to be colonised by scrub, including buddleia, and ephemeral vegetation. Over the 11 year time frame, these may begin to succeed into self-established sapling woodland as can be seen in pockets on site currently. It is anticipated that the Site would continue to support wildlife species that are largely adapted to urban environments such as the common pipistrelle bat.

Identified features and their importance

Designated sites

9.76 Two non-statutory designated sites, both SBIs, occur within 2km of the Site. These are both classified as Grade A – sites of county or regional importance for nature conservation. Both sites are sections of canals approximately 400m to the north of the Site. Neither are linked directly to the Site or the River Medlock that runs through the Site and there is a significant amount of urban development between the SBIs and the Site. It is therefore considered unlikely that direct or indirect effects from the development proposals are likely to occur at these SBIs.

Habitats

9.77 The River Medlock, whilst heavily engineered, is considered to be a habitat with ecological importance at a Metropolitan level due to its corridor properties linking the Site to the wider landscape. It is a UK and Manchester HPI and BAP habitat and considered to form an important element of the 'ecological framework' within the Manchester GI Framework. Whilst the stretch of the river that runs through the Site is heavily modified with entirely engineered banks, it is still likely to provide an important wildlife corridor through and beyond urban Manchester including Clayton Vale. It is known to be used by bats for foraging and commuting purposes and is likely to be utilised by a number of bird species with an association with

water. The value of this ecological feature has been assessed as being of Metropolitan level importance.

9.78 The small pockets of broadleaved woodland on the wider Mayfield site could be considered to fall into the HPI category of lowland mixed deciduous woodland, although they are a poor example of the habitat type due to the dense structure and low diversity of tree species. They are still, however, likely to provide value to local wildlife and so are considered to be of ecological importance at a local level.

9.79 The other habitats on site are considered to be common and widespread and are not indicative of further HPI or BAP habitats. These are considered to be of ecological importance at a site or local level.

Protected and principal species

9.80 Five built structures on the wider Mayfield site, including four buildings and one culvert, were confirmed as bat roosts as part of the 2017, 2018 and 2019 bat surveys. The structures are utilised by low numbers of common pipistrelle bats as low status summer day roosts, with one building also being considered to have potential for use by hibernating bats. Two of the confirmed bat roosts are located within the Site, one of which has been demolished as part of the demolition works, under an approved European Protected Species Mitigation licence from Natural England.

9.81 In addition, activity transects and passive detector monitoring of the wider Mayfield site and river corridor confirms that the Site is also used by common pipistrelle bats for foraging and commuting as well as Daubenton's bats at a lower frequency. As bats and their roosts are legally protected and all species are considered within the GMBP bat SAP, the Site is assessed to be of local level value with regards to roosting and commuting and foraging bats.

9.82 Despite part of the Site falling within the Black Redstart Priority Area for Manchester, this species was not recorded during targeted black redstart and breeding bird surveys of the Site. Therefore, the Site is considered to be of site level importance for this species.

9.83 All nesting birds are protected under the WCA 1981 as amended. Following some building and vegetation clearance in 2019, the remaining scrub, buildings and trees provide a small amount of nesting and foraging opportunities for widely distributed garden and woodland bird species, there is other higher quality nesting and foraging habitat within the local area. As the extent of habitat on site is relatively small and nesting opportunities thus few, and as the Site is in an urban environment, breeding birds are considered to be of value at a site level only.

9.84 The Site is assessed to be of negligible ecological value with regards to other protected faunal species.

9.85 The Schedule 9 (WCA) INNS Japanese knotweed and Himalayan balsam occur on site, primarily within the river corridor. Buddleia occurs widely across the Site and whilst not listed on Schedule 9 it is a non-native species that readily colonises and spreads across urbanised and ex-industrial sites. These non-native species are considered to have a negative value at the site level.

9.86 A list of the features scoped into the assessment and the level of importance attributed to each is provided in Table . Those with negligible or site level importance or which have been identified as unlikely to be significantly impacted by the development activities (i.e. there is no clear pathway of effect), as described previously, are excluded from further assessment

Table 9.2 - Identified features and their importance

Ecological feature	Importance	Justification
River Medlock	Metropolitan	The river runs through the Site. Whilst heavily engineered and currently with little aquatic diversity, it is an HPI and BAP priority habitat, part of the Manchester GI ecological network and provides an important commuting and foraging corridor for a range of species, providing value to local wildlife.
Broadleaved woodland	Local	Lowland mixed deciduous woodland is a HPI. Whilst the pockets of self-established broadleaved woodland on the wider Mayfield site are considered to be in poor condition, the lack of woodland areas within central Manchester means that these small blocks may provide value for local wildlife.
Semi-improved neutral grassland	Local	The habitat is rare on the wider Mayfield site and in places supports species not frequently encountered on urban sites, such as marsh orchid.
Bats – foraging and commuting	Local	The Site, including the River Medlock is considered to provide some foraging and commuting habitat for common pipistrelle bats and, to a lesser extent, Daubenton's bat.
Bats - roosting	Local	Across the wider Mayfield site, four structures are known to contain low status summer roost of common pipistrelle bats, with one of the buildings also identified as having potential to support hibernating bats. Two of these structure are within the Site, one of which has already been demolished under prior approval.

Identification and Evaluation of Likely Significant Effects

Demolition and construction effects for Application 1 (Baring Street Multi-storey Car Park (MSCP), Baring Street Office 1 and Mayfield Park)

Relevant aspects of the scheme

9.87 A detailed description of the development is provided in ES Chapter 3 (Site, Surroundings and Description of Proposals). It is anticipated that the following demolition and construction activities are relevant to ecological considerations:

- Phased clearance of the Site prior to works including demolition of remaining existing building for the second phase of construction of Mayfield Park as well as vegetation clearance;
- Re-profiling of ground for Mayfield Park and removal of existing river walls to naturalise the River Medlock;
- Demolition of culvert over the River Medlock and clearance of vegetation from the river corridor;
- Ground works for installation of services and infrastructure;
- Constructions of new buildings, hardstanding and associated infrastructure;
- Tree planting and landscaping within the scheme; and
- Disturbance – construction lighting and plant/vehicle noise, vibration, movement and general activity.

Potential effects of the development and their significance

River Medlock

9.88 The River Medlock runs through the Site and will be entirely encompassed within the Mayfield Park area of the Proposed Development. As part of the delivery of the Park, the river will be reverted to a more natural watercourse with the removal of the existing engineered walls. The edges of the river will be re-profiled to allow a more natural flow of the river with allowance for flooding into the park during high rainfall events.

9.89 The construction would result in the loss of the existing scattered vegetation along the banks, including the removal of the Schedule 9 listed (WCA) INNS Japanese knotweed and Himalayan

balsam. As these species are dominant within the river corridor, it is considered that they likely provide some value to local wildlife utilising the corridor, in comparison to the river having no vegetation along its banks. Therefore, this loss of this habitat will still likely have an effect.

9.90 Removal of the brick built river walls may impact on faunal species using the walls as refuge. Given the shallow nature of the river, this is unlikely to include larger fish, but may impact on very small fish and aquatic invertebrates within the river channel and nesting birds which utilise riparian environments such as the grey wagtail.

9.91 Noise/vibration generated during the demolition and construction of surrounding buildings could disrupt birds or other wildlife that utilise the river as a foraging and commuting corridor during the daytime. Any night time lighting that illuminates the river corridor may result in an adverse effect on its use by bats as a foraging and commuting corridor.

9.92 There is a risk that waste materials, dust and contaminated run off from demolition and construction activities may enter the river and be washed downstream, damaging habitats and plants. This could also include the spread of the Schedule 9 listed (WCA) INNS if removal of the vegetation in the river corridor is not undertaken in a sufficiently controlled way.

Broadleaved woodland

9.93 No areas of broadleaved woodland fall within the boundary for the works to deliver Baring Street MSCP, Baring Street Office 1 or the area of the Park to be delivered within Application 1, and so negligible effects due to habitat loss are predicted on this habitat type.

9.94 Noise/vibration generated during the demolition and construction of surrounding buildings could disrupt birds or other wildlife that utilise the small areas of woodland for nesting and foraging during the day time.

Semi-improved neutral grassland

9.95 A small area of semi-improved neutral grassland with scattered scrub will be lost as part of the construction works associated with the Park and improvements to the River Medlock. As part of site clearance and preparation of interim temporary use of the depot, the area of semi-improved neutral grassland to the north of the site, which contained the marsh orchids, was recorded as cleared vegetation during the July 2019 update habitat survey of the site. Together, this will result in a temporary loss of this habitat type from the site.

Bats – foraging and commuting

9.96 Habitats across the wider Mayfield site including the small woodland blocks, scrub and semi-improved grassland are likely to support invertebrates which local bat populations will utilise as a food source. The River Medlock corridor through the Site will also provide a further foraging source of invertebrates associated with aquatic habitats as well as a commuting corridor from, and through, the Site to offsite habitats to the north east of the site.

9.97 Habitat loss during construction, noise and night-time lighting will reduce the suitability of the Site to support foraging and commuting bats. Works to naturalise the River Medlock may restrict, divert or halt the flow of the river through the Site, removing a foraging source for local bats, including those roosting within the retained buildings on the wider Mayfield site. Impacts resulting from these works have the potential to result in a moderate adverse temporary effect at a local level.

Bats - roosting

9.98 Five structures were identified to support bat roosts on the wider Mayfield site. Of these, one building has already been demolished under Prior Approval and the culvert containing the bat roost over the River Medlock will also be demolished to deliver Mayfield Park and associated

improvements to the river corridor. The remaining three roosts are within the depot building, or structures associated with the depot, to the north of the Site, and so should not be directly impacted by the works.

9.99 All bats in the UK are protected under the Conservation of Species and Habitats Regulations 2017 which makes killing, injuring or disturbance of individual bats, and damage or destruction of their roosts (whether they are utilising it at the time or not) an offence. To avoid an offence, an EPS mitigation licence was granted by NE for the demolition of the building containing a bat roost earlier in 2019. A subsequent licence will need to be obtained for the demolition of the culvert. The loss of two bat roosts is considered to have a moderate adverse permanent effect at a local level.

9.100 Noise and vibration from works within Application 1 may cause disturbance to retained roosts elsewhere on the wider Mayfield site, or roosts within the culvert should other works commence on site before this is demolished. Habitat loss and night-time lighting may also cause a severance in commuting routes and a loss of suitable foraging habitat for bats roosting elsewhere on the wider Mayfield site. These have the potential to result in a moderate adverse temporary effect at a local level.

Climate change and adaptation

9.101 The main predicted impacts of climate change in England, based on the 2018 UK Climate Projections (UKCP18)[21], are increases in summer and winter temperatures, with an associated increase in extended summer dry spells, a reduction in winter frost days, wetter winters and drier summers with an increase in extreme precipitation events.

9.102 Increases in extreme precipitation events during demolition and construction could increase the potential for pollution events occurring while drier summers could increase levels of dust generated. Both could increase the severity, occurrence or duration of adverse effects on the local habitats including the River Medlock

Summary of effects during construction

9.103 The potential effects for Application 1, identified above, are summarised in Table .

Table 9.3 Summary of effects during demolition and construction of Application 1 only

Ecological feature	Importance	Description of effect	Effect significance
The River Medlock	Metropolitan	Habitat loss	Minor adverse, temporary
		Damage and disturbance from noise/vibration, lighting, dust and run-off during demolition and construction	Minor adverse, temporary
		Potential spread of Schedule 9 listed (WCA) INNS species	Moderate adverse, permanent
Broadleaved woodland	Local	Damage and disturbance from noise/vibration, lighting, dust and run-off during demolition and construction	Minor adverse, temporary
Semi-improved neutral grassland	Local	Loss of habitat	Moderate adverse, permanent
Bats – foraging and	Local	Loss of foraging habitat due to vegetation removal across the site, including the river corridor	Moderate adverse, permanent

[21] Met Office Hadley Centre (2018) UKCP18 Science Overview Report November 2018 (Updated March 2019) Version 2.0; Available from: https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Overview-report.pdf

Ecological feature	Importance	Description of effect	Effect significance
commuting		Indirect impacts from noise/vibration, light, dust and run-off during demolition and construction	Minor adverse, temporary
Bats - roosting	Local	Loss of roosts in one building and the Baring Street culvert structure. Destruction and potential for killing or injury of bats.	Moderate adverse, permanent
		Indirect impact to retained roosts elsewhere on site from noise/vibration, light, dust and run-off during demolition and construction.	Minor adverse, temporary
		Severance of commuting routes from roosts due to habitat loss and/ or night-time lighting.	Moderate adverse, permanent

Demolition and construction effects for Application 1 + Application 2 (Baring Street MSCP, Baring Street Office 1, Mayfield Park, and Baring Street Office 2)

Relevant aspects of the scheme

9.104 Application 2 includes the addition of Baring Street Office 2 on the southern boundary of the Site, and adjacent to the plots delivered within Application 1. The addition of this building within Phase 1 is not considered to contribute any additional impacts to those assessed above and summarised in Table 9.3.

9.105 No demolition works are required to deliver Baring Street Office 2, as any buildings originally on the plot footprint were demolished as part of the Prior Approval works. Habitats on site prior to demolition were dominated by hardstanding and built structures which were not identified to provide nesting opportunities for birds or roosting opportunities for bats. Impacts associated with the construction of the plot will likely be noise and vibration, lighting dust and run-off. The effects would be similar to those assessed in Table 9.3 and are not considered to create a cumulatively higher effect significance in combination with the Application 1 demolition and construction phases.

Intermediate year construction effects

Mayfield Park and the River Medlock

9.106 The construction of Phase 1 is proposed to come forward in two phases. Phase 1a will include the delivery of re-profiling and highways works, the Baring Street MSCP, Baring Street Office 1 and the western part of Mayfield Park, with construction on these plots to be completed by Q3 2022. Phase 1b, which will commence construction in Q3 2020, will subsequently deliver Baring Street Office 2 and the remaining areas of Mayfield Park by Q4 2024.

9.107 As Phase 1b will continue construction activities until Q4 2024, the delivered areas of Mayfield Park and the improved River Medlock will need to be considered as future receptors and assessed as an ecological feature during the extended construction period of Phase 1b.

9.108 Temporary effects as a result of pollution by waste and run-off, noise, vibration and dust during continuing Phase 1b construction adjacent to the receptors could have a minor adverse effect, significant at a local level, on the newly created habitats and the species which might use these in the absence of mitigation.

Summary of additional effects during construction

9.109 The potential effects summarised in Table are not considered to be materially affected by the construction phase of Application 2. The remaining additional potential effects for Application 1 + Application 2 are summarised in Table 9.4.

Table 9.4 - Summary of additional effects during demolition and construction of Application 1 with Application 2

Ecological feature	Importance	Description of effect	Effect significance
Completed phases of Mayfield Park and improved River Medlock (future receptor)	Metropolitan	Damage and disturbance from noise/ vibration, light, dust and run-off during demolition and construction of Plot M and remaining phases of the park.	Minor adverse, temporary

Operational effects for Application 1 (Baring Street MSCP, Baring Street Office 1 and Mayfield Park)

Relevant aspects of the scheme and designed-in mitigation

9.110 Upon completion of Application 1, the Site will incorporate new built structures as well as extensive areas of soft landscaping associated with the delivered part of the park. Operational aspects of the scheme that have the potential to affect ecology are:

- Naturalised river corridor
- Extensive soft landscaping; and
- Increased human activity, noise levels and lighting.

Potential effects of the development and their significance

9.111 Impacts from noise, human disturbance and lighting have the potential to create adverse indirect effects on the newly created Mayfield Park. However, as these will be created and maintained within a highly urban area, potential effects are considered to be negligible.

9.112 The Proposed Development will result in an increase in the level of use of the Site by local residents and visitors. While this would result in a slight increase to the levels of disturbance to breeding birds and foraging/ commuting bats, this is considered unlikely to be significant given the Site already occurs in an urban area and is likely to be used by urban-adapted species. This is considered likely to have a negligible effect on breeding birds and bats.

9.113 A detailed lighting plan will be prepared for each phase of the Site, including the park. The lighting plan will incorporate a number of strategies as outlined within the Institute of Lighting Professional's (ILP) guidance note Bats and artificial lighting in the UK22 which will aim to minimise any impacts from light spill on and adjacent to sensitive habitats, including the river corridor and any artificial roosting sites for bats which are installed by the development. Such strategies may include, but are not limited to, directional lighting, low level bollards, low UV content fixtures and timed or sensor triggered lighting.

9.114 Obtrusive light spill from new structures including Baring Street MSCP and Baring Street Office 1 will also need to be assessed. The proximity of Baring Street Office 1, in particular, to the River Medlock corridor will lead to a risk of the spill of internal lighting out of the windows on

[22] Institute of Lighting Professionals (ILP) (2018) Guidance Note 08/18 Bats and artificial lighting in the UK

to the river corridor. In combination with the external lighting, operational lighting of the development is anticipated to have a permanent moderate adverse effect in the absence of mitigation and a suitable lighting plan.

9.115 Reconstruction of the river edge will provide a significant enhancement for biodiversity both on the Site and for the River Medlock in general. The heavily engineered vertical brick and stone retaining walls will be replaced with more naturalised slopes and terraces, with set-back retaining walls where required, along the length of the river as it passes through the Site.

9.116 Naturalised flooding areas within the wider river channel and park will be allowed for, with suitable planting reflecting these areas of occasional inundation. Planting for the river corridor includes emergent planting within the edges of the channel, wetland verge planting above the water line and flood plain meadow planting where flooding will be accommodated within the more formal park areas.

9.117 The newly naturalised river channel will provide a more diverse habitat to that currently supported on site and will benefit the local invertebrate, bat and bird populations by providing shelter and foraging habitat. Similar works to naturalise the river banks upstream of the Site on the River Medlock has seen marked results with brown trout fisheries recorded on that stretch of the river following the completion of the works.

9.118 The wider park buffers the River Medlock and incorporates a range of landscaped areas reflecting different usage areas for future users of the Site. Habitats will vary across the Site from more formal lawn areas to tall wildflower grassland patches, scrub and woodland. A diversity of species planting is proposed within the landscape plans, to include wildflower species within the lawn area which are proven to withstand the regular mowing and fertilising regime often implemented to maintain lawns.

9.119 Around and within the lawn areas, a forb-rich wildflower mix will be used and left to grow tall, creating a mosaic of habitats within the grassland areas. Terraces associated with level changes from the retained depot to the north of the Application 1 boundary are proposed to be planted with brownfield species mix and include habitat suitable for invertebrates within the planting areas.

9.120 The proposed habitats, including species mix, within Mayfield Park, alongside the improvements to the River Medlock will provide long-term habitat opportunities and improvements for species currently utilising the Site as well as those with the potential to use the future site including bats, black redstart, breeding birds and invertebrates. Therefore, it is likely to have a moderate beneficial effect with regard to these species and the green infrastructure of the local area.

Biodiversity net gain calculations

9.121 Biodiversity net gain (BNG) calculations using the updated Defra Biodiversity Metric (version 2.023) have been undertaken to calculate the change in biodiversity units for the site before and after development.

9.122 Two sets of calculations were undertaken for the development. The first demonstrates how Mayfield Park can deliver BNG for the wider Mayfield site and the core development area within the Mayfield Strategic Development Framework, working on the assumption that the majority of recorded habitats will be lost.

9.123 The second calculation considers Phase 1 in isolation, comparing the pre- and post-habitats and subsequent BNG delivered by this application alone, in the advent that future phases of the Mayfield SRF do not come forward.

[23] Natural England (2018) Updating the Defra Biodiversity Metric. Defra. December 2018

9.124 These calculations demonstrate that the level of ecological design embedded within the proposed park will result in a net positive gain for biodiversity on the basis of the habitats to be provided for both the wider Mayfield site and Phase 1.

9.125 The pre-development calculations are based on the site-wide 2017 Phase 1 habitat survey (Appendix 9.2 Ecological Assessment Report, November 2017) while the post-development calculations are based on the proposed Planting Character Areas and Planting Strategy for Mayfield Park only and exclude any soft landscaping provided within other plots due to no fixed schemes or areas at the time of assessment. The full calculations and assumptions are provided in Appendix 9.10 Ecology Strategy and Biodiversity Net Gain Calculations.

9.126 Based on the above, the pre-development value of the habitats on the wider Mayfield site as 13.25 Biodiversity Units (BU). The pre-development value of the habitats within Phase 1 only is 5.90 BU.

9.127 The proposed soft landscaping for Mayfield Park will result in a predicted 16.50 Biodiversity Units post-development for the wider Mayfield site. For Phase 1, the calculation is slightly less (16.31 BU) due to the Phase 1 redline excluding the majority of Hoyle Street culvert from the calculations, otherwise the habitat delivery is the same.

9.128 This results in a total increase of +3.224 Biodiversity Units post-development (Table); an increase of just under 20% Biodiversity Net Gain, primarily contributed through delivery of the Park.

Table 9.5 Change in Biodiversity Units

Calculation area	Post-Development Biodiversity Units		Pre-Development Biodiversity Units		Change in Biodiversity Units
Wider Mayfield site	16.50	minus	13.25	=	+3.254
Phase 1 site	16.31		5.90	=	+10.404

Climate change and adaptation

9.129 As previously discussed, the main predicted impacts of climate change in England, based on the 2018 UK Climate Projections (UKCP18), are warmer, drier summers and warmer, wetter winters with an increase in extreme precipitation events.

9.130 For this site, the naturalisation of the river corridor, with the creation of areas for flooding allowance will help the River Medlock accommodate extreme precipitation events. The extensive planting within the Mayfield Park area including wildflower and native tree and shrub planting will contribute to reducing the urban heat island effect in the densely built up area.

9.131 The combination of the River Medlock improvement works and the introduction of the Mayfield Park through the centre of the wider SRF site will help buffer the effects of climate change on biodiversity, consequently increasing the resilience of species and habitats, and providing more places and habitats for urban wildlife to occupy as they adapt to future climatic conditions.

Summary of effects during operation

9.132 The potential effects during operation identified above, for Application 1 only, are summarised in Table 9.6.

Table 9.6 - Summary of effects during operation of Application 1

Ecological feature	Importance	Description of effect	Effect significance
River Medlock	Local	Impacts from noise, human disturbance and lighting	Negligible
		Naturalisation of the river corridor including aquatic planting	Moderate beneficial, permanent
Roosting and foraging and commuting bats	Local	Impacts from noise and human disturbance	Negligible
		Impacts from light spill from external lighting and obtrusive light spill from built structures	Moderate adverse, permanent
		Incorporation of a range of soft landscaping across masterplan area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial, permanent
Local fauna including black redstart, generalist birds and local invertebrates	Local	Impacts from noise, human disturbance and lighting	Negligible
		Incorporation of a range of soft landscaping across masterplan area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial, permanent

Operational effects for Application 1 + Application 2 (Baring Street MSCP, Baring Street Office 1, Mayfield Park and Baring Street Office 2)

Relevant aspects of the scheme and designed-in mitigation

9.133 Upon completion of Baring Street Office 2, there will be additional users of the Site associated with additional office space and the potential effects an additional operational building may have on the surrounding area. At a similar time, under the phased construction programme, the remaining areas of Mayfield Park will be completed, delivering the completed wider habitat and river corridor for the Site.

- Extensive soft landscaping; and
- Increased human activity, noise levels and lighting.

Potential effects of the development and their significance

9.134 Following the delivery of Phase 1a, completion of Phase 1b construction will likely increase the number of site users on site due to the delivery of another office building (Baring Street Office 2) and the completion of Mayfield Park creating a draw for local residents as well as those directly working within the operational office buildings within the Site. However, the additional areas of the park that will be delivered within Phase 1b alongside the Application 2 office building will diffuse this impact by providing a greater area for visitors to be present in.

9.135 Given the highly urbanised area that the development is situated in, it is not considered that the delivery of the additional built structure within Application 2 and the potential noise and human disturbance impacts associated with it will have a significant impact.

9.136 On the whole, it is considered that the significant effects for Application 1 will remain unchanged. The effects of Application 1 + Application 2 are summarised within

9.137

9.138 Table

Summary of effects during operation

Table 9.7 Summary of effects during operation of Application 1 with Application 2

Ecological feature	Importance	Description of effect	Effect significance
River Medlock	Local	Impacts from noise, human disturbance and lighting	Negligible
		Naturalisation of the river corridor including aquatic planting	Moderate beneficial, permanent
Roosting and foraging and commuting bats	Local	Impacts from noise and human disturbance	Negligible
		Impacts from light spill from external lighting and obtrusive light spill from built structures	Moderate adverse, permanent
		Incorporation of a range of soft landscaping across masterplan area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial, permanent
Local fauna including black redstart, generalist birds and local invertebrates	Local	Impacts from noise, human disturbance and lighting	Negligible
		Incorporation of a range of soft landscaping across masterplan area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial, permanent

Mitigation Measures

Supplementary mitigation measures during demolition and construction

9.139 The following section sets out the proposed mitigation for likely significant adverse effects identified in the demolition and construction effects section, as well as those measures which will be employed to further reduce non-significant (minor) adverse effects and ensure that the relevant statutory requirements are met.

Habitat loss

9.140 In order to deliver Phase 1, a number of existing habitats on site will be lost. These include semi-improved neutral grassland, scrub, tall ruderal vegetation, scattered broadleaved trees and buildings.

9.141 The landscape strategy of Mayfield Park intends to replace and, in line with national and local planning policies, deliver a net gain in habitats not only for Phase 1, but also for the wider Mayfield SRF development. Using Defra's updated biodiversity metric, the proposed park design was assessed in comparison to the existing habitats across the wider Mayfield site and was shown to deliver just under 25% net gain in biodiversity as measured by habitats. When assessed for Phase 1 alone, this increases to just over 175%

9.142 As part of the delivery of Mayfield Park, the River Medlock corridor will be substantially improved. Whilst a short-term loss of scrub within the river corridor will be incurred, the

majority of this is comprised of Schedule 9 (WCA) invasive non-native species, the removal of which will be of benefit to the local ecology.

9.143 The new naturalised river corridor through the Site will deliver planting within and adjacent to the river, improving the aquatic environment for invertebrate species associated with this habitat type. In turn, this can be considered to provide an improved foraging source for local bird and bat populations.

9.144 As well as delivering substantial improvements to the River Medlock corridor, the value of which is not captured within biodiversity net gain calculations, the park will also deliver the following habitat areas:

- Wetland and riverside mosaic planting;
- Species rich lawn;
- Forb rich grassland, to be left unmown;
- Brownfield terraces;
- Woodland; and
- Wetland tolerant scrub.

9.145 Without mitigation, the loss of habitat could have a permanent moderate negative impact on bats and a minor negative impact on breeding birds. However, the Proposed Development to provide 1.22ha of new habitat, creating 13.01 BU post-development, plus enhancement of 0.23ha of the River Medlock, comprising 3.18 BU post-development will, in the long-term, provide compensatory habitat for foraging and commuting bats, breeding birds and invertebrates.

Damage to habitats from pollution

9.146 Chapters 5 (Construction Management and Phasing) and 8 (Air Quality) included in this ES give detail on control and management of dust. A detailed Construction Environmental Management Plan ('CEMP') will be secured by way of Planning Condition for each phase of development within the Proposed Development, which will detail how airborne dust, run-off, and demolition and construction materials will be managed during the demolition and construction activities.

9.147 Controls will follow national standards and best practice to ensure that these risks are minimised and that they do not affect the wider River Medlock, retained or adjacent habitats or species and habitats beyond the Site boundary. Dust attenuation and suppression measures will be agreed and detailed in the CEMP which will avoid an impact on designated sites, and habitats which support species of conservation value on site (where retained) and off-site.

9.148 Chapter 11 (Water Resources and Flood Risk) gives details on control of water quality and final details for the control of run-off, which will be detailed in the CEMP and will seek to prevent siltation of watercourses and damage to habitats connected to the site via the River Medlock.

9.149 The CEMP will also detail how waste materials from demolition and ground works and storage of construction building materials will be managed to avoid damaging or contaminating adjacent habitats.

9.150 Removal and/or treatment of invasive non-native species on site will be undertaken and managed by a specialist contractor using methods to control the removal of plant material and soil which may contain plant material.

9.151 This waste will be disposed of at a landfill licensed to take invasive non-native species to prevent the spread of the plants both on and off site. Contractors working within or near to these removal areas will be required to adhere to strict biosecurity protocols as implemented by the removal specialist to prevent any further spread across the Phase 1 construction site or the wider Mayfield site.

Disturbance of fauna by noise/vibration and lighting

9.152 The CEMP will include provisions for minimising indirect impacts such as noise/vibration and construction lighting on the surrounding area and sensitive species such as bats, black redstart and breeding birds.

9.153 Chapter 6 (Noise and Vibration) provides details on the management of noise and vibration, which will include use of hoarding and restrictive working hours.

9.154 Lighting also has a risk of affecting sensitive fauna within and adjacent to the Site such as foraging and commuting bats. The CEMP will detail how lighting will be managed during the construction phase of works to limit any potential effects.

9.155 Particular consideration will be given to the requirement for lighting on or close to the river corridor and the position of lighting with regards to retained bat roosts to the north of the Site. Connectivity between these roosts and the river via a dark corridor should be maintained.

Disturbance as a result of creation of habitat suitable for black redstart during demolition and construction

9.156 The CEMP will detail how waste materials from demolition and ground works and storage of construction building materials will be managed to avoid creating potentially suitable habitat for black redstart. Waste materials, especially building rubble, will need to be removed from Site promptly, or contained appropriately, to prevent any habitat being created to support black redstart.

Killing and injury of birds by the destruction of active nests

9.157 Breeding birds, their nests and young are protected under Schedule 1 of the Wildlife and Countryside Act 1981 as amended and any site clearance which takes place within the bird breeding season (i.e. between March and August inclusive), could kill or injure adults, chicks or damage eggs. Full details on the avoidance of killing and injury of birds, and avoidance of active nest destruction, will be included in and agreed on in the CEMP prior to works commencing.

Destruction of a bat roost and killing or injury of individual bats

9.158 All bats in the UK are protected under the Conservation of Species and Habitats Regulations 2017 which makes killing, injuring or disturbance of individual bats, and damage or destruction of their roosts (whether they are utilising it at the time or not) an offence. Bats found to be roosting in five structures across the wider Mayfield site, including one building which has been demolished under Prior Approval and a culvert over the River Medlock which is due to be removed as part of the improvements to the river corridor.

9.159 The roost that has already been destroyed was done so under an EPS licence approved by NE. An additional licence will be required in order to remove the culvert and subsequently destroy a low status summer roost used by individual or low numbers of common pipistrelle bats. The licence will need to be approved by NE ahead of works commencing on or in proximity to the roost.

9.160 Within the licence, methods of demolition will be detailed to minimise the risk of injuring or killing a bat during works. This may include the use of soft demolition techniques to remove

the identified roosting features with a licensed bat ecologist present to safely remove any bats that are found and relocate them to a suitable location (e.g. a bat box on site). Licences will also include provision of compensatory roosting habitat to replace the roosting potential of the site.

9.161 A summary of the recommended demolition and construction mitigation measures is provided in Table .

Table 9.8 Summary of demolition and construction supplementary mitigation measures for Phase 1

Ecological feature	Adverse effect	Mitigation measure	Responsibility / Mechanism for implementation	Timing
River Medlock, semi-natural habitat on site, and fauna of conservation value on site including bats and breeding birds	Loss of habitat	Creation of ecologically valuable habitat within the Mayfield Park by incorporating native and species diverse pollinator planting, replacement brownfield habitat and tree planting across the park. Improving the River Medlock by removing heavily engineered banks, creating a more naturalised river with aquatic species planting.	Management plan for the park and River Medlock to be secured through planning condition and implemented by contractor.	Prior to and during demolition and ground works in Application 1
River Medlock, Mayfield Park (intermediate year effects), and habitats used by fauna of conservation value	Damage of habitats from pollution	Airborne dust, siltation and pollution caused by run-off, spread of invasive species and management of demolition waste and construction materials will be controlled and managed in keeping with national guidelines, following recommendations made in Chapters 5, 8 and 11 of this ES and in the CEMP, to avoid damage of retained habitats on site, habitats created ahead of construction completion and habitats beyond the site boundary.	CEMP to be secured through planning condition and implemented by contractor.	Prior to and during demolition and construction of Application 1 & Application 2.
	Disturbance by noise/vibration and lighting	Noise and lighting will be managed in keeping with national and local guidelines following recommendations made in Chapter 6 of this ES and in the CEMP, to avoid as much as possible, disturbance beyond the development site boundary.	CEMP to be secured through planning condition and implemented by contractor.	Prior to and during demolition and construction of Application 1 and Application 2.
Breeding birds roosting and foraging and commuting bats	Disturbance by noise/vibration and lighting	Noise and lighting will be managed in keeping with national guidelines, following recommendations made in Chapter 6 of this ES and in the CEMP, to avoid as much as possible, disturbance to fauna of conservation value retained within or adjacent to the development site boundary.	CEMP to be secured through planning condition and implemented by contractor.	Prior to and during demolition and construction of Application 1 and Application 2.

Ecological feature	Adverse effect	Mitigation measure	Responsibility / Mechanism for implementation	Timing
Roosting bats	Killing, injury or disturbance of individual bats, and damage or destruction of their roosts.	Prevention of an offence under legislation due to destruction of bat roosts for Phase 1 will be ensured by the production of a European Protected Species licence from Natural England. Methods of demolition and removal of any bats in-situ during demolition as well as provision of compensatory habitat replacement will be detailed within this document or a relevant Methods Statement.	Licence to be secured following planning approval and prior to demolition works to the culvert. To be implemented by contractor and licensed bat worker.	Prior to and during demolition for Application 1.
Breeding birds	Killing and injury of birds, and destruction of active nests	Avoidance of harm to birds, their nests and young to prevent an offence under legislation, will be ensured through following the recommendations outlined in the Chapter which will be detailed in the CEMP.	CEMP to be secured through planning condition and implemented by contractor.	Prior to and during site clearance for Application 1.

Supplementary mitigation and enhancement measures during operation

9.162 In addition to the specific recommendations for the landscaping of Mayfield Park and naturalisation of the River Medlock, a number of recommendations are made to enhance the Phase 1 site's ecological value in line with planning policies and BAP guidance in areas of landscaping within and surrounding the Baring Street MSCP, Baring Street Office 1 and Baring Street Office 2. These are summarised below:

- Incorporate the use of native species and those of benefit to biodiversity (i.e. flowering/fruiting species) within landscaping;
- Plant a variety of native species within the site such that there will be a large positive increase in the number and diversity of species in comparison to the existing site;
- Incorporate features and select planting species to create additional opportunities for invertebrates (including pollinators) in order to provide nesting habitat, cover and foraging;
- Apply sustainable horticultural practices to increase the sustainability of the soft landscaping by:
  - no, or low, use of residual pesticides;
  - no use of peat based products;
  - avoiding a design that is heavily reliant on irrigation;
  - utilise rainwater harvesting in the irrigation system;
  - design-in features to reduce water use and enable composting and integrated pest management;
  - source and use UK-produced plants to reduce risk of introduction of imported pests and diseases and to reduce the carbon footprint;
  - select plants that require less water and chemical inputs and are suited to the local conditions;

- widen the diversity of species planted to increase resilience to climate change and new pest/disease outbreaks.

9.163 The integration of these recommendations into the proposed landscaping of each building demise and public realm will maximise the benefit of the soft landscaping across the entire Proposed Development for local biodiversity, providing connectivity and continuity across the site, and not restricted to the park.

9.164 A summary of the recommended operational mitigation measures is provided in Table .

Table 9.9 - Summary of operational mitigation and enhancement measures for Phase 1

Ecological feature	Adverse effect	Mitigation measure	Responsibility / Mechanism for implementation	Timing
River Medlock, Mayfield Park and habitats used by fauna of conservation value	Impacts from noise, human disturbance and lighting	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on adjacent sensitive habitats. No other specific measures – impacts assessed as negligible.	Implementation of lighting plan within and adjacent to Mayfield Park.	During construction and operation of Application 1 and Application 2.
Roosting and foraging and commuting bats	Impacts from noise, human disturbance and lighting	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on retained and mitigation bat roosts as well as important commuting and foraging areas, including the River Medlock. No other specific measures – impacts assessed as negligible for noise and disturbance.	Implementation of lighting plan within and adjacent to Mayfield Park.	During construction and operation of Application 1 and Application 2.
	Habitat creation and enhancement	Incorporation of a range of soft landscaping across the Mayfield Park area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Production and implementation of a management plan for the Mayfield Park and River Medlock to be secured through planning condition.	Installation during construction, maintenance during operation of Application 1.
Local fauna including black redstart, generalist birds and invertebrates	Impacts from noise, human disturbance and lighting	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on adjacent sensitive habitats. No other specific measures – impacts assessed as negligible.	Implementation of lighting plan within and adjacent to Mayfield Park.	During construction and operation of Application 1 and Application 2.
	Habitat creation and enhancement	Incorporation of a range of soft landscaping across the Mayfield Park area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Production and implementation of a management plan for the Mayfield Park and River Medlock to be secured through planning condition.	Installation during construction, maintenance during operation of Application 1.

Cumulative Effects

9.165 The cumulative developments considered relevant to terrestrial ecology are those that lie within 200m of the Site and are not affected by a significant barrier to connectivity, such as a major railway or road.

9.166 Those outside of 200m are not considered due to the highly urbanised environment in which the sites are located which likely creates a barrier to dispersal between sites at a greater distance. Nearby relevant approved developments are listed below and summarised in Chapter 2 of this Statement.

- Mayfield Depot and Temperance Street Arches Fairfield Street (123728/FO/2019)
- Macdonald Manchester Hotel (123095/FO/2019)
- Chandos Hall (118267/FO/2017)

9.167 Application 116099/FO/2017 (Refurbishment, restoration, reconfiguration and extension of former London Road Fire Station), although within 200m of the application site, was not considered relevant to terrestrial ecology given the absence of habitat on site prior to development and little scope for it to be added post-development. The building to be converted is also considered generally unsuitable for black redstart and there will be no changes to the building that will increase or decrease its value in relation to bats or nesting birds. Construction effects will be mitigated as part of a site specific CEMP.

9.168 An assessment is also provided for relevant SRFs where a cumulative effect may occur. Relevant SRFs (as per the criteria listed above) considered in this assessment are listed below and summarised in Chapter 2 of this Statement.

- Mayfield SRF May 2018
- Manchester Piccadilly SRF March 2018
- Piccadilly Basin SRF October 2016
- North Campus SRF December 2016
- Portland Street SRF November 2017

Demolition and Construction Cumulative Effects

9.169 The cumulative developments, SRFs and Proposed Development will all be subject to a CEMP with best practice working methods and mitigation measures to manage emissions to air and land including noise, vibration and light spill and to protect adjacent habitats and sites and associated fauna from the respective development works. It is anticipated that cumulative Type 1 effects of demolition and construction on adjacent habitats will be minimal as long as the proposed mitigation detailed in the respective CEMP are implemented. As a result, no Type 2 effects should be observed.

Approved developments

9.170 Construction relating to the Mayfield Depot was completed in September 2019 and so will not coincide with the demolition and construction of the Site. As a result, no cumulative effect is anticipated.

9.171 Demolition and construction relating to the Macdonald Manchester Hotel and Chandos Hall have the potential to be concurrent with the demolition and construction activities of the Proposed Development. The clearance of habitats on site and at Chandos Hall will result in a temporary reduction in available habitat in the area, however as the existing habitats on site at Chandos Hall have been assessed as being of low ecological value, no significant cumulative effect is anticipated.

9.172 No clearance of habitat is planned at Macdonald Manchester Hotel. 9 no. trees on site are to be retained with 3 no. of these being dug out and replanted elsewhere on site. Therefore no cumulative effect is anticipated.

9.173 No cumulative effects on protected and priority species are considered likely. Whilst construction works have the potential to disturb protected species such as black redstart and foraging/commuting bats, work to the Mayfield Depot is anticipated to be completed before the main construction works for the Proposed Development commence. In addition, Chandos Hall was indicated to be unsuitable for use by nesting or foraging black redstart and no survey was required for the Macdonald Hotel, therefore no cumulative effect is anticipated.

Strategic Regeneration Frameworks

9.174 Mayfield SRF is generally of low ecological value, comprising mostly hardstanding, buildings and recently cleared ruderal vegetation. There are some habitats on the wider site however that are of an increased ecological value including small areas of self-seeded broadleaved woodland and neutral grassland. These are anticipated to be removed as part of delivery of the wider SRF. Bats were also found to be roosting in an additional three structures across the wider site. The removal of these habitats during demolition and construction will have a minor adverse cumulative effect (Type 1) on terrestrial ecology in the area.

9.175 Within the development of the Mayfield SRF, the Park is intended to provide the biodiversity net gain for the entire development. Delivery of the Mayfield Park will occur in Phase 1 resulting in 175% biodiversity net gain for this phase. However, when this is applied across the entire SRF area, the overall biodiversity net gain effect achieved by the Park will be reduced to 25%. This will result in a minor adverse cumulative effect, when applied to delivery of future phases within the SRF, however, this is not considered significant as the residual effect of biodiversity net gain over and above policy requirements will still be achieved for the SRF area with a moderate beneficial residual effect.

9.176 All other SRFs that are classed as relevant to terrestrial ecology on the Proposed Development consist of sites that are considered to be of low ecological value. Portland Street Village, Manchester Piccadilly and Piccadilly Basin consist largely of hard standing and buildings and as a result the removal of habitat associated with the demolition and construction of these developments and the Mayfield SRF, no cumulative effect relating to the Proposed Development would be observed.

9.177 All existing parks in the North Campus SRF are to be retained, however Vimto Park will be reduced in size to accommodate a new building. This will result in a temporary loss of habitat during demolition and construction that will have a minor adverse cumulative effect on terrestrial ecology in the area. This effect however is not considered to be significant owing to the park being of amenity value only, providing little value to terrestrial ecology.

Operational Cumulative Effects

9.178 The majority of developments are likely to cause an increase in light, noise and general human activity during operation (Type 1 effect) which could increase disturbance levels for species such as black redstart, nesting birds and bats. However, the developments, including future applications and SRFs within the vicinity of the Proposed Development, are already located within a highly urbanised environment.

9.179 Therefore the species occupying the sites are already subject to relatively high levels of traffic, disturbance and human activity and are likely to be tolerant of a level of disturbance typical of the urban development once operational. No cumulative effects of disturbance are anticipated.

Approved developments

9.180 Daylighting of a section of the Medlock will be accompanied by ecological river edge planting, landscaping with vegetation of known benefit to pollinators and the provision of bat and bird compensation and enhancements such as roosting features and boxes will be provided as part of the park and have been recommended for the future building developments at Mayfield. Green roofs and courtyards planned as part of Chandos Hall also make use of plant species of known benefit to pollinators.

9.181 The cumulative effect of provision of a variety of soft landscaping, some of it specifically designed for ecological enhancement for these developments, and incorporation of artificial habitat features for a variety of wildlife including black redstart and other birds, bats and invertebrates is likely to be of a minor beneficial effect on local protected and priority species. As a result, no Type 2 effects should be observed.

Strategic Regeneration Frameworks

9.182 In line with local and national planning guidance and legislation, all SRFs assessed will be will providing new habitat as enhancements within the developments, be that by pocket parks, amenity spaces, or roof gardens. These additional habitats within the vicinity of the application site may serve as habitats for species such as black redstarts, foraging bats and generalist nesting birds and will result in a minor beneficial non-significant effect to terrestrial ecology.

9.183 Although no details of the landscaping for Medlock Park (Manchester Piccadilly SRF) are available, the beneficial effects associated with creation of the Mayfield Park including daylighting and river edge planting of the River Medlock as part of the Mayfield SRF, along with the anticipated creation of Medlock Park, will result in an increased semi-natural corridor along this section of the river. This increases the habitat available to local wildlife and enhances the local ecology by linking the two SRFs through to further habitat to the east. Therefore, an overall moderate beneficial Type 2 effect to terrestrial ecology will occur.

Summary of cumulative effects

Table 9.10 Local developments with potential inter-project cumulative effects relevant to terrestrial ecology

Scheme and planning reference	Consent status	Anticipated construction phasing	Potential Environmental effects	Cumulative effect
Mayfield Depot and Temperance Street Arches Fairfield Street 123728/FO/2019	Temporarily Approved 02/09/2019	Construction of the temporary structure has begun with completion due September 2019.	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP.	No cumulative effect anticipated
			2 no. bat roost boxes erected.	Minor beneficial cumulative effect, not significant
Macdonald Manchester Hotel 123095/FO/2019	Validated on 10/06/2019	Decision pending	9no. trees on site, all to be retained, 3no. Trees to be transplanted from the southern end of the site to the northern end.	No cumulative effect anticipated
Chandos Hall 118267/FO/2017	Approved 13/05/19	Completion 2021	Courtyards and 3 no. green roofs with planting of native, pollen rich species.	Minor beneficial cumulative effect, not significant

Scheme and planning reference	Consent status	Anticipated construction phasing	Potential Environmental effects	Cumulative effect
			Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP.	No cumulative effect anticipated

Table 9.11 Local SRFs with potential inter-project cumulative effects relevant to terrestrial ecology

SRF	Potential Environmental effects	Cumulative effect
Mayfield SRF May 2018	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP	No cumulative effect anticipated
	Clearance of existing habitat	Minor adverse cumulative effect, not significant
	Mayfield Park delivering biodiversity net gain for the entire SRF, resulting in a reduction in net gain when compared to Phase 1 alone	Minor adverse cumulative effect during implementation of future SRF phases, not significant Note the residual effect across the entire SRF is still moderate beneficial – see 9.12.
Manchester Piccadilly SRF March 2018	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP	No cumulative effect anticipated
	New park (Medlock Park) along River Medlock	Moderate beneficial cumulative effect
	Inclusion of Green Roofs where feasible	Minor beneficial cumulative effect, not significant
Piccadilly Basin SRF October 2016	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP	No cumulative effect anticipated
	Amenity planting of a small number of trees and the inclusion of Green Roofs where feasible	Minor beneficial cumulative effect, not significant
North Campus SRF December 2016	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP	No cumulative effect anticipated
	Reduction in size of Vimto Park resulting in lost habitat	Minor adverse cumulative effect, not significant
	Planting of open spaces will improve local ecological value	Minor beneficial cumulative effect, not significant
	Inclusion of Green Roofs where feasible	Minor beneficial cumulative effect, not significant
Portland Street SRF November 2017	Construction dust, noise, light, pollution - to be controlled by a site-specific CEMP	No cumulative effect anticipated

SRF	Potential Environmental effects	Cumulative effect
	2no. proposed green roofs and 1no. proposed small public space	Minor beneficial cumulative effect, not significant

Residual Effects

9.184 Two significant residual effects have been identified: namely creation of the Phase 1 Mayfield Park and the improvements to the River Medlock corridor, both of which will be positive and provide habitat to support a number of local bat, bird and invertebrate species.

9.185 The provision of habitats within Mayfield Park provides a net gain in biodiversity for the Phase 1 Site and is considered to provide a moderate beneficial effect overall for the development. Whilst there will be a short term loss of semi-natural habitats across the site to implement the Proposed Development, these are considered to be common urban habitat types generally in a poor condition.

9.186 The Mayfield Park will include the replacement of these habitats including wildflower rich neutral grassland, broadleaved woodland, scrub and brownfield habitat; creating a mosaic of enhanced habitats through the centre of the Proposed Development and buffering the River Medlock corridor from the built environment.

9.187 In terms of loss of roosts for common pipistrelle bats on site, there will be the loss of two confirmed bat roosts to facilitate the delivery of the Plots and park within Application 1 of Phase 1, with three other confirmed roosts retained within the wider Mayfield site.

9.188 An EPS licence from NE will be obtained ahead of any roost destruction and mitigation roosts in the form of bat boxes will be provided. These will include, in the long term, roosting space suitable for small crevice dwelling bats to use as day roosts as well as larger boxes suitable for bats to use as maternity and hibernation roosts.

9.189 The provision of the park and improvements to the River Medlock will also likely improve the foraging opportunities for bats on site and lighting will be designed to ensure that light spill does not impact on the use of important features by bats.

9.190 The risk of effects to ecology from run-off, airborne dust, noise and lighting will be controlled through mitigation that will be detailed in the CEMP to manage these factors and ensure no detrimental effect to potential receptors.

9.191 During clearance of the Site there will be a loss of semi-natural vegetation which has potential to support breeding birds and invertebrates. Clearance of any remaining vegetation and buildings on site, following that already removed under Prior Approval, should follow the guidance outlined in the detailed CEMP to ensure no offence occurs with regards to species protection.

9.192 A summary of the residual effects on terrestrial ecology, taking account of intended mitigation for demolition/ construction and operational phases in provided in Table 9.12.

Table 9.12 Residual effects table

Ecological feature	Description of effect	Pre-mitigation significance	Mitigation	Post-mitigation significance
Demolition and construction				
The River	Habitat loss in	Minor adverse	Improving the River Medlock by removing heavily engineered banks,	Moderate

Ecological feature	Description of effect	Pre-mitigation significance	Mitigation	Post-mitigation significance
Medlock	Application 1		creating a more naturalised river with aquatic species planting.	beneficial
	Damage and disturbance from noise/vibration, lighting, dust and run-off during demolition and construction of Application 1 and Application 2	Minor adverse	Airborne dust, pollution caused by run-off and handling/storage of demolition waste and construction materials will be managed to limit and mitigate for spread beyond the site. Construction noise /vibration and light will be managed on-site to limit disturbance beyond the site boundary.	Negligible
	Potential spread of Schedule 9 (WCA) INNS in Application 1	Moderate adverse	Specialist contractors will implement INNS removal programme with protection measures in place to prevent the spread of invasive weeds	Negligible
Broadleaved woodland	Damage and disturbance from noise/vibration, lighting, dust and run-off during demolition and construction of Application 1 and Application 2	Minor adverse	Airborne dust, pollution caused by run-off and handling/storage of demolition waste and construction materials will be managed to limit and mitigate for spread beyond the site. Construction noise /vibration and light will be managed on-site to limit disturbance beyond the site boundary.	Negligible
Semi-improved neutral grassland	Loss of habitat in Application 1	Moderate adverse	Provision of replacement habitat will result in a net gain of habitat on site.	Negligible
Roosting, and foraging and commuting bats	Loss of roosts in Application 1. Destruction and potential for killing or injury of bats	Moderate adverse	Destruction of roosts will be undertaken under an EPS licence issued by NE. Mitigation roosts will be installed on site during works with additional roosting features provided once works are complete.	Negligible
	Indirect impacts from noise/vibration, light, dust and run-off during demolition and construction in Application 1 and Application 2.	Minor adverse	Airborne dust, pollution caused by run-off and handling/storage of demolition waste and construction materials will be managed to limit and mitigate for spread beyond the site. Construction noise /vibration and light will be managed on-site to limit disturbance to retained and mitigation roosts.	Negligible
	Loss of foraging and commuting habitat across the site in Application 1	Moderate adverse	Other habitats still available adjacent to Phase 1 site boundary. Lighting will be managed to limit severance effects due to the illumination of dark corridors, including the River Medlock.	Negligible
Breeding birds	Possible killing and injury of birds, by the destruction of active nests in	Moderate adverse	Recommendations provided to avoid impact on breeding birds	Negligible

Ecological feature	Description of effect	Pre-mitigation significance	Mitigation	Post-mitigation significance
	Application 1			
Completed phase of Mayfield Park and improved River Medlock corridor (future receptor)	Damage and disturbance from noise/vibration, lighting, dust and run-off during demolition and construction in Application 1 and Application 2	Minor adverse	Airborne dust, pollution caused by run-off and handling/storage of demolition waste and construction materials will be managed to limit and mitigate for spread beyond the site. Construction noise /vibration and light will be managed on-site to limit disturbance beyond the site boundary.	Negligible
Operational				
River Medlock, Mayfield Park and habitats used by fauna of conservation value	Impacts from noise, human disturbance and lighting from Application 1 and Application 2	Negligible	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on adjacent sensitive habitats. No other specific measures – impacts assessed as negligible.	Negligible
Roosting, and foraging and commuting bats	Impacts from noise, human disturbance and lighting from Application 1 and Application 2	Moderate adverse	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on retained and mitigation bat roosts as well as important commuting and foraging areas, including the River Medlock. No other specific measures – impacts assessed as negligible for noise and disturbance.	Negligible
	Biodiversity enhancements in Application 1	Moderate beneficial	Incorporation of a range of soft landscaping across masterplan area including naturalisation of the River Medlock, wildflower grassland, wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial
Local fauna including black redstart, generalist birds and invertebrates	Impacts from noise, human disturbance and lighting from Application 1 and Application 2	Negligible	A detailed lighting plan will be prepared for Mayfield Park and each plot to minimise impacts from external and obtrusive light spill on adjacent sensitive habitats. No other specific measures – impacts assessed as negligible.	Negligible
	Biodiversity enhancements in Application 1	Moderate beneficial	Incorporation of a range of soft landscaping across masterplan area including wildflower grassland wetland and marginal planting, brownfield terracing, native trees and shrub planting.	Moderate beneficial

b) Mayfield Regeneration Development Ecological Assessment and Bat Inspection (2017)

BUROHAPPOLD ENGINEERING

Mayfield Regeneration Development

Ecological Assessment and Bat Inspection

035548

29 November 2017

Revision 01

MRP-BHE-XX-XX-RP-YM-0003

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Revision	Description	Issued by	Date	Checked
00	Ecological Assessment and Bat Inspection	GH	19/12/2016	SH
01	Ecological Assessment and Bat Inspection - updated with vernal and spring plant species (Section 2.2 and Appendix E)	GH	29/11/2017	PO

O:\035548 Mayfield Regeneration Development\F32 Environmental\03 Reports\Ecology Survey Reports WIP\Updated PEA WIP\MRP-BHE-XX-XX-RP-YM-0003.docx

This report has been prepared for the sole benefit, use and information of U+I for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author	**Gerard Hawley**
date	**16/11/17**
approved	**Pernille Olsen**
signature	
date	**29/11/17**

..

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Contents

1 Introduction **9**

1.1 Background 9

1.2 Site Description 9

1.3 Legislative Context 9

2 Methods **11**

2.1 Desk Study 11

2.2 Phase 1 Habitat Survey 11

2.3 Protected Species Assessment 11

2.4 Limitations 12

3 Results **13**

3.1 Desk Study 13

3.2 Phase 1 Habitat Survey 16

3.3 Protected Species Assessment 19

4 Evaluation **23**

4.1 Designated Sites 23

4.2 Habitats and Botanical Interest 23

4.3 Protected Species 23

5 Recommendations **25**

5.1 Further Survey Effort 25

5.2 Licensing 27

6 References **28**

Appendix A - Plans

Appendix B - Plates

Appendix C - Summary Legislation Relating to Badgers, Bats, Black Redstart, Breeding Birds, Otters and Reptiles

Appendix D - Desk Study Data from Greater Manchester Ecology Unit and Greater Manchester Bird Recording Group

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix E - Plant Species Recorded on the Application Site

Appendix F - Bat Roost Assessment Data

Table of Tables

Table 2—1 Bat Roost Assessment Criteria (Collins 2016) 12

Table 3—1 Bat Records Provided by GMEU 14

Table 3—2 Summary of Buildings with Bat Roost Potential 21

Table 5—1 Summary of Recommended Additional Survey Effort 27

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Glossary

Term	Definition
BAP	Biodiversity Action Plan
CRoW	Countryside and Rights of Way
EU	European Union
GMEU	Greater Manchester Ecology Unit
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd
SAC	Special Area of Conservation
SBI	Site of Biological Importance
SSSI	Site of Special Scientific Interest
WCA	Wildlife and Countryside Act

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

1 Introduction

1.1 Background

BuroHappold Engineering was instructed to carry out an ecological assessment of a site in central Manchester at and around the former Mayfield Station complex (hereafter referred to as the 'site').

The site is proposed for re-development, including demolition of the majority of existing structures on the site, refurbishment of some of the older remedial works, and modification of the retaining walls along the River Medlock.

This report details the results of a desk study and site survey and evaluates the results in context of the proposed re-development of the site, making recommendations for mitigation and/or any further survey work as required.

1.2 Site Description

The site boundary includes an area approximately 9.1ha, comprising a series of buildings that are predominantly commercial or light industrial units and associated areas of hard and soft landscaping. Some of the existing buildings are still occupied whilst others have been disused for many years.

The site is surrounded on all sides by dense urban development, with tall buildings and busy roads. Manchester Piccadilly rail station is immediately to the north and the River Medlock flows west to east through the centre of the site.

1.3 Legislative Context

A range of international and national legislation has been established in the UK to protect important nature conservation sites and priority species. At the international level, European Union (EU) Directives require individual member states to implement their conservation provisions nationally for the benefit of Europe as a whole. These Directives have been transposed into UK law by the Conservation of Habitats and Species Regulations 2010[1] (further amended in 2011 and 2012); further details can be obtained from the Joint Nature Conservation Committee (JNCC) website at www.jncc.defra.gov.uk.

Other international conventions include the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving particular protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA) (1981) (as amended) and Countryside and Rights of Way (CRoW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI).

[1] *Please note: the text provides a brief summary of the legislation in England and Wales and the original Acts and any amendments should be referred to for the precise wording.*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

At the national level, the UK Post-2010 Biodiversity Framework published in 2012 is the Government's response to the Convention on Biological Diversity (2010). It describes the UK's biological resources, commits a detailed plan for the protection of these resources within the UK's devolved framework across England, Wales, Scotland and Northern Ireland. The document identifies future priorities for nature conservation and adopts a more strategic approach, including ecosystem services and sustainability alongside biodiversity. Despite administrative changes following devolution, there is still an underlying objective of protecting and enhancing a range of priority species and habitats, often still based on the objectives and classifications of the original UK Biodiversity Action Plan (BAP). Biodiversity 2020 is England's national biodiversity strategy. Building on the Natural Environment White Paper published in 2011, this provides a means of delivering the international and EU commitments to biodiversity. Under Biodiversity 2020, Priority Species and Habitats referred to are those of 'Principal Importance' for the conservation of biodiversity in England listed on Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.

Finally, the National Planning Policy Framework (NPPF), published in 2012 provides guidance for local authorities on the content of the Local Plans and is a material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. Briefly, with an overall focus on sustainable development, the NPPF states that developments should aim to engender positive outcomes for biodiversity, with a particular focus on the maintenance and creation of ecological networks. Furthermore, the NPPF also states that any planning proposals for which significant negative impacts on biodiversity cannot be avoided, mitigated or compensated should be refused. The NPPF states that the planning system should contribute to and enhance the natural environment through a range of actions, including:

- protecting and enhancing valued landscapes, geological interests and soils;
- recognising the wider benefits of ecosystem services; and
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

1.3.1 Protected Species

Details of the protected species legislation relevant to this site can be found in Appendix C.

1.3.2 Invasive Species

Certain non-native species that have been introduced into the UK are regarded as being a threat to native biodiversity. Legislative measures have, therefore, been put in place to prevent the spread of these invasive species in the wild.

Under section 14 of the WCA 1981 (as amended), it is illegal to introduce plants listed under Part II of Schedule 9 of the WCA into the wild or sell these species. Offences include causing the spread of viable plant material or neglecting to contain or appropriately manage non-native species.

Commonly introduced Schedule 9 species include non-native cotoneaster species, specifically, small-leaved cotoneaster *(Cotoneaster microphylla*) and wall cotoneaster (*C. horizontalis*), Himalayan balsam *(Impatiens glandulifera*) and Japanese knotweed (*Fallopia japonica*).

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

2 Methods

2.1 Desk Study

The desk study consisted of a consultation exercise to gather local and site-specific ecological information, the data from which, along with survey results, was used to assess the potential likely effect of the proposed development on habitats and protected species at the site and the surrounding areas.

A request for records of protected and notable species and wildlife sites within 1km of the centre of the site was made to Greater Manchester Ecology Unit (GMEU). A Site Check Report was also undertaken using the online magic.gov website to identify any statutory designated sites within the same radius.

In addition to this, two previous survey reports prepared for the Mayfield Station area of the site by BuroHappold (2009 and 2010) were reviewed for any information that may be relevant to the current assessment.

It is important to note that the desk study results provide an indication of the species present in and around the site, but do not confirm current presence or absence of any particular species. Protected species are often under-recorded in county wildlife databases.

2.2 Phase 1 Habitat Survey

An initial habitat survey was undertaken by experienced ecologists Victoria Burton (ACIEEM)[2] and Hazel Robson (MCIEEM)[3] on 24th November 2016. This is outside the recommended Phase 1 Habitat Survey period of March to October. Some plant species and habitats are not readily identifiable in the winter period. For this reason, walkover habitat surveys were repeated in May and June 2017 to assess if the habitats had changed significantly and identify any vernal and summer species that were not apparent in November 2016.

The survey followed standard methods as set out in the Handbook for Phase 1 Habitat Survey (JNCC 2010) for classifying and mapping British habitats based on the identification of individual plant species. The plant species within the site and their relative abundances are listed in Appendix E, which shows both common and scientific names according to Stace (2010); common names only are referred to in the text.

The extent of each habitat type was mapped in the field, with target notes to highlight any features of particular ecological interest.

2.3 Protected Species Assessment

The survey was 'extended' (Institute of Environmental Assessment 1995, CIEEM 2013) to include a general assessment for the presence or potential presence of protected species, noting any areas of suitable habitat, along with the location and type of any incidental field signs of protected species. In particular, this component of the field survey focused on the potential presence of bats and breeding birds, taking into account any contemporary, relevant desk study records.

[2] *Associate Member of the Chartered Institute of Ecology and Environmental Management.*
[3] *Full Member of the Chartered Institute of Ecology and Environmental Management.*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

In the case of bats, the survey followed current good practice guidelines published by The Bat Conservation Trust (Collins 2016) and was led by ecologist Hazel Robson MCIEEM (Natural England Class 2 Survey Licence: WML-CL18 2015-12600-CLS-CLS).

The survey comprised an assessment of features on each structure that could be used by roosting bats such as small holes and crevices and also features that would provide entry/exit points for bats to access internal areas such as roof voids. A search was made for any evidence of bat presence, such as accumulations of droppings and feeding remains or sightings of the animals themselves. Where safe access was available, the inspection included both internal and external inspection of each structure.

Binoculars (Avian F 8x42), torch (Clulite 1 million candlepower) and endoscope (Rigid Micro CA300) were used to inspect potential roost features where necessary.

The assessment of suitability was based on the broad criteria outlined in Table 2—1 below (Collins 2016), combined with the professional judgement and experience of the surveyor in recognising suitable habitat features and field signs of bats.

Table 2—1 Bat Roost Assessment Criteria (Collins 2016)

Suitability	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically, but does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats. (i.e. unlikely to be suitable for maternity or hibernation.)
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost type of high conservation significance.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Confirmed Roost	A structure with evidence of bat presence, i.e. droppings, feeding remains, audible bat calls heard during daytime survey or sightings of the animals themselves, existing record of bats roosting at the location.

2.4 Limitations

Access into the channel of the River Medlock, which flows through the centre of the site, was limited due to 5m high vertical walls of brick and stone along the entire stretch of the river. The river is also culverted in two sections within the boundary of the site. The river channel could only be observed from a distance from a small number of vantage points, therefore the entire length of the river channel was not observed.

The majority of the structures were fully accessible for inspection. However, several were not, due to health and safety considerations or lack of permission from tenants. At least a partial external assessment was possible in all cases and where further investigation is required to provide a robust assessment this is discussed in the evaluation and recommendations sections.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

3 Results

3.1 Desk Study

Desk study data for designated sites, habitats and species are described in further detail under the sub-headings below, with maps to illustrate locations of various features provided in Appendix D.

3.1.1 Statutory Protected Sites

3.1.1.1 Special Area of Conservation

Special Areas of Conservation (SACs) are protected sites with strict conservation protection, designated under Article 3 of the European Commission Habitats Directive.

There are no SACs in the 1km search area for the site. However, certain stretches of the Rochdale Canal, which is approximately 400m to the north of the site, have been designated a SAC and SSSI (Site of Special Scientific Interest) because it supports the European Protected Species floating water plantain (*Luronium natans*)[4]. It also has a population of white-clawed crayfish (*Austropotamobius pallipes*), which has some legal protection and American pondweed (*Potamogeton epihydrus*), which is a red data book species[5]. Furthermore, sections of the Ashton Canal to the north of the site have floating water plantain and the nationally scarce grasswrack pondweed (*Potamogeton compressus*), both of which are UK Biodiversity Priority Species (refer to Appendix D Maps 1, 2 and 5).

3.1.1.2 Site of Special Scientific Interest

SSSIs are statutory sites designated to support species of plants and animals that find it more difficult to survive in the wider environment. They represent a selection of this country's best wildlife and geological sites, and cover approximately 7% of the terrestrial area of the country (with over 4,000 separate sites in England).

There are no SSSIs in the search zone for the site, although note Section 3.1.1.1.

3.1.2 Non-Statutory Protected Sites

3.1.2.1 Site of Biological Interest

Sites of Biological Interest (SBIs) have no legal protection, but do receive some protection through different policies and they must be taken into consideration by the planning authority when planning applications affect the site. SBIs are assigned one of three grades:

- Grade A SBIs are of county or regional importance (assumes a presumption against development);
- Grade B SBIs are those of district importance; and
- Grade C SBIs are those of local importance.

[4] *Floating water-plantain is protected under Schedule 8 of the WCA 1981. It is also protected under the European Communities Directive 92/43/EEC, on the Conservation of Natural Habitats and of Wild Fauna and Flora - the Habitats Directive and is a S41 priority species.*

[5] *The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red Data List) is an inventory of the global conservation status of biological species.*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Rochdale Canal, Stott's Lane - Ducie Street Basin and Ashton Canal approximately 400m to the north are both Grade A SBIs. As stated earlier the Rochdale Canal supports regionally important aquatic habitat and species, including internationally important populations of floating water plantain and the Ashton Canal is recognised as important for its submerged aquatic flora (refer to Appendix D Map 1).

3.1.2.2 Regionally Important Geological and Geomorphological Sites (RIGS)

Regionally Important Geological and Geomorphological Sites (RIGS) are locally designated sites of local, regional and national importance for geodiversity and protect important Earth Science and landscape features. They are conserved and protected from development as a material consideration through the planning system.

There are no RIGS within the search zone for the site.

3.1.3 Protected and Notable Species

3.1.3.1 Badgers

There are two records of unspecified badger signs within the search area. Please note that information related to badgers and their setts is confidential and the map provided by GMEU showing the location of the signs is not included in the appendices for this reason.

3.1.3.2 Bats

Table 3—1 shows the number of each species of bat recorded in the search zone and the proximity to the site of the closest roost for each. The most recorded species in the area are common pipistrelle (*Pipistrellus pipistrellus*) and unspecified pipistrelle species (*Pipistrellus* sp.), and a pipistrelle roost is the closest roost to the site (refer to Appendix D Map 4).

Table 3—1 Bat Records Provided by GMEU

Species		No. Roosts	Closest Record of Roost (m)	No. other Signs	Closest Record of Sign (m)
Common Name	**Latin Name**				
Common pipistrelle	*Pipistrellus pipistrellus*	2	850	13	80
Daubenton's bat	*Myotis daubentonii*	0	n/a	1	850
Soprano pipistrelle	*Pipistrellus pygmaeus*	1	370	0	n/a
Pipistrelle species	*Pipistrellus sp.*	6	On site	7	500
Bat species	*Chiroptera sp.*	0	n/a	3	80

The majority of the records returned are for pipistrelle species. There are two native species - common pipistrelle and soprano pipistrelle (*Pipistrellus pygmaeus*). The common pipistrelle is one of the UK's most common bat species, found in a wide range of habitats including suburban and urban habitats. Soprano pipistrelle is also widely distributed across the UK. The soprano pipistrelle record is close to the Rochdale Canal, which is consistent with its preferred feeding habitat by water and the invertebrates it attracts. Where the distinction between the two species has not been made, they are recorded as pipistrelle species. Daubenton's bat (*Myotis daubentonii*) characteristically flies and forages over water, and the record is close to the Ashton Canal to the north of the site.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

There is a record for a pipistrelle roost within the site in the old station (grid reference SJ 8503 9768) and two records of pipistrelle roosts immediately to the north of the site.

3.1.4 Section 41 Species

Some of the rarest and most threatened species are listed under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act and Species of Principal Importance. The Government's Biodiversity 2020 strategy has an ambition to ensure that by 2020 there will be an overall improvement in the status of wildlife and further extinctions of known threatened species. To achieve this, a range of actions have been identified to help in the recovery of S41 species.

3.1.4.1 West European Hedgehog

West European hedgehog (*Erinaceus europaeus*) is classed as a Species of Principal Importance under Section 41 of the NERC Act 2006. Surveys in urban and rural areas indicate falling numbers of hedgehog.

There is a single record for West European hedgehog in the search area, approximately 300m to the south-west of the site, close to the Mancunian Way (refer to Appendix D Map 5).

3.1.4.2 Birds

There are five records for dunnock (*Prunella modularis*), which is also an Amber[6] listed species. They prefer gardens, parks and greenspace and the records are largely from parks and the grounds of buildings. There are four records for Red listed house sparrow (*Passer domesticus*) and common starling (*Sturnus vulgaris*) and two records for song thrush (*Turdus philomelos*). These species were listed because of a decline in the UK population of over 50%. However, they are relatively common species (refer to Appendix D Map 5).

3.1.4.3 Schedule 1 Bird Species

All breeding birds are protected under Section 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended). This protection extends to killing and injuring, and to the destruction of nests, eggs or chicks. Additional protection is offered to bird species listed in Schedule 1 of the WCA 1981, which are protected, for example, from disturbance whilst nesting or attempting to make a nest. The Countryside and Rights of Way (CRoW) Act 2000 makes it an offence to recklessly disturb, in addition to intentionally disturb, Schedule 1 species.

Records of three Schedule 1 species have been provided by GMEU in the search area: black redstart (*Phoenicurus ochruros*), common kingfisher (*Alcedo atthis*) and little ringed plover (*Charadrius dubius*) (refer to Appendix A Figure 1 and Appendix D Map 2).

A section of the site falls within the Black Redstart Priority Area. This identifies an area in central Manchester where the black redstart has been recorded. This species is a rare breeder, passage migrant and winter visitor with a small population concentrated in London and the West Midlands. There are also records of black redstarts attempting to breed in the Piccadilly Basin area of Greater Manchester. A Species Action Plan (Greater Manchester Biodiversity Project 2009) aims to maintain a breeding population in Greater Manchester.

[6] *The UK's birds can be split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green.*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

There are 12 records for black redstart largely to the north-west of the site, the closest being approximately 300m to the north. Appendix A Figure 1 shows the location of records for black redstart based on data provided by GMEU. The Manchester Birding Forum website has, over the late spring and summer of 2016, reported many records of black redstart in the city centre both as sightings and birds heard singing. Some of the locations include the Town Hall, Albert and Lincoln Square and the Manchester Art Gallery (Manchester Birding Forum 2016).

There is a single record of common kingfisher in the search area. Common kingfisher is found by still and slow-flowing water, such as canals and rivers, and they nest in holes tunnelled into earth banks. The closest record is about 900m to the west of the site on a canal branch off the Rochdale Canal next to the Bridgewater Hall.

There is a single record for little ringed plover at a brownfield site by Ancoats Canal Basin approximately 800m to the north of the site. Little ringed plover first bred in the UK in 1938. They are summer visitors and breed in unvegetated man-made habitats such as industrial and post-industrial land, gravel pits and shingle river banks.

3.1.4.4 Plant Species

Grass-wrack pondweed is a Species of Principal Importance. It has been recorded at the Ashton Canal and in one of the canal's branches, approximately 600m and 800m to the north of the site (refer to Appendix D Map 5).

European Protected Species floating water plantain is recorded in the Ashton Canal approximately 800m to the north-east of the site.

3.1.5 Other Protected Species

No other records were returned for protected species e.g. otter, invertebrates, reptiles or amphibians.

3.2 Phase 1 Habitat Survey

3.2.1 Main Habitat Types Present

The site chiefly comprises the following habitats, as shown on the Extended Phase 1 Habitat map (Appendix A Figure 2):

- hardstanding;
- buildings;
- spoil;
- ephemeral short perennial vegetation;
- broadleaved scattered trees;
- scattered scrub;
- tall ruderal;
- semi-improved neutral grassland;
- introduced shrub;
- amenity grassland;

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

- hedgerow;
- broadleaved semi-natural woodland; and
- running water (River Medlock).

Plant species recorded are listed in Appendix E, and a selection of illustrative photographs of the site are presented in Plates 1 to 16 (Appendix F).

The site is broadly separated into three main areas. The northern boundary is occupied by a former railway station building, platform and associated track bed. This area is at a raised level compared to the rest of the site. Immediately to the south of the former railway station complex is an area known as Colourgates Yard, which is at street level. The remainder of the site is a complex of buildings, mainly warehouses.

Built Structures and Hardstanding

A large proportion of the site is flat hardstanding. In the northern section, this reflects the site's former use as a railway station. Throughout the remainder of the site there are roads, pavements and car parks.

The site has a number of built structures of varying ages and styles. For ease of reference, these have been numbered B1, B2, B3 etc. as illustrated on Appendix A Figure 2: Phase 1 Habitat Plan and Appendix A Figure 3: Bat Roost Assessment Plan.

The structures are described in further detail in relation to their potential use by roosting bats and nesting birds within those sections of this report.

Spoil

Towards the south-eastern corner of the site is an Aggregate Recycling Yard, which is in constant use, and consequently no vegetation is present on the spoil mounds.

Ephemeral - Short Perennial Vegetation

Throughout the site, small patches of ephemeral short perennial vegetation have developed within gaps and crevices in the hardstanding. The vegetation is most extensive where surfaces have fallen into disrepair.

The vegetation is not dominated by any particular species, instead comprising a mixture of mostly low-growing species, such as willowherb, Mugwort and Michaelmas-daisy. The vegetation consists of both widespread and common species that are typically found in wasteland habitats.

Scattered Broadleaved Trees

A number of broadleaved trees are present, ranging from immature to mature and comprising a variety of species, including ash, sycamore and willow. The most mature trees occur along the south-eastern boundary with the Mancunian Way, where there is a row of planted poplars. They are approximately 15m in height and appear to be in good condition.

The River Medlock runs through the centre of the site and the edges of the river corridor are lined with a range of tree species, including ash, sycamore and elder.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Tall Ruderal Vegetation

Scattered mainly throughout the southern section of the site are areas of tall ruderal vegetation that have developed in areas that have not been in use or managed for some time, including the frontages and footprints of former buildings. Tall ruderal vegetation is most extensive within Colourgates Yard, immediately south of the former railway station complex. The vegetation is not dominated by any particular species and includes common nettle, creeping thistle and rose-bay willowherb. The vegetation composition is not species-rich and consists of common and widespread species.

Scattered Scrub

There are small patches of scattered scrub, dominated by bramble, throughout the site that are associated with similar areas to the tall ruderal vegetation, as shown on the Phase 1 Habitat map (Appendix A Figure 2).

Semi-improved Neutral Grassland

Within the southern section of the site, small patches of semi-improved neutral grassland are present. This has developed in Colourgates Yard, which has remained undeveloped for some time and also within the wider part of the site, where areas of the hardstanding have degraded. The most dominant grass is creeping bent, with Yorkshire fog locally abundant and cock's-foot locally occasional. There are a variety of forbs present, including dandelion, creeping buttercup, colt's-foot and evening primrose, some of which suggest that the grassland is a succession habitat from ephemeral short perennial vegetation. The grassland is not species-rich.

Introduced Shrub

Throughout the site butterfly-bush occurs frequently. It has established within gaps in the hardstanding surface, resulting in a scattered occurrence across the entire site, including the former railway platform. It is also present within gaps in the mortar of walls and buildings. It frequently occurs within other semi-natural habitat types, including the edges of the river corridor.

There are a small number of amenity planting areas, associated with the buildings in the southern section of the site, dominated by non-native shrubs comprising cherry laurel and Oregon-grape.

Amenity Grassland

There are a small number of blocks of amenity grassland within the southern part of the site and the north-western corner. These formal landscaping areas are associated with car parks and buildings and are regularly mown. The species composition is poor and typical of sown grasslands, with perennial rye-grass abundant and few forbs present.

Hedgerow

There is a solitary cherry laurel hedge planted towards the north-west corner of the site, which provides one of the boundaries to a car park.

Semi-Natural Broadleaved Woodland

Within the former railway station complex, the southern edge of the platform supports young birch woodland. The trees are a similar age and height. There is very little understorey, with some bramble present.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Another small area of birch woodland is present on the southern border that appears to have remained undeveloped for some time and is bordered on all sides by a combination of walls and fences. The trees are more mature and less dense than those within the railway platform and are approximately 10m in height. Silver birch is dominant with a small number of saplings present as an understorey of sycamore and holly. The understorey is sparse and dominated by bramble.

A block of woodland has developed within the footprint and immediate surroundings of a demolished building, of which only some of the external walls remain. A mixture of mature and semi-mature trees are present including sycamore, ash and willow. The woodland is quite dense, with little understorey.

Running Water

The River Medlock runs through the centre of the site. It is heavily engineered, with 5m high vertical walls of brick and stone and there are two culverts. Because of this, the river was difficult to survey, but from limited observation the river appeared to be fast-flowing, with no in-channel vegetation. There are silt banks on the inside of the meanders, which are colonised mainly with Japanese knotweed.

3.2.2 Invasive Non-native Species

Four species listed on Schedule 9 are present within the site: Japanese knotweed, Himalayan balsam, wall cotoneaster and Himalayan cotoneaster. The locations of these species are shown in the Phase 1 Habitat map (Appendix A Figure 2) as Target Notes 1 to 3.

Japanese knotweed is present on the silt banks of the River Medlock in a number of locations. As access to the river was limited, the full extent of Japanese knotweed is likely to be greater than is shown on the Phase 1 Habitat map. Japanese knotweed was not found to be present in any area of the site outside of the river channel.

Himalayan balsam was observed in a variety of locations within Colourgates Yard, including the top of the river corridor. There was also an individual plant growing within a gap in the hardstanding at the north-western corner of B3. There are no large stands of Himalayan balsam, with either individual plants or clusters of several plants noted. However, as access to the River Medlock was limited, the possibility of Himalayan balsam along the river channel cannot be excluded, particularly as it was recorded in this location in previous surveys of the site in 2010.

Three individual plants of wall cotoneaster are located towards the southern edge of the former railway platform. Two further cotoneaster plants are located in two separate locations within the southern section of the site. The exact species could not be confirmed as there are many similar species of cotoneaster, and both flowers and fruits are required for positive identification. However, the species within the hedgerow is likely to be Himalayan cotoneaster, which is a Schedule 9 species.

3.3 Protected Species Assessment

The potential of habitats on site to support protected species or notable are set out below.

3.3.1 Birds

The site visit was carried out at a time of year when bird activity is generally low and summer visitors are absent. Nevertheless, a small level of activity was observed during the site visit. Two grey wagtails (*Motacilla cinerea*) were observed flying over the River Medlock, close to the road bridge at Baring Street, and the dilapidated retaining walls along the river corridor are likely to provide nesting opportunities.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

A wren (*Troglodytes troglodytes*) was singing within the vegetation to the north-west of B3. In addition, a feral pigeon (*Columba livia*) was seen flying within the lower level of B2.

The semi-natural habitats and some of the buildings provide suitable foraging and nesting habitat for a range of species. In particular, the river corridor and the areas of woodland and scattered trees, within which disused birds' nests, likely corvids, were observed indicating previous breeding (see Appendix A Figure 2 Target Note 4). The former railway station buildings (B1 and B2) and also B7, in the south-western corner of the site offered potential nesting areas, in particular for feral pigeons.

It is considered the site provides suitable habitat for black redstart, a rare protected species known to breed within Manchester city centre, and part of the site is within the Black Redstart Priority Area. The species has a Manchester Species Action Plan and has bred or attempted to breed within the Piccadilly Basin area, approximately 500m north of the site, every year between 1992 and 2007 except for 2003.

The River Medlock provides suitable foraging habitat for common kingfisher, another protected species, and the tenant of B6, which is adjacent to the river, related having found a common kingfisher inside the warehouse.

Much of the brick and stone retaining walls along the banks within the site were considered unlikely to offer nesting opportunities for common kingfisher, which burrow into mud on vertical banks. However, in several areas where the retaining walls were in poor condition or partially collapsed there were gaps between the blocks that may provide access to the earth behind and therefore potential nesting sites.

3.3.2 Badger

No signs of badger were observed during the survey. A small number of partially used mammal holes were located within the birch woodland towards the southern edge of the former railway platform (Target Note 6 on the Phase 1 Habitat map and Plate 4). These were considered likely to be used by fox, with one observed in the immediate vicinity during the survey. A strong smell of fox was detected in the area and the holes are not of the typical size and shape of badger sett entrances.

Previous surveys of the site in 2009 and 2010 highlighted a possible badger sett entrance within the same birch woodland though subsequent monitoring revealed no evidence of use by badgers.

3.3.3 Otter and Water Vole

No signs of water vole or otter, such as burrows, latrines or spraints were found on the sections of the River Medlock. However, as noted earlier access to the river channel was limited and a comprehensive survey of the river channel could not be conducted. Given the engineered character of the river in this area, it is unlikely there would be any otter holts present, although there is the possibility that otters could use the river for commuting.

There were few obvious opportunities for water voles to create burrows due to the brick and stone retaining walls, with limited suitable vegetation for feeding, little cover and culverted sections. The site was considered to provide very poor habitat for water vole.

3.3.4 Bats

The majority of the trees are relatively immature and none provide potential roost features such as woodpecker holes or crevices in dead wood that could be used by bats.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Of the built structures illustrated on the site plan the majority were light industrial or commercial buildings with open plan warehouse style interiors and no roof voids. These provide no potential roost features for bats within the roof structure or interiors. The external walls of some of the units did have crevice features (B8, B10a and B6) suitable for use by species such as pipistrelle bats.

B13 to B17 are relatively modern structures of brick and metal with no features suitable for use by bats on the interior or exterior.

The former Mayfield Station complex (B1 and B2) has crevice features and internal areas that could be used by bats. There is also an existing record of a pipistrelle roost on B2, although the exact location is not specified within the data this was considered likely to be on the external façade. Due to health and safety considerations, the interior rooms of B1 were not accessible for inspection.

B23, situated at the eastern end of B2 at the platform level, has crevice features and access to the interior, which was not accessible for inspection.

B7 has features suitable for crevice-dwelling bat species, including gaps in the brickwork, behind damaged fascia boards and also access to the internal rooms and basement, although no evidence of bat droppings or feeding remains was found inside.

The culvert over the River Medlock (B24) also provides potential roost habitat for bats, considered likely to be similar to conditions to a known common pipistrelle roost location within a culvert at a nearby site that has been surveyed by Penny Anderson Associates (PAA).

The buildings with roost potential are briefly identified in Table 3—2 below, and full notes on all of the structures surveyed are provided in Appendix F.

Table 3—2 Summary of Buildings with Bat Roost Potential

Building No.	Description	Roost Status
B1	Mayfield Station	High Potential
B2	Mayfield station platforms and warehouses	Confirmed Pipistrelle Roost (desk study record) High Potential throughout rest of structure
B6	Northern wall of industrial unit above retaining wall on River Medlock	High Potential
B7a	Disused industrial units (former Towbar Centre)	Moderate Potential
B7b	Disused industrial units (former Towbar Centre)	Negligible Potential
B7c*	Industrial unit used by church group as a meeting room/place of worship.	Negligible Potential
B8*	Brick warehouse/office units with pitched slate roof	Moderate Potential
B10a*	Brick warehouse/office units with pitched slate roof	Moderate Potential
B23*	Small brick building at end of station platforms	High Potential
B24**	Culvert	High Potential
B26**	Culvert	High Potential

*These buildings were subject to external assessment only due to lack of access permission for internal inspection. Full inspection will be required to establish presence and/or suitability of roof voids and other potential roost features.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

**If feasible, an inspection of the interior of the culvert would be useful to identify the nature of any potential roost features within the structure and to search for evidence of bat presence.

3.3.5 Other Protected Species

The River Medlock has some suitable habitat for white-clawed crayfish (Austropotamobius pallipes) as the river is fast-flowing and boulders and large stones are present within the river bed. However, no records of white-clawed crayfish were returned from the desk study.

Brownfield sites in urban areas can sometimes provide suitable habitat for reptiles. The semi-natural habitats surrounding the former railway station complex, including Colourgates Yard immediately to the south, provide some habitats suitable for reptiles for foraging and also potential refuge and hibernacula features. However, given the isolation by urban development, it is considered highly unlikely that reptiles are present within the site.

There are no records of great crested newt (GCN) within 1km of the site. There are no suitable breeding ponds within or near to the site and the site is isolated by urban development and the river, which would present a barrier GCN dispersal. It is therefore considered unlikely that the site supports GCN.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

4 Evaluation

4.1 Designated Sites

The desk study identified a number of protected sites within the search area. However, these were considered to be sufficiently distant and isolated from the site not to be impacted by the development proposals.

4.2 Habitats and Botanical Interest

The Phase 1 Habitat Survey highlighted no areas of habitat of nature conservation interest. Plant species recorded were common, some of which are typical of urban brownfield sites

Previous surveys of the site in 2009 and 2010 identified a sizeable colony (approximately 300 flowering spikes) of southern marsh orchid (*Dactylorhiza praetermissa*) growing on ballast south of the southernmost platform of the former railway station. No orchids were found during the November 2016 Phase 1 Habitat Survey but many southern marsh-orchids were found to be present between June and August 2017 where they had been recorded before. Although orchids are prized for their appearance they are not afforded special protection.

4.3 Protected Species

4.3.1 Birds

Some potential for foraging and nesting birds, including black redstart, was identified on site with a small number of disused birds' nests observed.

All breeding birds, their nests, eggs and dependent young are protected by law, which may have implications for the scheduling of site clearance activities. In addition to this, black redstart and common kingfisher receive additional protection under Schedule 1 of the Wildlife and Countryside Act 1982 (as amended), and if either species are nesting on site then works affecting the nests may be licensable.

The semi-natural habitats and some of the buildings were considered to provide suitable foraging and nesting habitat for a range of species, including black redstart and common kingfisher. The distribution of breeding black redstart is concentrated in city centre areas notably London, Birmingham, Sheffield and Manchester. The black redstart is a rare passage migrant, one of the rarest breeders in the UK and a Schedule 1 species afforded special protection. They are known to breed in small numbers in Greater Manchester and the site provides potential foraging and nesting habitat.

4.3.2 Otter

The section of the River Medlock that flows through the site has the potential to support commuting otters. Otters are protected under the Wildlife and Countryside Act (WCA) 1981 and are also European Protected Species (EPS) and so are protected under the Conservation of Habitats and Species Regulations 2010.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

4.3.3 Bats

Several of the built structures within the site were considered to provide potential roost features for bats. Due to the urban location and the nature of the potential roost features, the most likely species to be present would be common pipistrelle. In addition to this, there is an existing record of a pipistrelle roost on B2 and it is considered unlikely that the refurbishment of this structure could take place without impacting on the roost.

Where roosting bats are present in these structures, their demolition or refurbishment could result in disturbance or loss of the roost(s) as well as presenting a risk of causing harm to individual bats, all of which would be an offence under current wildlife legislation.

The mosaic of vegetated areas was considered to provide an island of semi-natural habitats within the densely development urban landscape, with the river corridor providing a link to other suitable areas within the city. Bat surveys carried out by PAA at other sites within central Manchester have revealed the network of rivers and canals to be a well-used foraging and commuting resource for bats.

Modification of the habitats within the site and in particular any increase in artificial lighting could reduce the value of these areas to foraging bats and potentially fragment the important river corridor that links bat habitats throughout the city.

Section 5 of this report recommends additional survey effort that would be required to provide sufficient information to inform the impact assessment and, if necessary, an appropriate mitigation strategy.

4.3.4 Other Protected/Notable Species

Due to a lack of suitable habitat and/or isolation from other potential habitats, no other protected species are anticipated to be affected by the proposals.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

5 Recommendations

5.1 Further Survey Effort

The following additional surveys are recommended to enable a full assessment of the likely impacts arising from the proposals on protected species, to inform suitable mitigation strategies and highlight any need for licensing by Natural England.

All surveys must follow best practice methods that are relevant at the date of survey and must be undertaken within the correct survey season by appropriately experienced and equipped ecologists.

5.1.1 Bats

In line with current good practice guidelines (Collins 2016), obligations under national planning policy and current wildlife legislation, when assessing any planning application, the Local Planning Authority will require a detailed evaluation of the predicted impacts on bats that would arise from the proposals, including the type of any roost(s) present and the number and species of bats using the roost(s).

Structures B1, B7a, B8, B10a, B23, B24 and part of B6 have been assessed as providing Moderate/High suitability for bats and there is an existing record of a bat roost on B2. Therefore, the following additional surveys are recommended to confirm presence/likely absence of roosting bats, to determine the exact location of the roost previously identified on B2 and to characterise the nature of any roost, including species present and approximate number of individuals.

- Two/three dusk emergence or dawn re-entry surveys for each structure during the bat active season May to September (inclusive), with at least two of the visits before the end of August.

The following additional activity surveys are recommended to investigate the value of the site to foraging and commuting bats and to identify any key flight routes that may be adversely impacted by fragmentation caused by factors such as new lighting.

- Two walked transect surveys, to be carried out during the spring and summer periods; and
- Monitoring using automated detectors for periods of at least 10 nights during the spring and summer periods.

In the context of bat surveys, spring is typically considered to be April/May and summer June/July/August.

5.1.2 Breeding Birds

It is recommended that surveys for breeding birds are carried out, including sufficient effort to detect presence of common kingfisher and black redstart.

The breeding bird survey should follow standard methods based on those devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC) (Gilbert et al. 1998) and breeding evidence categories (EOAC 1979).

Black redstart is subject to a Species Action Plan in Greater Manchester and in the circumstances where there is a habitat suitable for breeding a survey protocol is prescribed (Greater Manchester Biodiversity Project 2008).

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

- Black Redstart - walked transect to be carried out two hours before dawn on three separate occasions between April and July with each visit being at least one week apart; and
- Breeding Bird Survey - walked transect to be made immediately after dawn on three separate occasions late-March and early-July, with at least two hours survey effort and at least four weeks between each survey.

It should be feasible to combine these transects to three site visits, commencing with survey for black redstart before dawn and then continuing with the main breeding bird survey immediately after.

5.1.3 Otter

There is currently no published methodology for undertaking otter surveys, although a range of publications relating to otter ecology and conservation do exist (e.g. Environment Agency 1999; Highways Agency 2001; Chanin 2003). Otter surveys can be undertaken at any time of year, although surveys should not take place immediately after spate conditions, as field signs such as spraint and footprints may be washed away.

One survey visit is required to determine the possible use of the site by otters, comprising a search of suitable features within the river corridor where otters may leave spraints and/or footprints. Consideration should be given in the development design if otter are using the site for commuting to ensure that this can continue.

5.1.4 Other Protected Species and Habitats

Additional surveys or special measures for other protected species are not considered necessary.

The River Medlock is currently a highly engineered watercourse with a consequent reduction in morphological diversity. The physical character of a river and ecological value are linked in that a diverse geomorphology in terms of features and processes supports a greater biodiversity. The re-development of the site offers opportunities to reinstate natural features to increase biodiversity and aesthetic appeal. It is recommended that a river habitat survey is completed to achieve a better understanding of the present condition of the channel and fluvial processes that operate to inform an improved design as an element of the redevelopment

5.1.5 Invasive Non-native Species

It is recommended that advice is sought to implement the safe removal and disposal of Japanese knotweed, Himalayan balsam and cotoneaster as they are invasive Schedule 9 species. Similarly, if any other invasive, non-native species colonise the site, appropriate control and eradication measures to prevent spread of the species would need to be implemented.

5.1.6 Summary of Recommended Additional Survey Effort

Based on the survey results, some further survey effort will be required to fully investigate presence/likely absence of protected species. This information is necessary to inform the assessment of impacts arising from the proposals and to enable an appropriate mitigation strategy to be devised. A summary of these additional surveys are provided in the Table 5—1.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Table 5—1 Summary of Recommended Additional Survey Effort

Species / Subject	Survey Type and Rationale	Survey Season
Bat roosts	Emergence / re-entry surveys to confirm presence / likely absence of these EPS.	May to September (inclusive)
Bat foraging/ commuting activity	Walked transect / automatic detectors to establish foraging/commuting use of site	April to October (inclusive)
Black redstart	Establish whether this protected species is nesting within the site.	April-July
River Habitat Survey	River habitat survey and fluvial audit to determine present state and inform river restoration design.	Anytime but best when vegetation is not too dense

5.2 Licensing

As there is an existing record of a pipistrelle bat roost in B2, works to this structure may require licensing by Natural England, depending on the nature of the impacts to the roost. In the event that bat roosts are confirmed on any other structures, works affecting those roost(s) may also require licensing.

In the event that black redstarts are confirmed to be breeding on site, any works affecting the nest sites may require a licence from Natural England.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

6 References

Buro Happold, 2009. *Mayfield Station: Preliminary Ecological Appraisal*.

Buro Happold, 2010. *Mayfield Station: Protected Species Surveys*.

Chanin, P.R.F., 2003. *Ecology of the European otter Lutra lutra*. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature.

CIEEM, 2013. *Guidelines for Preliminary Ecological Appraisal*. Technical Guidance Series. Chartered Institute of Ecology and Environmental Management.

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

Environment Agency, 1999. *Otters and River Habitat Management*. Environment Agency.

EOAC, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Gilbert, G., Gibbons, D.W. and Evans, J., 1998. *Bird Monitoring Methods*. RSPB.

Greater Manchester Biodiversity Project, 2008. *Black Redstart Species Action Plan*.

Highways Agency, 2001. Volume 10 Environmental Design and Management. Section 4 Nature Conservation, Part 4, ha 81/99*, Nature Conservation Advice in Relation to Otters*.

Institute of Environmental Assessment, 1995. *Guidelines for Baseline Ecological Assessment*. E & F.N. Spon, an imprint of Chapman & Hall.

Joint Nature Conservation Committee, 2010. *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*. Joint Nature Conservation Committee (revised edition 2010).

Manchester Birding Forum, 2016. http://96752.activeboard.com/t28378416/black-redstarts-in-manchester-city-centre/

Stace, C., 2010. *New Flora of the British Isles*. Third Edition. Cambridge University Press.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

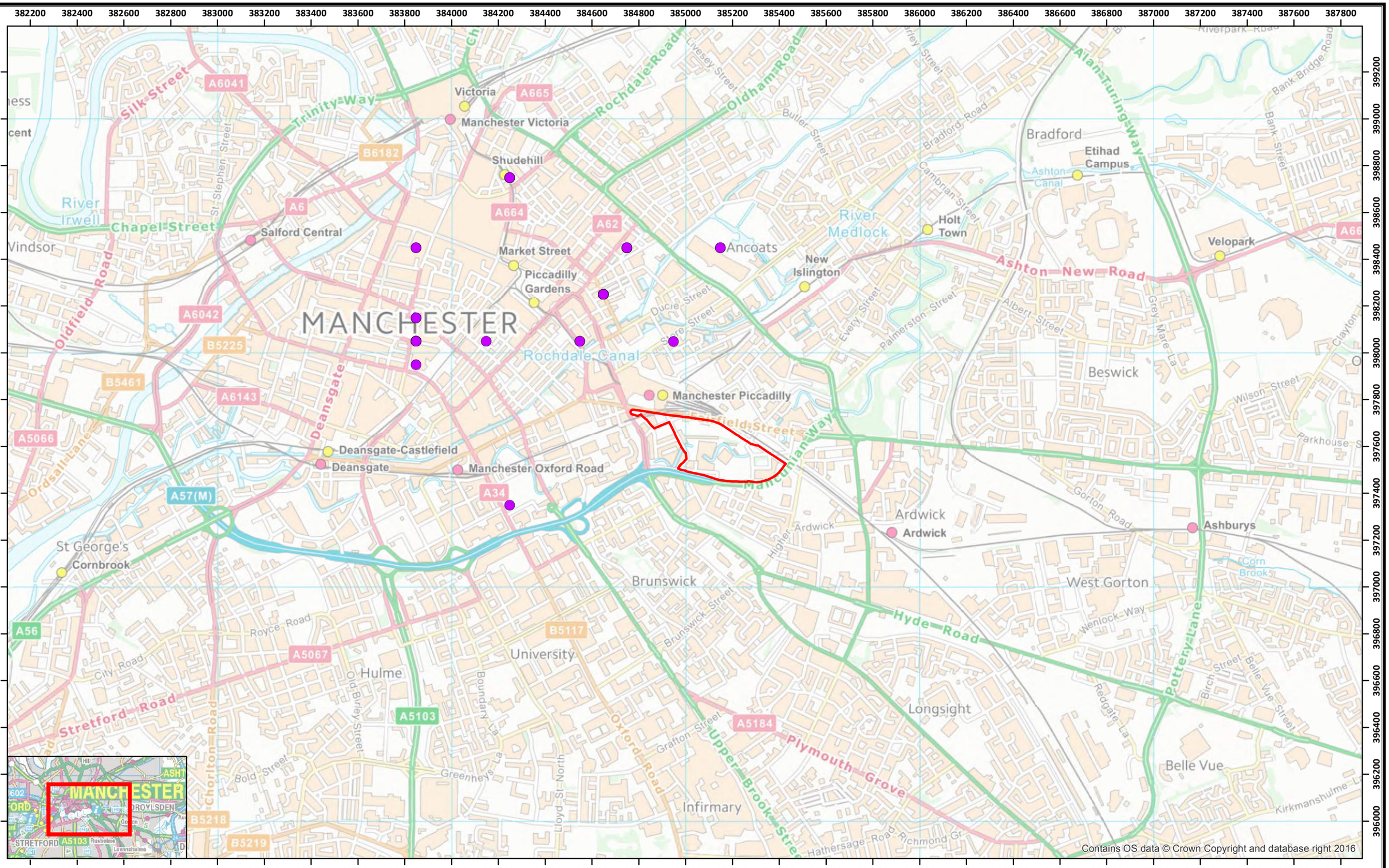
Appendix A - Plans

Figure 1: Black Redstart

Figure 2: Phase 1 Habitat Map

Figure 3: Bat Roost Assessment

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.



BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

Metres

0 2450

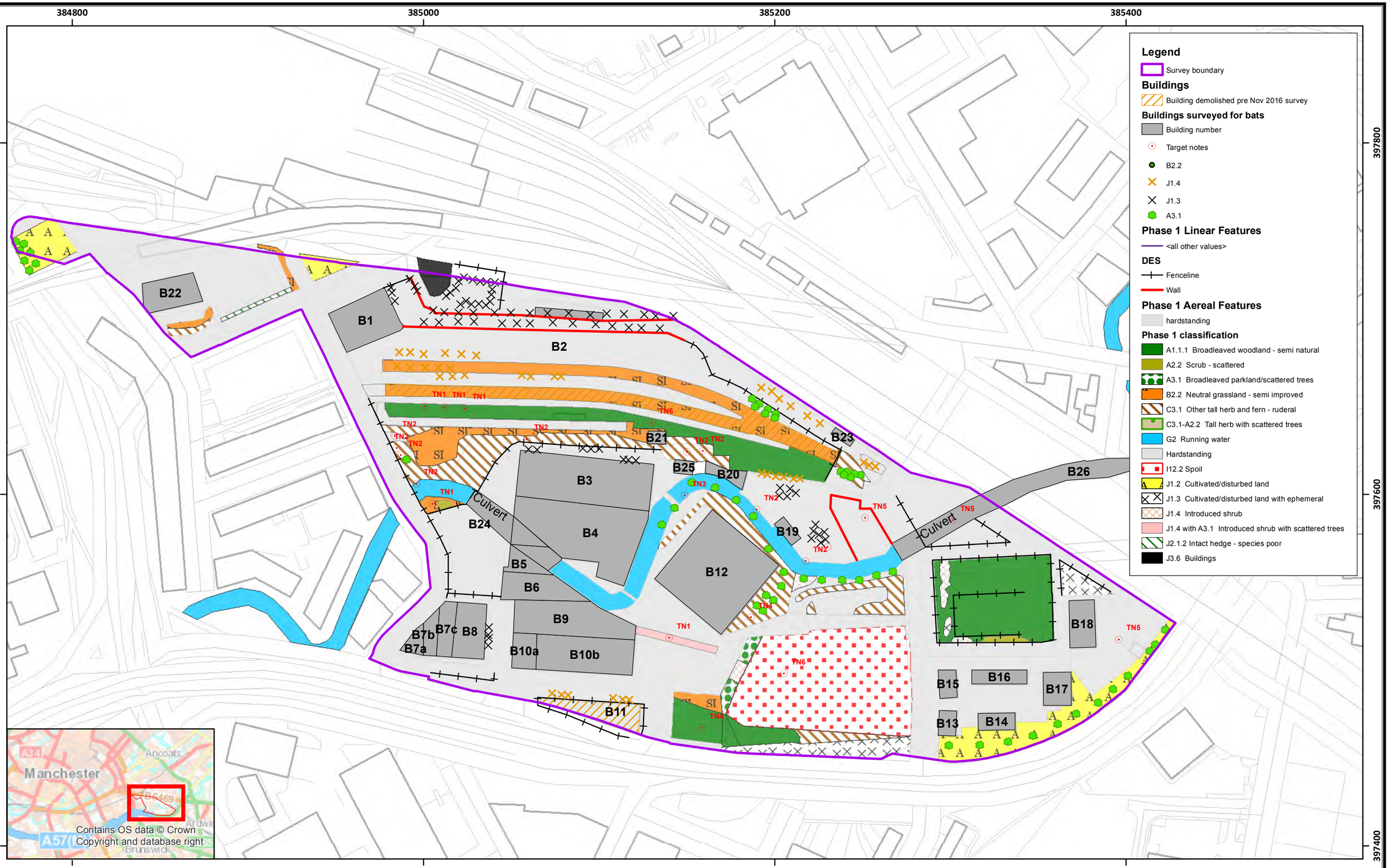
Legend

- Site_Boundary
- XYMayfield_Black_Redstart

Title:

BLACK REDSTART

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:15,000	Drawing No.	Figure 1
Drawn By	CC	Originator	VB
Date	JAN 2007		
PAA Ref.	G:\PRLG01_Middlewich_Rd_Northwich\Maps	Revision	A



BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

Metres

0 5 10 20 30 40 50

TARGET NOTES:

TN1 - Cotoneaster
TN2 - Himalayan balsam
TN3 - Japanese knotweed
TN4 - Old birds nest
TN5 - Scrap yard
TN6 - Aggregate recycling yard

Title:

PHASE 1 HABITAT MAP

Project Name	Mayfield Station, Manchester
Discipline	Ecology
Scale	1:2,000
Drawing No.	Figure 2
Drawn By	JL
Originator	VB/HR
Date	DEC 2016
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps
Revision	A

384800 385000 385200 385400

397800

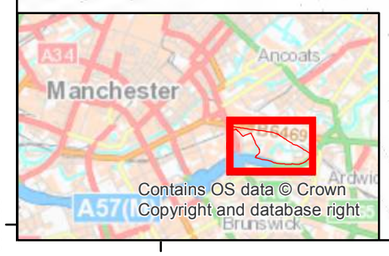
397600

397400

B22 B1 B2 B23 B21 B25 B20 B3 B4 B5 B6 B9 B10a B10b B7a B7b B7c B8 B24 B19 B12 B26 B18 B15 B16 B17 B13 B14 B11

Culvert

Culvert



384800 385000 385200 385400

BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

Metres

0 5 10 20 30 40 50

Survey boundary

Desk study record of Pipistrelle roost

No access for survey

Building demolished pre Nov 2016 survey

High potential

Moderate potential

Negligible potential

Title:

BAT ROOST ASSESSMENT

Project Name	Mayfield Station, Manchester
Discipline	Ecology
Scale	1:1,750
Drawing No.	Figure 3
Drawn By	JL
Originator	VB/HR
Date	DEC 2016
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps
Revision	A

Appendix B - Plates

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.



Plate 1 - North western corner, looking north west



Plate 2 - Western section of the former railway station platform, looking east



Plate 3 - Vegetated former railway tracks, looking towards dense birch woodland



Plate 4 - Partially used fox hole within birch woodland of the former railway platform



Plate 5 - Wall cotoneaster within birch woodland of the former railway platform



Plate 6 - Eastern section of the former railway station platform, looking east



Plate 7 - View of Colourgates Yard, looking east



Plate 8 - Himalayan balsam within Colourgates Yard



Plate 9 - Typical view within the southern section of the site, showing a mix of hardstanding, buildings and scattered vegetation



Plate 10 - Himalayan cotoneaster within the southern section of the site



Plate 11 - Typical view of the semi-natural habitats present within the southern section of the site



Plate 12 - A section of the River Medlock towards the centre of the site, with Japanese knotweed on the banks



Plate 13 - Northern edge of the silver birch woodland on the southern site boundary



Plate 14 - Disused birds' nests within the silver birch woodland



Plate 15 - Northern edge of the woodland towards the south eastern corner of the site



Plate 16 - Mature poplars along the south eastern boundary

Appendix C - Summary Legislation Relating to Badgers, Bats, Black Redstart, Breeding Birds, Otters and Reptiles

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

BUROHAPPOLD ENGINEERING

SUMMARY OF THE LEGISLATION RELATING TO BADGERS AND THEIR SETTS

Badgers (*Meles meles*) are not an endangered species but have a long history of persecution and cruelty. As such, badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended), which makes it illegal for any person to kill, injure or take a badger. It is also an offence to destroy, damage or obstruct a badger sett, or to disturb a badger whilst it is within a sett. There are also additional offences relating to possession of, buying and selling a dead badger, or anything derived from a badger, and causing a dog to enter a sett.

The Act defines a sett as 'any structure or place which displays signs of current use by a badger'. Setts are defined by English Nature (1995) as 'usually underground tunnel systems providing shelter for badgers, but may include other structures used by badgers such as hay bales, drainage culverts, or cellars'. 'Current use' is more difficult to define but is usually interpreted by the presence/absence of badger field signs over several observations of the sett (Natural England 2006).

Section 11 of the National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

Local authorities in England are required to consider the likelihood of any proposed development adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations. The planning guidance for Wales, Technical Advice Note (Wales) 5, identifies the need to comply with the Protection of Badgers Act 1992.

English Nature, 1995. *Species Conservation Handbook*. English Nature, Peterborough.

Natural England, 2006. *Guidance on 'Current Use' in the definition of a badger sett*. Natural England, Peterborough.

Please note: the above text provides a brief summary of the legislation in relation to badgers for England and Wales and the original Act and amendments should be referred to for the precise wording.

BUROHAPPOLD ENGINEERING

SUMMARY OF THE LEGISLATION RELATING TO BATS

All wild species of bat are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by later legislation, including the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2010, and this legislation is applicable to England and Wales. Bats are listed on Schedule 5 of the WCA and are therefore subject to some the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection (S9:4b).
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat (S9:4c).

There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.

Bat species are also listed under Annexes IIa and IVa of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2010.

The Conservation of Habitats and Species Regulations 2010[1] state that a person commits an offence if they:

(a) deliberately capture, injure or kill any wild animal of a European protected species,

(b) deliberately disturb wild animals of any such species, in such a way as –

  (i) to impair their ability to survive, to breed or reproduce, or to rear their young, or

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or

  (iii) to affect significantly the local distribution or abundance of the species to which they belong;

(c) deliberately take or destroy the eggs of such an animal, or

(d) damage or destroy a breeding site or resting place of such an animal.

Under these Regulations it is an offence to damage or destroy a breeding site or resting place whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.

In addition, seven native British bat species, including the soprano pipistrelle (*Pipistrellus pygmaeus*) and the brown long-eared bat (*Plecotus auritus*), that are frequently found in buildings, are listed as a 'Priority Species' under the under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services,* under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRoW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006. Section 11 of the National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and*

[1] *These regulations have been slightly amended by The Conservation of Habitats and Species Regulations 2012*

Geological Conservation - Statutory Obligations and Their Impact within the Planning System in respect of statutory obligations for biodiversity and geodiversity conservation.

Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

Please note: the above text provides a brief summary of the legislation in relation to bats in England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

BUROHAPPOLD ENGINEERING

SUMMARY OF LEGISLATION RELATING TO BLACK REDSTART

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000.

Black redstarts (*Phoenicurus ochruros*) are additionally protected as they are listed on Schedule 1 of the WCA. Therefore, black redstarts, their nests, eggs and young are fully protected at all times throughout England and Wales.

Part 1 (Section 1:1) of the WCA states that:

'If any person intentionally,

(a) kills, injures or takes any wild bird;

(b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or

(c) takes or destroys an egg of any wild bird,

he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) states that:

'If any person intentionally or recklessly,

(a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or

(b) disturbs dependent young of such a bird,

he shall be guilty of an offence and liable to a special penalty.'

In addition, the black redstart is identified as a bird species of moderate conservation concern ('Amber' listed) due to its declining breeding population and its rarity as a breeding species within Britain.

Please note: the above text provides a brief summary of the legislation in relation to black redstart for England and Wales and the original Act and any amendments should be referred to for the precise wording.

BUROHAPPOLD ENGINEERING

SUMMARY OF THE LEGISLATION RELATING TO BREEDING BIRDS

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000. This legislation applies in England and Wales.

Part 1 (Section 1:1) of the WCA states that:

> 'If any person intentionally,
>
> (a) kills, injures or takes any wild bird;
>
> (b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
>
> (c) takes or destroys an egg of any wild bird,
>
> he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) refers to specific birds listed on Schedule 1 of the WCA, and states that:

> 'If any person intentionally or recklessly,
>
> (a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
>
> (b) disturbs dependent young of such a bird,
>
> he shall be guilty of an offence and liable to a special penalty.'

Schedule 1 includes birds such as barn owl (*Tyto alba*), black redstart (*Phoenicurus ochruros*), wood lark (*Lullula arborea*) and Cetti's warbler (*Cettia cetti*). Please refer to the WCA for a complete list of Schedule 1 species.

Some provisions are made to allow the killing and taking of certain species under certain circumstances, as follows:

- Birds listed on Schedule 2 (Part 1) of the Act may be taken or killed outside of the 'close season' for each individual species (the 'close season' is defined by the Act). This includes various wild duck and geese species.
- Birds listed on Schedule 2 (Part 2) of the Act may be killed or taken by authorised persons at all times. This includes species such as carrion crow (*Corvus corone*), black-billed magpie (*Pica pica*), feral pigeon (*Columba livia*) and greater Canada goose (*Branta canadensis*). An 'authorised person' is defined as a person who has written authorisation to undertake the act from the relevant statutory authority. The written authority is in the form of a licence, either a general licence which covers a number of the more typical 'pest' species, or an individual licence for other individual species. In England these licences are issued by Natural England and in Wales by the Welsh Assembly Government.

Please note: the above text provides a brief summary of the legislation in relation to breeding birds in England and Wales and the original Act and any amendments should be referred to for the precise wording.

BUROHAPPOLD ENGINEERING

SUMMARY OF THE LEGISLATION RELATING TO OTTERS

Otters (*Lutra lutra*), also known as European otters, are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by various later legislation including the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2010, and this legislation is applicable to England and Wales. Otters are listed on Schedule 5 of the WCA and are, therefore, subject to some the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection (S9:4b).
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by an otter (S9:4c).

There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.

Otters are also listed under Annexes IIa and IVa of EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2010[1].

The Conservation of Habitats and Species Regulations 2010 state that a person commits an offence if they:

(a) deliberately capture, injure or kill any wild animal of a European protected species,

(b) deliberately disturb wild animals of any such species, in such a way as –

  (i) to impair their ability to survive, to breed or reproduce, or to rear their young, or

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or

  (iii) to affect significantly the local distribution or abundance of the species to which they belong;

(c) deliberately take or destroy the eggs of such an animal, or

(d) damage or destroy a breeding site or resting place of such an animal.

Under these Regulations it is an offence to damage or destroy a breeding site or resting place, whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead otter or part of such an animal.

In addition, otters are listed as a 'Priority Species' under the under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services,* under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRoW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006. Section 11 of the National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

[1] *These regulations have been slightly amended by The Conservation of Habitats and Species Regulations 2012*

Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

Please note: the above text provides a brief summary of the legislation in relation to otters for England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

BUROHAPPOLD ENGINEERING

SUMMARY OF THE LEGISLATION RELATING TO REPTILES

All six of the native British reptile species are afforded varying degrees of protection under the Wildlife and Countryside Act (WCA) 1981, as amended by various later legislation, and this legislation is applicable to England and Wales. All six species are listed on Schedule 5 of the WCA.

The four widespread species, common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*) are afforded part protection under Section 9(1), making it an offence to intentionally kill or injure any of these species of reptile. The two rarer species, sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*), are subject to a greater degree of protection under Section 9(4) which, with the amendments, make it (in brief) an offence to:

- Intentionally or recklessly disturb a sand lizard or smooth snake while it is occupying a structure or place used for shelter or protection (S9:4b); or
- Intentionally or recklessly obstruct access to any structure or place a sand lizard or smooth snake uses for shelter or protection (S9:4c).

All six species are afforded protection from buying, selling or exchange under Section 9(5) of the WCA.

Sand lizard and smooth snake are also listed under Annexes IIa and IVa of EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2010.

The Conservation of Habitats and Species Regulations 2010 state that a person commits an offence if they:

(a) deliberately capture, injure or kill any wild animal of a European protected species,

(b) deliberately disturb wild animals of any such species, in such a way as –

  (i) to impair their ability to survive, to breed or reproduce, or to rear their young, or

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or

  (iii) to affect significantly the local distribution or abundance of the species to which they belong;

(c) deliberately take or destroy the eggs of such an animal, or

(d) damage or destroy a breeding site or resting place of such an animal.

Under these Regulations it is an offence to damage or destroy a breeding site or resting place whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead sand lizard or smooth snake or part of such an animal.

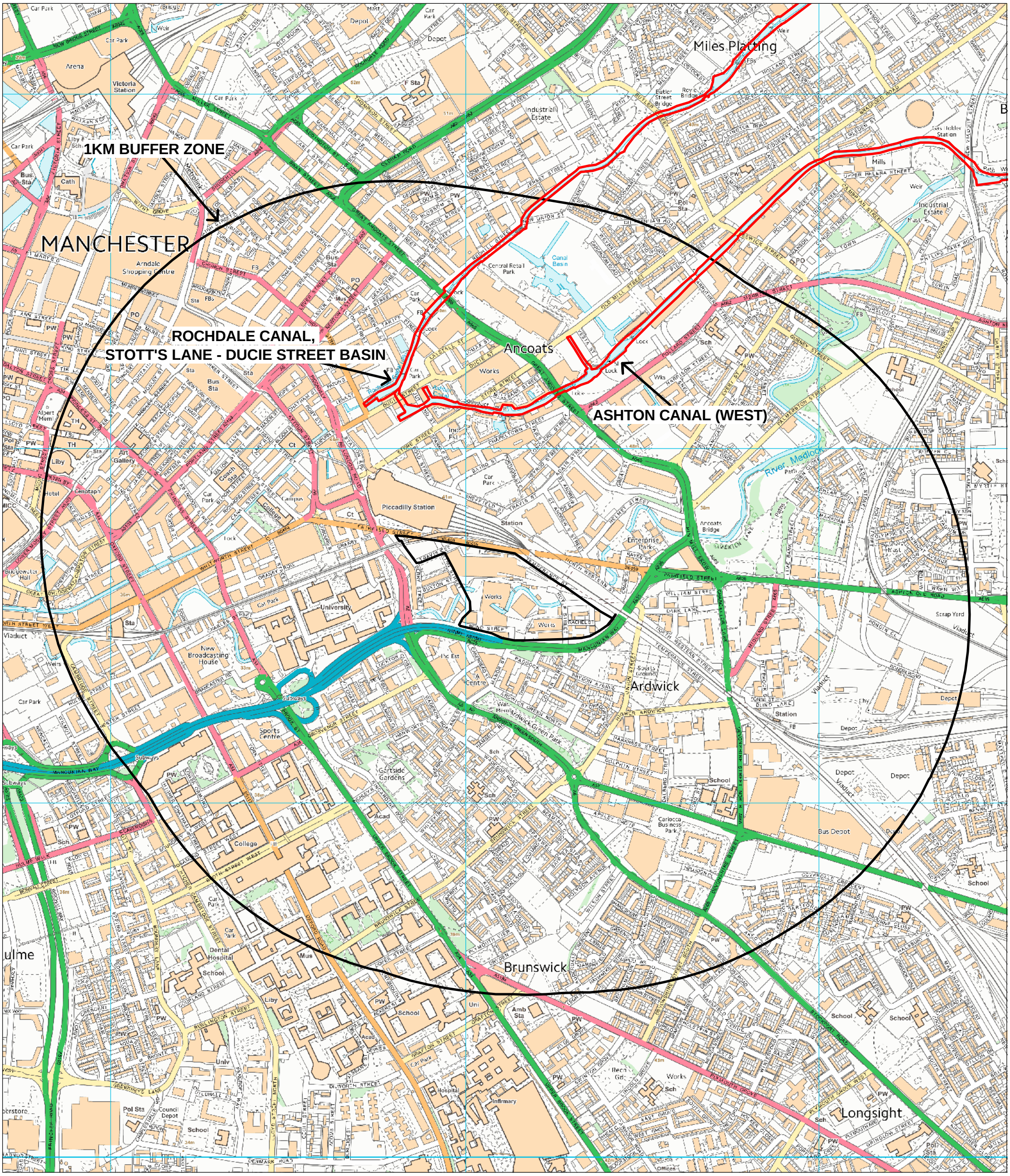
In addition, all six reptile species are listed as a 'Priority Species' under the under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services,* under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRoW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006. Section 11 of the National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

Please note: the above text provides a brief summary of the legislation in relation to reptiles for England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

Appendix D - Desk Study Data from Greater Manchester Ecology Unit and Greater Manchester Bird Recording Group

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.



KEY

SITE OF BIOLOGICAL IMPORTANCE

SBI BOUNDARY

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 85130 97593
MAYFIELD - MAP 1

SCALE 1:10,000

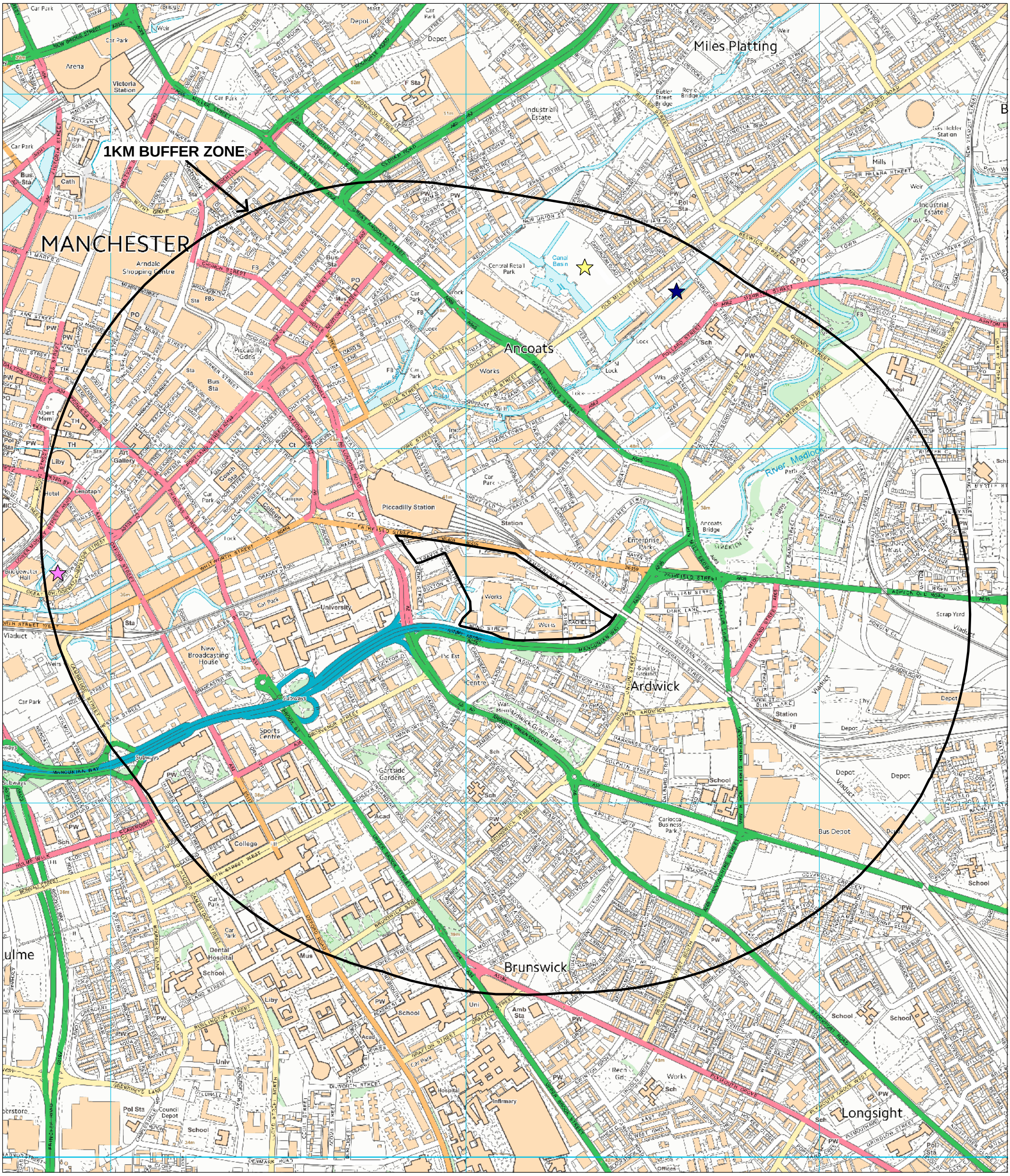
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2016

Greater Manchester Ecology Unit

Telephone 0161 342 3723
Email: gmeu@tameside.gov.uk

Date Produced: 28/11/2016



KEY

PROTECTED SPECIES

- ★ FLOATING WATER-PLANTAIN
- ★ KINGFISHER
- ★ LITTLE RINGED PLOVER

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 85130 97593
MAYFIELD - MAP 2

SCALE 1:10,000

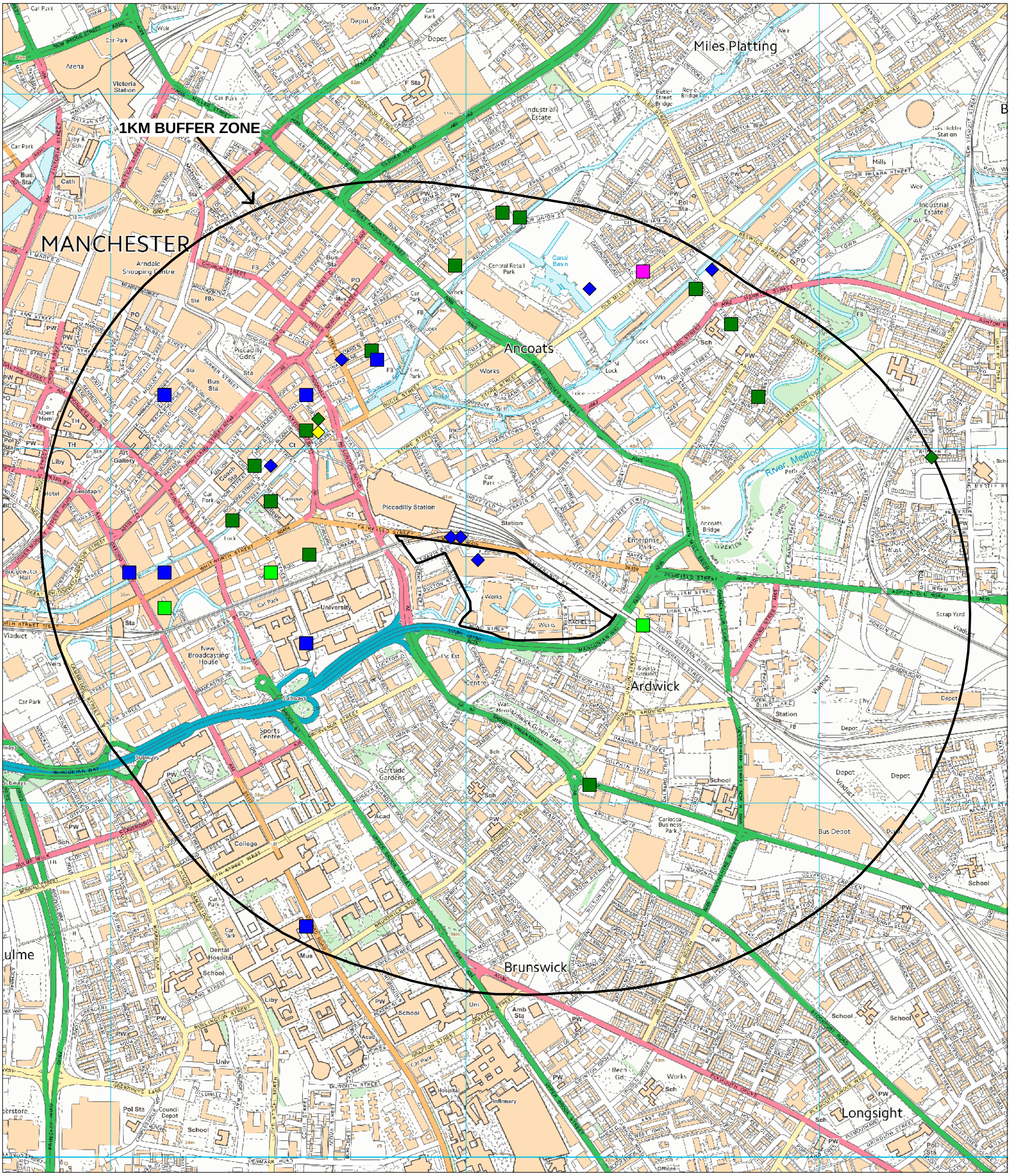
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT
UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2016

Greater Manchester Ecology Unit

Telephone 0161 342 3723
Email: gmeu@tameside.gov.uk

Date Produced: 28/11/2016



KEY

BAT ROOSTS

- COMMON PIPISTRELLE
- PIPISTRELLE SP
- SOPRANO PIPISTRELLE

BATS OTHER SIGNS

- BAT SP
- COMMON PIPISTRELLE
- DAUBENTON'S BAT
- PIPISTRELLE SP

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 85130 97593
MAYFIELD - MAP 4

SCALE 1:10,000

BAT DATA COURTESY OF SOUTH LANCS BAT GROUP

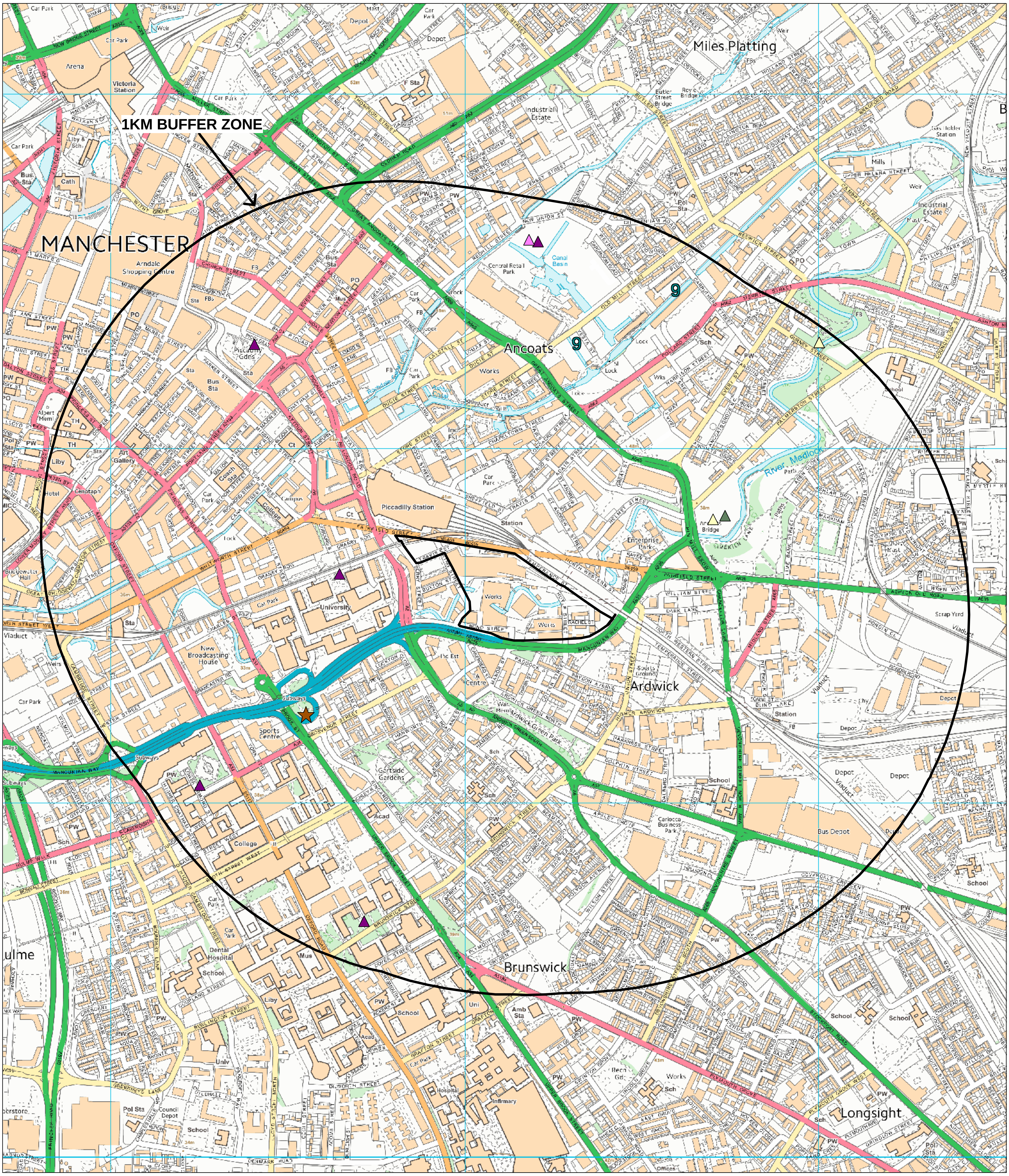
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2016

Greater Manchester Ecology Unit

Telephone 0161 342 3723
Email: gmeu@tameside.gov.uk

Date Produced: 28/11/2016



KEY

SECTION 41 SPECIES

- BULLFINCH
- DUNNOCK
- GRASS-WRACK PONDWEED
- HERRING GULL
- HOUSE SPARROW
- SONG THRUSH
- STARLING
- WEST EUROPEAN HEDGEHOG

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 85130 97593
MAYFIELD - MAP 5

SCALE 1:10,000

THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2016

Greater Manchester Ecology Unit

Telephone 0161 342 3723
Email: gmeu@tameside.gov.uk

Date Produced: 28/11/2016

GMBRG Black Redstart Dest Study Data

commonName	scientificName	schedule1	redList	site	siteGridRef	easting	northing	startDate	endDate	abundance	sex	stage	status	method	comment	gmbrgRef
Black Redstart	Phoenicurus ochruros	y	y	Albert Square Manchester	SJ838981	383850	398150	09/06/2015	09/06/2015	1			Probable Breeder T - permanent Territory	Field record / observation		sfmc3bkg & 297
Black Redstart	Phoenicurus ochruros	y	y	Albert Square Manchester	SJ838981	383850	398150	08/06/2015	08/06/2015	1		Adult		Field record / observation	On roof of building opposite Manchester Town Hall	ljq9fbwb & 261
Black Redstart	Phoenicurus ochruros	y	y	Canal St/Minshull St Courts (Manchester City Centre)	SJ845980	384550	398050	17/06/2009	17/06/2009	1	male	Adult	Possible Breeder H - in suitable nesting Habitat	Field record / observation	m heard at 0740 and on 19th at 0805hrs	c1q5m5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Canal St/Minshull St Courts (Manchester City Centre)	SJ845980	384550	398050	04/06/2009	04/06/2009	1		Adult	Possible Breeder H - in suitable nesting Habitat	Field record / observation	probable female	5bvij5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Central Retail Park Ancoats	SJ851984	385150	398450	02/06/2008	02/06/2008	1		Adult		Field record / observation	probable female	c7h435ng & 113
Black Redstart	Phoenicurus ochruros	y	y	Central Retail Park Ancoats	SJ851984	385150	398450	11/04/2008	11/04/2008	1		Adult		Field record / observation	singing in a tree there	vml2u5ng & 113
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	19/07/2009	19/07/2009	2		Adult	Probable Breeder P - Pair in suitable nesting habitat	Field record / observation		3n4j65ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	14/07/2009	14/07/2009	2		Adult	Probable Breeder P - Pair in suitable nesting habitat	Field record / observation		qd0db5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	13/07/2009	13/07/2009	1	male	Adult	Probable Breeder T - permanent Territory	Field record / observation		vvl8q5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	12/07/2009	12/07/2009	1		Adult		Field record / observation	still about but difficult	hlvv05ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	05/07/2009	05/07/2009	1		Adult	Confirmed Breeder ON - Occupied Nest	Field record / observation	failed. Nest in I beam over doorway.	zn6nd5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	16/06/2009	16/06/2009	3		Adult	Probable Breeder D - courtship and Display	Field record / observation	2 males fighting, one flew off towards Arndale, other found a female and mating observed	b8u125ng & -133
Black Redstart	Phoenicurus ochruros	y	y	China Lane Manchester city centre	SJ846982	384650	398250	16/06/2009	16/06/2009	2		Adult		Field record / observation		tmuih5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Chinatown, Manchester city centre	SJ841980	384150	398050	25/06/2010	25/06/2010	1	male	Adult	Possible Breeder S - Singing male	Field record / observation	nothing at Spear St all week	ud0895nk & 165
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	08/10/2015	08/10/2015	1			Probable Breeder T - permanent Territory	Field record / observation		c8b80bkg & 297
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	12/06/2015	12/06/2015	1		Adult	Probable Breeder T - permanent Territory	Field record / observation	Sang around 0745	3chchbty & 313
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	08/04/2015	08/04/2015	1			Possible Breeder S - Singing male	Field record / observation		wpg7kbkg & 297
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	26/09/2013	26/09/2013	1			Probable Breeder T - permanent Territory	Field record / observation	adult male	ui872bkg & 217
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	01/08/2013	01/08/2013	1			Probable Breeder T - permanent Territory	Field record / observation	adult male	1q8mqbkg & 217
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	25/07/2013	25/07/2013	1			Probable Breeder T - permanent Territory	Field record / observation	adult male	blvw9bkg & 217
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	03/07/2013	03/07/2013	1			Probable Breeder T - permanent Territory	Field record / observation	adult male	f4wmhbkg & 217
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	03/06/2011	03/06/2011	1	male			Field record / observation		9892o5ng & 119
Black Redstart	Phoenicurus ochruros	y	y	Manchester Town Hall	SJ838980	383850	398050	07/06/2010	07/06/2010	1	male	Adult	Possible Breeder S - Singing male	Field record / observation	roof, 1400 - 1430	l7vfc5nk & -165
Black Redstart	Phoenicurus ochruros	y	y	Oxford Rd Manchester	SJ842973	384250	397350	18/05/2012	18/05/2012	1			Possible Breeder S - Singing male	Field record / observation	on Ackers Street (off Oxford Road) between the Catholic Church and Stopford Building	0t3r1bkg & 121
Black Redstart	Phoenicurus ochruros	y	y	Piccadilly Station Manchester	SJ849980	384950	398050	01/08/2009	01/08/2009	1	female	Adult		Field record / observation	Store St opp bottom of Jutland St	jrz655ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Port St Manchester city centre	SJ847984	384750	398450	03/08/2009	03/08/2009	1	male		Possible Breeder H - in suitable nesting Habitat	Field record / observation		t59wt5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Port St Manchester city centre	SJ847984	384750	398450	15/07/2009	15/07/2009	1	male	Adult	Possible Breeder S - Singing male	Field record / observation	this is bird from China Lane	61iz15ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Port St Manchester city centre	SJ847984	384750	398450	28/06/2009	28/06/2009	2			Possible Breeder H - in suitable nesting Habitat	Field record / observation		1cvmq5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Port St Manchester city centre	SJ847984	384750	398450	21/06/2009	21/06/2009	1	female	Adult	Possible Breeder H - in suitable nesting Habitat	Field record / observation	f.	zfjpf5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Shudehill Manchester City Centre	SJ842987	384250	398750	29/06/2009	29/06/2009	1		Adult	Possible Breeder S - Singing male	Field record / observation	Roman St/Edgehill St	i86nv5ng & -133
Black Redstart	Phoenicurus ochruros	y	y	Shudehill Manchester City Centre	SJ842987	384250	398750	27/05/2008	27/05/2008	1		Adult		Field record / observation	Male singing on Dantzic St, flew to Shudehill station	zqnc65ng & 113
Black Redstart	Phoenicurus ochruros	y	y	Shudehill Manchester City Centre	SJ842987	384250	398750	09/06/2010	09/06/2010	1	male	Adult	Possible Breeder S - Singing male	Field record / observation	Newmarket, back of Arndale	m0t0v5nk & 165
Black Redstart	Phoenicurus ochruros	y	y	St. Ann's Square Manchester city centre	SJ838984	383850	398450	11/06/2015	11/06/2015	1		Adult	Probable Breeder T - permanent Territory	Field record / observation	Singing near Mr Thomas's chop house	ldcjubty & 313
Black Redstart	Phoenicurus ochruros	y	y	St. Ann's Square Manchester city centre	SJ838984	383850	398450	14/06/2010	14/06/2010	1	male	Adult	Possible Breeder S - Singing male	Field record / observation	0950hr	zppw05nk & 165
Black Redstart	Phoenicurus ochruros		y	St. Peter's Square Manchester City Centre	SJ838979	383850	397950	14/05/2008	14/05/2008	1		Adult		Field record / observation	Male, opposite Peter House (7th Floor) on office blocks	or4ks5ng & -131

Appendix E - Plant Species Recorded on the Application Site

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix E Plant Species Recorded on the Application Site

Common Name	Latin Name	Habitat Type with Phase 1 Codes								
		Ephemeral/Short Perennial (J1.3)	Broadleaved Scattered Trees (A3.1)	Tall Ruderal (C3.1)	Scattered Scrub (A2.2)	Semi-improved Neutral Grassland (B2.2)	Introduced Shrub - Scattered/ Amenity planting (J1.4)	Amenity Grassland (J1.2)	Broadleaved Semi-natural Woodland (A1.1.1)	Hedgerow (J2.1.2)
Trees and Shrubs										
Alder	*Alnus glutinosa*		R							
An apple	*Malus* sp.		R							
Ash	*Fraxinus excelsior*		F						O - F	
Birch species	*Betula* sp.								LF	
Broom	*Cytisus scoparius*			R						
Butterfly bush	*Buddleja davidii*						D		R - LO	
Cherry laurel	*Prunus laurocerasus*						LO			D
Cherry species	*Prunus* sp.		R						R	
Dogwood	*Cornus sanguinea*								LO	
Elder	*Sambucus nigra*		O - LD							
Holly	*Ilex aquifolium*								R	
Poplar species	*Populus* sp.		LO - LF							
Silver birch	*Betula pendula*								A - LD	
Swedish whitebeam	*Sorbus intermedia* agg.		R							
Sycamore	*Acer pseudoplatanus*		O - F						O - F	
Willow sp.	*Salix* sp.		R - O						R	
Herbs, Grasses and Ferns										
Annual meadow-grass	*Poa annua*					R				
Black medick	*Medicago lupulina*							LF		
Bracken	*Pteridium aquilinum*			LR						
Bramble	*Rubus fruticosus* agg.	O		O - LF	D	LO	LF		LD	
Canadian fleabane	*Conyza canadensis*	O - F								
Cleavers	*Galium aparine*			LO						
Cock's-foot	*Dactylis glomerata*					R - LO				
Colt's-foot	*Tussilago farfara*					R				
Common bent	*Agrostis capillaris*	F						O		
Common cat's-ear	*Hypochaeris radicata*					O-F				
Common centaury	*Centaurium erythraea*					O-F				
Common figwort	*Scrophularia nodosa*	R								
Common mouse-ear	*Cerastium fontanum*	R						R - O		
Common nettle	*Urtica dioica*	F		O - LD						
Common ragwort	*Senecio jacobaea*	O - F				O		R - O		
Cotoneaster species	*Cotoneaster sp. cf Cotoneaster simonsii*			R			R			
Cow parsley	*Anthriscus sylvestris*			R						
Crane's-bill species	*Geranium* sp.							R		
Creeping bent	*Agrostis stolonifera*					F - LD				
Creeping buttercup	*Ranunculus repens*	R				O		O		
Creeping cinquefoil	*Potentilla reptans*	O-F								
Creeping thistle	*Cirsium arvense*	R		O - F						
Dandelion	*Taraxacum officinale agg.*	O - F				O		O - F		
Dock species	*Rumex* sp.	O		R		R		R		
Evening primrose species	*Oenothera* sp.					R				
Eyebright	*Euphrasia nemorosa*					O-F				
Fern species	*Dryopteris* sp.			O - LF						
Field horsetail	*Equisetum arvense*					O				
Garden lady's-mantle	*Alchemilla mollis*					LR				
Garlic mustard	*Alliaria petiolata*	R		R						
Goat's-beard	*Tragopogon pratensis*	O-F				O-F				
Goldenrod	*Solidago virgaurea*			O - F		R				
Greater plantain	*Plantago major*	O								
Groundsel	*Senecio vulgaris*	R - O								
Hart's-tongue	*Asplenium scholopendrium*	R								
Hawkweed species	*Hieracium* sp.					O-F				
Hedge bindweed	*Calystegia sepium*			LR						

Appendix E Plant Species Recorded on the Application Site

Common Name	Latin Name	Habitat Type with Phase 1 Codes								
		Ephemeral/Short Perennial (J1.3)	Broadleaved Scattered Trees (A3.1)	Tall Ruderal (C3.1)	Scattered Scrub (A2.2)	Semi-improved Neutral Grassland (B2.2)	Introduced Shrub - Scattered/ Amenity planting (J1.4)	Amenity Grassland (J1.2)	Broadleaved Semi-natural Woodland (A1.1.1)	Hedgerow (J2.1.2)
Hedge mustard	*Sisymbrium officinale*	R								
Hemp agrimony	*Eupatorium cannabinum*			O-F	O-F					
Herb-Robert	*Geranium robertianum*	R								
Himalayan balsam	*Impatiens glandulifera*					LO				
Hogweed	*Heracleum sphondylium*			LO						
Ivy	*Hedera helix*	LO								
Knotgrass	*Polygonum aviculare*	R								
Maidenhair spleenwort	*Asplenium trichomanes*	R								
Michaelmas-daisy species	*Aster novi-belgii* agg.	O - F								
Mugwort	*Artemisia vulgaris*	F - LA		O		O				
Nipplewort	*Lapsana communis*	R - O								
Oregon-grape	*Mahonia aquifolium*						LA			
Oxford ragwort	*Senecio squalidus*					R				
Pendulous sedge	*Carex pendula*	R								
Perennial rye-grass	*Lolium perenne*							A		
Perennial sow-thistle	*Sonchus arvensis*	O-F								
Perforate St. John's wort	*Hypericum perforatum*					R				
Polypody species	*Polypodium* sp.	R								
Red clover	*Trifolium pratense*	R				R		R		
Red fescue	*Festuca rubra*	O						O		
Redshank	*Persicaria maculosa*	R								
Ribwort plantain	*Plantago lanceolata*					O		R		
Rosebay willowherb	*Chamerion angustifolium*			O - F						
Scentless mayweed	*Tripleurospermum inodorum*	R								
Shepherd's-purse	*Capsella bursa-pastoris*	R								
Smooth sow-thistle	*Sonchus oleraceus*	O								
Soft-rush	*Juncus effusus*					LR				
Southern marsh-orchid	*Dactylorhiza praetermissa*	LF								
Spear thistle	*Cirsium vulgare*	LR		LO						
Tufted hair-grass	*Deschampsia caespitosa*					LR				
Vetch species	*Vicia* sp.					R		LR		
Wall cotoneaster	*Cotoneaster horizontalis*								LR	
Wavy bitter-cress	*Cardamine flexuosa*	R - O				LF				
White clover	*Trifolium repens*					O		LF		
Willowherb species	*Epilobium* sp.(annual)	F		O - F		R		R		
Yorkshire fog	*Holcus lanatus*					O - LA		R		

Key

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

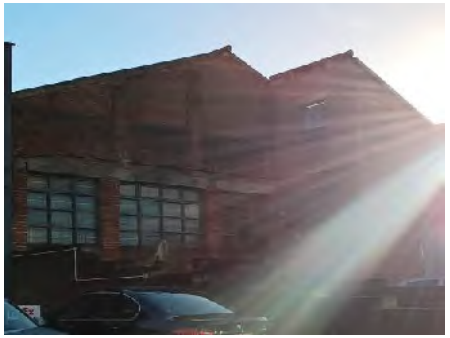
Appendix F - Bat Roost Assessment Data

Reference	Picture	Description	Potential Bat Roost Features and Evidence of Roosting	Assessed Roost Status
B1		Former Mayfield Station. Brick façade with stone parapet and stone lintels to windows. Large decoratively tiled stairwell and offices/warehouse at ground floor, offices and station concourse at second floor. No roof structure remaining. All windows and doors boarded up. **No access to interior due to presence of asbestos & lead paint.**	Damaged wooden fascia boards on external façade providing access to cavity behind. Small crevices in brickwork and around stone lintels on external façade. Unglazed window into stairwell providing potential bat access to internal rooms.	High Potential
B2a		Former station platforms and warehouses. Brick façade with two large internal warehouses. Concrete floor, flat roof supported by concrete pillars. Narrow enclosed ramp from ground level to platforms on southern elevation, supported by metal framework and covered with corrugated sheets. Open ramp on northern elevation. Series of large brick arches beneath platforms at eastern end, each enclosed with wooden boarding and used as warehouse/industrial units.	Crevices on the external façade. Broken windows and gaps around roller shutter doors providing access to internal warehouses. Very limited roost potential within these rooms but considered likely to be used as sheltered foraging site during poor weather conditions. Existing record of pipistrelle roost on northern side, potentially on external façade or at platform level.	Confirmed Roost High Potential on rest of structure

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B3		Industrial unit occupied as warehouse. Brick walls with pitched roof covered with corrugated asbestos cement sheets and numerous plastic skylights. Roof supported by metal framework, open to ridge with no roof voids. Concrete floor.	None	Negligible Potential
B4		Industrial unit occupied by Fedex as warehouse and distribution centre. Brick walls with corrugated metal sheets on front elevation. Pitched roof of corrugated asbestos sheets with numerous plastic skylights. Open to ridge with no roof void.	None	Negligible Potential
B5		Office unit of warehouse complex occupied by Fedex. Metal sheet walls to front elevation, brick walls with pitched roof of corrugated sheets to rest of building. No roof voids.	None	Negligible Potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B6		Industrial unit used as storage warehouse together with B9 and B10b. Brick with pitched roof covered with asbestos cement sheets. Roof supported by metal framework, open to ridge with no roof voids. Concrete floor. Large basement, also used for storage.	Crevices on brickwork on northern elevation above River Medlock. Basement provided no obvious crevice features and was too light and disturbed for potential hibernation use.	High Potential
B7a		Disused industrial units, part of former Towbar and Trailer Centre. Two-storey section, brick with pitched slate roof, clay ridge tiles and wooden bargeboards at gable ends. Underside visible from interior - open to ridge and appeared to be lined with wooden or metal boards. Two-storey section at SE corner, brick with pitched roof covered with bitumen felt. **No access for internal inspection on this section, potentially a roof void present.** Single storey section with flat bitumen felt roof. Concrete floors throughout and single glazed windows boarded up or secured with wire mesh.	Numerous crevices in brickwork. Crevices around windows providing bat access to interior of two storey sections. Crevices beneath barge boards, potentially providing access to space between slates and lining beneath. Dilapidated fascia boards at eaves on single storey section.	Moderate Potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B7b		Disused industrial units, part of former Towbar and Trailer Centre. Brick walls with pitched roof covered with metal sheets. Wooden ceiling with roof void above – no obvious hatches to provide access for inspection. Underside of roof partially visible at rear of building (adjacent to two-storey section visible in photo for B7a), supported by wooden rafters and fully lined with membrane. Underground basement.	Basement provided no obvious crevice features but was dark and likely to provide relatively stable temperature conditions. In use until relatively recently and therefore likely to have been too disturbed for hibernation use; however, could potentially be used in future now that the building is disused.	Negligible Potential
B7c		Industrial unit, occupied as religious premises. Brick walls with pitched roof covered with bitumen felt and clay ridge and hip tiles. Skylights on roof suggesting no roof void present. Small section at front with flat roof covered with bitumen felt and narrow wooden fascia boards at eaves. **No access permission for inspection.**	None apparent from areas visible.	Full inspection required.
B8a		Industrial/office units. Two-storey brick building, two separate pitched slate roofs with hipped gables. **No access permission for internal inspection.**	Potentially two roof voids. Crevices on external brickwork.	Moderate Potential Full inspection required

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B8b		Industrial units. Two-storey flat roofed building with brick walls with metal sheeting at upper level. **No access permission for internal inspection.**	Unlikely to be any roof void. No obvious crevices on external façade.	Negligible Potential
B9		Industrial unit occupied as factory and storage warehouse, together with B10b and B6. Brick with pitched roof of asbestos cement sheets. Roof supported by metal framework, open to ridge with no roof voids. Concrete floor. Large basement beneath, used for storage.	No roof void. Basement provided no obvious crevice features and was too light and disturbed for potential hibernation use.	Negligible Potential
B10a		Two-storey brick building with brick parapet at front elevation. Four ridges to the roof, covered with slates and clay ridge tiles.	No access for internal inspection	Moderate Potential Full inspection required

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B10b		Industrial unit occupied as factory and storage warehouse, together with B9 and B6. Brick with pitched roof of asbestos cement sheets. Open to ridge with no roof void.	None	Negligible Potential
B11	Previously demolished, site of this building is now amenity grass.			N/a
B12		Industrial unit used as a storage/distribution warehouse. Brick walls with corrugated metal sheeting towards roof level. Shallow pitched roof covered with corrugated sheets, open to ridge with no roof void.	None	Negligible Potential
B13		Industrial unit. Two-storey building with brick walls at ground level and metal sheeting at first floor level. Shallow pitched roof covered with metal sheets.	None	Negligible Potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B14		Industrial unit. Two-storey building with brick walls at ground level and metal sheeting at first floor level. Shallow pitched roof covered with metal sheets.	None	Negligible Potential
B15		Industrial unit. Two-storey building with brick walls at ground level and metal sheeting at first floor level. Shallow pitched roof covered with metal sheets.	None	Negligible Potential
B16		Industrial units. Single-storey building with brick walls at ground level and metal sheeting towards roof level. Shallow pitched roof covered with metal sheets.	None	Negligible Potential

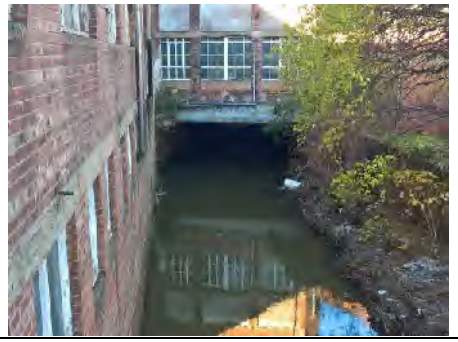
Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B17		Industrial unit. Brick walls at ground level and metal sheeting towards roof level. Shallow pitched roof covered with metal sheets.	None	Negligible Potential
B18		Warehouse/industrial unit, used as storage and recycling facility. Brick walls with pitched roof of asbestos cement sheets, open to the ridge with no roof void. Interior very cluttered.	None	Negligible Potential
B19	No access permission for inspection.			Full inspection required
B20		Two-storey brick structure with sloping roof covered with corrugated sheets. Unlikely to have roof void. Narrow wooden fascia board at eaves. **No access permission for inspection.**	None apparent from visible areas	Negligible potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B21		Small lean-to structure adjoined to B2. Corrugated metal walls with roller shutter door and sloping metal roof.	None	Negligible Potential
B22		Electricity substation. Metal walls. Pitched roof with metal sheet covering.	None	Negligible Potential
B23		Single-storey brick building. Pitched slate roof with clay ridge tiles and overhanging eaves with wooden soffit and bargeboards at gable ends. Metal roller shutter door (locked) on southern elevation, door and window on eastern gable end boarded up. No access permission for internal inspection.	Gaps between brickwork and soffit providing potential access to cavity within soffit and/or interior of building. Gap beneath end ridge tile at eastern gable end. Gap above roller shutter door.	High Potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

B24		Culverted section of River Medlock. Length approx. 60m, width approx. 4m, height approx. 2.5-3m above water level. No access for internal inspection.	Bats known to roost in a similar culvert on another nearby site in Manchester.	High Potential
B25		Pair of open fronted garages with brick walls and flat concrete roof. Used for storage but appeared relatively undisturbed.	None	Negligible Potential
B26	No good vantage point to take photograph.	Culverted section of the River Medlock at east of site. Length approx. 60m within the site and extending for at least the same distance beyond the site boundary. **Poor visibility for assessment.**	Bats known to roost in a similar culvert on another nearby site in Manchester.	High Potential

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Pernille Olsen
Buro Happold Limited
Camden Mill
Lower Bristol Road
Bath
BA2 3DQ
UK

T: +44 (0)1225 320 600
F: +44 (0)870 787 4148
Email: Pernille.Olsen@burohappold.com

c) Mayfield Regeneration Development Bat Surveys (2017)

BUROHAPPOLD ENGINEERING

Mayfield Regeneration Development

Bat Surveys

035548

29 November 2017

Revision 00

MRP-BHE-XX-XX-RP-YM-0001

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Revision	Description	Issued by	Date	Checked
00	Bat survey	GH	29/11/2017	PO

O:\035548 Mayfield Regeneration Development\F32 Environmental\03 Reports\Ecology Survey Reports WIP\Bat Surveys WIP\MRP-BHE-XX-XX-RP-YM-0001.docx

This report has been prepared for the sole benefit, use and information of U+I for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author	**Gerard Hawley and Hazel Robson**
date	**16/11/2017**
approved	**Pernille Olsen**
signature	
date	**29/11/2017**

..

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Contents

1 Introduction **7**

1.1 Background 7

1.2 Site Description 7

1.3 Bat Biology 7

1.4 Legislative Context 8

2 Methods **9**

2.1 Overview 9

2.2 Dusk Emergence/Dawn Re-entry Surveys 9

2.3 Walked Transect 11

2.4 Automated Monitoring 11

2.5 Data Analysis 12

2.6 Limitations to Survey Techniques 12

3 Results **13**

3.1 Emergence/Re-entry Surveys 13

3.2 Walked Transect 13

3.3 Automated Monitoring 14

4 Evaluation **16**

4.1 Foraging and Commuting Activity 16

4.2 Roosting Activity 16

5 Recommendations **18**

5.1 Introduction 18

5.2 Licence Application 18

5.3 Mitigation Strategy 18

6 References **20**

Appendix A – Plans

Appendix B - Dates of Surveys and Weather Conditions

Appendix C - Emergence/Re-entry Survey Data

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix D - Plates

Appendix E - Sonograms

Table of Tables

Table 2—1 Survey Effort for Built Structures 9

Table 2—2 Dates and Weather Conditions of Transect Surveys 11

Table 2—3 Dates and Conditions for Automated Monitoring 12

Table 3—1 Summary of Roosting Activity 13

Table 3—2 Total Bat Activity During Automated Monitoring Period 14

Table of Figures

Figure 3—1 Chart illustrating the overall pattern of bat calls detected between sunset and sunrise for the period 21st – 25th July 15

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

1 Introduction

1.1 Background

BuroHappold Engineering was instructed to carry out an ecological assessment of a site in central Manchester at and around the former Mayfield Station complex (hereafter referred to as the 'site').

The site is proposed for re-development, including demolition of the majority of existing structures on the site, refurbishment of some of the older remedial works, and replacement/modification of the retaining walls along the River Medlock.

This report details the results of bat surveys to assess how the site is being used by bats. It evaluates the results in context of the proposed re-development of the site, making recommendations for mitigation and/or any further survey work as required.

1.2 Site Description

The site boundary includes an area approximately 9.1ha, comprising a series of buildings that are predominantly commercial or light industrial units and associated areas of hard and soft landscaping. Some of the existing buildings are still occupied whilst others have been disused for many years.

The site is surrounded on all sides by dense urban development, with tall buildings and busy roads. Manchester Piccadilly rail station is immediately to the north and the River Medlock flows west to east through the centre of the site.

1.3 Bat Biology

There are 17 species of breeding native bats known to be in the British Isles. British bats feed entirely on insects and have developed a complex sonar system, known as echolocation, which enables them to find prey and navigate around their environment at night.

Habitat requirements vary widely, both on an individual and species level, although certain features such as woodland, parkland, traditional pasture, marshes and areas of freshwater are often focal points for foraging, as insects are plentiful in these areas (Mitchell-Jones 2004). Bats use linear features such as rivers, hedgerows, roads and woodland edges as landmarks in order to commute from one location to another (Schofield and Mitchell-Jones 2003).

Bats utilise different roosts at different times of the year. Between late October and March, bats hibernate. This requires an unexposed roost with a stable temperature, typically a cave, cellar or tunnel. Around March, the bats emerge and gradually move to their summer roosts, typically within man-made structures or suitable crevices in trees. During the spring and summer period female bats gather together at maternity roosts to give birth and rear their young. Most births occur between late June and mid-July, with the young able to fly within three to five weeks (Altringham 2003; Waters and Warren 2003). By the end of August, most of the young bats are independent and the colony begins to break up (Schofield and Mitchell-Jones 2003). Mating takes place between August and December, either at the winter hibernation site or at autumn breeding sites. The numbers of bats utilising these roosts can vary from single bats to hundreds of bats in a nursery colony or hibernation site (Altringham 2003).

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Bats play an important role in many environments around the world, including pollination and insect control. In the UK, bats can tell us a lot about the state of the environment because they are top predators of common nocturnal insects and are extremely sensitive to changes in their surroundings, e.g. climate, landscape, agricultural intensification, development and habitat fragmentation. Populations of British bats have suffered severe declines in the past century, influenced by these factors.

1.4 Legislative Context

All wild species of bat are protected under the Wildlife and Countryside Act (WCA) 1981 as amended, which has also been amended by later legislation, including the Countryside and Rights of Way (CRoW) Act 2000; this legislation is applicable to England and Wales.

Bat species are also listed under Annexes IIa and IVa of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2010 as amended.

Under this legislation it is an offence to kill or injure a bat, disturb a bat while it is roosting, and obstruct, damage or destroy a breeding site or resting place, whether the animal is in occupation or not. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.

In addition, seven native British bat species including the soprano pipistrelle (*Pipistrellus pygmaeus*) and the brown long-eared bat (*Plecotus auritus*) that are frequently found in buildings are listed as a 'Priority Species' under England's biodiversity strategy: Biodiversity 2020: A strategy for England's wildlife and ecosystem services and in the UK Post-2010 Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England within Section 74 of the CRoW Act 2000, and Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.

Section 11 of the National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System in respect of statutory obligations for biodiversity and geodiversity conservation.

Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (by locating the development on an alternative site with less harmful impacts), adequately mitigated or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England in Section 40 of the NERC Act 2006.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

2 Methods

2.1 Overview

All surveys followed current good practice guidelines published by The Bat Conservation Trust (Collins 2016).

The survey programme was led by licensed bat ecologist Hazel Robson[1] MCIEEM[2], with a team of competent surveyors employed to undertake the fieldwork. All members of the survey team were appropriately qualified for their assigned tasks, based on the CIEEM competency framework (CIEEM 2013).

Weather conditions were recorded at the start and end of each survey. Temperature and humidity were measured using a hygro-thermometer (810-190 www.etiltd.com). Wind was estimated using the Beaufort Wind Force Scale, ranging from 0 calm to 5 moderate breeze (NB while the scale extends to force 12 hurricane, 6 or higher would be unsuitable conditions for survey). Cloud cover was estimated using the standard meteorological scale of oktas (eighths), where 0/8 is a completely clear sky and 8/8 is completely overcast.

The dates and weather conditions of each survey visit are provided in Appendix B. Further details of methodology for the various survey techniques are provided under the individual sub-headings below.

2.2 Dusk Emergence/Dawn Re-entry Surveys

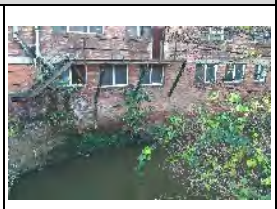
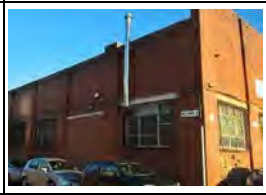
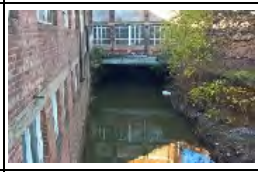
Based on the results of the daytime inspections, which are reported separately within the Ecological Assessment and Bat Inspection Report (BuroHappold Engineering 2016), a series of dusk emergence and dawn re-entry surveys were carried out to confirm presence/likely absence of roosting bats and to highlight roost entrances and enable bat roost characterisation where roosts were confirmed. The assessed roost status and subsequent survey effort for the various buildings is summarised in Table 2—1 below.

Table 2—1 Survey Effort for Built Structures

Structure		Assessed Roost Status	Survey Effort
B1		High potential	3 nights
B2		High potential/confirmed roost (previous record of bat roost in this structure)	3 nights

[1] *Natural England class licence registration number 2015-10504-CLS-CLS, survey level 2 (WML-CL18)*
[2] *Full Member of Chartered Institute of Ecology and Environmental Management*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Structure		Assessed Roost Status	Survey Effort
B6		Moderate	2 nights
B7		Moderate	2 nights
B8		Moderate	2 nights
B10a		Moderate	2 nights
B23		High	3 nights
B24		High	3 nights
B26		High	3 nights

Each survey lasted for at least 1.5 hours, with emergence surveys commencing at least 15 minutes prior to sunset and re-entry surveys concluding at approximately 15 minutes after sunrise to take in the most likely periods when bats would be observed at a roost site. Start and end times in relation to sunset/sunrise were adjusted as necessary for individual structures, based on the bat species and timings of activity observed during the earlier visits, to maximise the likelihood that any bat emergence could be observed on subsequent visits.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Surveyors were positioned at vantage points close to the target structures to observe any bats entering or exiting potential roost features. Each was equipped with a Batbox Duet bat detector to aid detection in the field and an Anabat SD1 to record all calls and enable sonogram analysis for confirmation of species identification. The size of the team on any given night varied depending on the number of potential roost features to be surveyed.

Surveys were undertaken within the recommended survey season and on days with weather conditions forecast to be suitable. Survey dates, timings and weather conditions are detailed on the survey schedule provided in Appendix B.

2.3 Walked Transect

To investigate bat foraging and commuting activity at the site, a combination of active and passive survey techniques was employed. Bat activity was sampled during two monitoring periods to help build a picture of bat activity across a broader range of their active season.

A transect route was devised that included a representative sample of the habitats across as wide an area of the site as possible. The surveyors walked at a relatively slow and constant speed along the planned route, recording observations of bat activity such as number of bats seen together, flight direction, flight height and behaviour such as feeding buzzes and social calling. Spot counts were undertaken for periods of three minutes at various locations along the transect route.

The surveys commenced at sunset and continued for approximately two hours. The timings and weather conditions of each survey visit are provided in Table 2—2 below.

Table 2—2 Dates and Weather Conditions of Transect Surveys

Date	Sunset (start)	End Time	Weather Conditions
04/07/17	21:40	22:52	Dry and calm, some light drizzle for 10 minutes. Temperature 21.8ºC, decreasing to 18.2ºC. Relative humidity 55%, increasing to 65% by end. Cloud cover 8/8 throughout.
17/08/17	20:34	21:53	Dry and calm. Temperature 19.4ºC increasing to 19.8ºC. Relative humidity remained at 32% throughout survey. Cloud cover 7/8 throughout.

2.4 Automated Monitoring

An Anabat Express bat detector was deployed to monitor for bat activity for five nights along the river corridor in the central part of the site. It was attached to the underside of the fire escape at the rear of building B6 where it would detect calls in and around this area.

The detector was programmed to record from approximately 30 minutes before sunset until 30 minutes after sunrise each night. The dates and conditions for each of the monitoring periods are provided in Table 2—3 below.

The Anabat Express detector records a data file each time the detector is triggered by a sound within the broad frequency range of bat echolocation calls. For the purposes of analysis, each of these data files is considered to be one detection. Where more than one species is recorded on a single file, detection for each species would be logged.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Table 2—3 Dates and Conditions for Automated Monitoring

Date	Sunset	Sunrise	Weather
21/07/17 to 26/07/17	21:22	05:08	Mostly dry and calm but with some scattered showers. Temperature highs of 22°C during the day and lows of 13°C during the nights.

2.5 Data Analysis

Recorded bat calls from each of the surveys were analysed using specialist sound analysis software AnalookW published by Titley Scientific. Based on parameters such as peak frequency and call duration, each call was assigned to a particular bat species.

Sonograms analysis can also be used to investigate the type of bat calls, including echolocation, social calls and feeding buzzes as well as providing an indication of whether more than one individual is present at a time. Sonograms illustrating samples of calls recorded at site are provided in Appendix E.

2.6 Limitations to Survey Techniques

For the majority of visits, there was full access to the target areas for survey. Where access was unavailable for any reason, the survey results were reviewed and additional nights of survey were undertaken to ensure sufficient confidence in the assessment of roost status.

The majority of visits were undertaken during the main period of the bat active season (May to August inclusive), enabling appropriate characterisation of roost types.

Visual observation of bat activity is constrained by light levels. While surveyors may be able to see bats silhouetted against the sky, individuals flying against a background of dark buildings are much more difficult to spot. The use of bat detectors to hear echolocation calls helps to ensure that activity is not missed. However, in low light conditions it is not always possible to ascertain details such as direction of flight.

GPS locations of bat calls recorded during transects reflects the location of the detector at that time and not the location of the bat, which may be anywhere within the approximately 20m detection range. The data plotted on the survey results figures has been adjusted to reflect the observations of the surveyors and thereby provide a more detailed picture of the habitat features associated with bat activity.

Automated detectors record all bat calls within range of the detector. Whilst analysis of sonograms generated from the recorded data can illustrate activity such as feeding buzzes, social calls and where more than one bat is present at the same time, it cannot provide any information about the direction of flight, and therefore cannot fully contextualise the data in relation to actual numbers of bats. For example, 10 bat calls recorded over a period of several minutes could be one individual passing 10 times or 10 individuals each passing once.

Given the constraints outlined above, the survey techniques and equipment used were consistent with the currently accepted standards for bat survey (Collins 2016) and the results are considered to provide a suitably robust picture of bat activity during the survey period.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

3 Results

3.1 Emergence/Re-entry Surveys

Common pipistrelle was the only species detected during emergence and re-entry surveys at the site and roosts were confirmed in some of the buildings, as indicated in Table 3—1. Activity levels varied across the site, with surveyors consistently detecting frequent activity along the river corridor and on the south side and upper level of the depot buildings (B1 and B2), but very little activity away from these areas.

Table 3—1 Summary of Roosting Activity

Structure	Roosting Activity	Roost Feature
B1	Day roost used by 1 common pipistrelle bat	Crevice in brickwork on NE facing external wall.
B2	Day roost used by 3-4 common pipistrelle bats	S side of building, precise roost entrance not yet confirmed.
B6	Day roost used by 1 common pipistrelle bat	Crevice in brickwork on external wall below metal fire escape on NE side above river.
B7	None	
B8	None	
B10a	None	
B23	Day roost used by 1 common pipistrelle bat	Gap between brick wall and wooden soffit on S side.
B24	Day roost used by 5 common pipistrelle bats	Inside culvert, precise roost entrance not confirmed.
B26	Day roost used by 5 common pipistrelle bats	Inside culvert, precise roost entrance not confirmed.

At the vicinity of roost sites bats were active within approximately 10 minutes of sunset/sunrise, but not detected until later in other areas. A maximum of 4-5 bats were seen together at any one time by any individual surveyor of bats foraging in the river corridor.

The weather conditions recorded during each of the survey visits are provided on the survey schedule in Appendix B and more detailed descriptions of the activity observed are given in Appendix C with plates in Appendix D.

3.2 Walked Transect

Common pipistrelle was the only species encountered during the two transect surveys.

Bats were seen and heard from approximately 5 minutes after sunset during the first survey (July), and from approximately 12 minutes after sunset during the second survey (August).

On both occasions, activity levels within the site as a whole were relatively low with a maximum of two individuals seen in flight together at any one time. As illustrated on – Plans 2 and 3, bats were predominantly detected around the depot buildings (B2 and B2) and along the river corridor. Where bats were detected away from these areas, the flight observed and calls heard indicated commuting behaviour rather than sustained foraging activity.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

3.3 Automated Monitoring

A total of 2051 files were recorded by the automated detector. With the exception of a single Daubenton's bat (*Myotis daubentonii*) call recorded on one night, the remainder of the data was for common pipistrelle bats. Activity was fairly consistent at between 200 and 300 calls recorded for each of the first three nights, then an increase to over 600 calls for the final two nights of the monitoring period.

Table 3—2 Total Bat Activity During Automated Monitoring Period

Date	Number of Calls	
	Common Pipistrelle	Daubenton's
21st July 2017	213	0
22nd July 2017	250	0
23rd July 2017	291	0
24th July 2017	641	0
25th July 2017	655	1

Combining figures for each night to get an averaged picture of nightly bat activity during the monitoring period, the pattern of activity is illustrated in Table 3—2. This shows that bat activity was relatively consistent throughout the night with between 100 and 150 detections during each 30 minute period between sunset and sunrise, with a peak of activity at approximately 1-1.5hrs after sunset.

The sonograms typically illustrated long sequences of echolocation calls with numerous feeding buzzes, although there were also shorter sequences of echolocation that suggested commuting behaviour.

The majority of the data illustrated calls of individual bats, but there were also instances where calls of at least two bats were apparent. Social calling was encountered occasionally throughout the monitoring period but most frequently coinciding with the peak time of bat activity between sunset and midnight.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

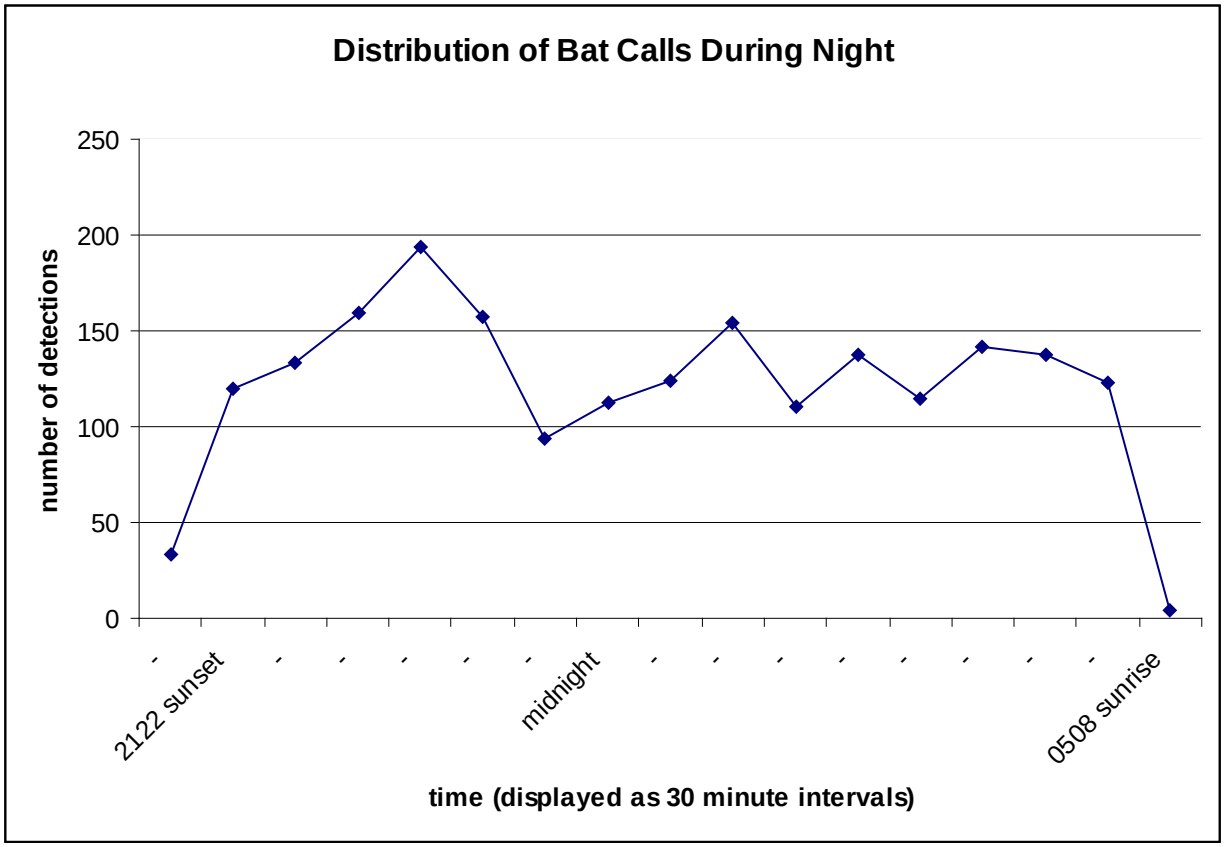


Figure 3—1 Chart illustrating the overall pattern of bat calls detected between sunset and sunrise for the period 21st – 25th July

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

4 Evaluation

4.1 Foraging and Commuting Activity

Other than a single record of Daubenton's bat commuting along the river corridor, the only species encountered during the entire suite of surveys was common pipistrelle bat. This lack of species diversity is attributable to the city centre location, as the tall buildings, lack of vegetated habitats and disturbance resulting from noise and extensive artificial lighting in densely developed urban areas typically provide very poor conditions for bats and wholly unsuitable habitat for the majority of UK species.

Although common pipistrelle bats are the most frequently encountered species in urban areas and are more tolerant of artificial lighting than many other species, it was noticeable that even for this species activity was greatest along the river corridor. There was some activity in and around the dark and sheltered areas at the upper level and to the south of the depot buildings (B1 and B2) but from surveyor observations in other parts of the site where there was little green habitat and high levels of artificial lighting, bat activity was mainly limited to occasional individuals commuting.

The river channel is heavily engineered, with the water flowing at least 4m below surrounding ground level within brick or stone retaining walls. Crevices in the more dilapidated sections of the retaining walls and also silt banks within the channel support tall herb vegetation and even occasional trees, resulting in a mainly dark and sheltered habitat corridor and a ready source of the small midges that pipistrelle bats feed upon.

Based on the overall levels and distribution of bat activity observed during the surveys, the river corridor is considered to be the most important habitat for bats within the site. It forms an important resource within the site itself, but is also a component of a wider network of riparian habitat that allows bats to disperse through and live within the otherwise inhospitable urban landscape. Development of the river corridor has the potential to reduce the value of this area as foraging and commuting habitat, and any increase in artificial lighting is likely to be particularly detrimental.

Reduced habitat quality along the river corridor will have impacts on bats within the site itself, but is also likely to result in fragmentation effects for bat populations at a wider scale within the city.

4.2 Roosting Activity

Roosts were confirmed in several structures at the site including culverts (B24 and B26), a wall directly above the river (B6) and the old station depot buildings (B1, B2 and B23). Based on the relatively low numbers of individuals observed entering or exiting roost features at each of these locations, they are all considered to be day roosts[3].

By comparing results recorded by surveyors positioned at vantage points at either end of each culvert, it was possible to confirm numbers of bats exiting at sunset or entering at sunrise rather than simply commuting through. However, it has not been possible to determine the exact roost features used within the two structures. Based on the type of structure and the known roost habits of common pipistrelle bats it is considered likely that the roosts comprise one or more small crevice features between the bricks/stones.

[3] *Day roost – 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.*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Demolition, refurbishment or structural works to these buildings would be likely to result in modification or destruction of bat roosts, which would be an offence under current wildlife legislation. All British bats hibernate during the winter and therefore have very different habitat requirements depending on the season. This means that although bats do typically use the same roost sites annually, the majority of roosts are used for only part of each year. For this reason it should be noted that a bat roost remains fully protected by law regardless of whether or not bats are present at that time.

Depending on the time of year, works to structures used by roosting bats could also present a risk of disturbance or causing harm to bats, which would result in additional offences.

Appropriate mitigation and avoidance measures will need to be implemented to minimise disturbance, avoid harm and offset the loss of any roost sites. Recommendations are presented in the Section 5.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

5 Recommendations

5.1 Introduction

In line with current good practice, if development has not begun within two years of this report the bat surveys should be repeated to re-assess bats' usage of the site and confirm the location and nature of any roosting activity at that time.

Based on the current survey results and proposals for the site, the following recommendations are made.

5.2 Licence Application

Upon receipt of planning consent, a licence application to Natural England will be required for any works affecting the roosts. A standard licence application typically takes at least 30 days for Natural England to process and requires the completion of several documents:

- Application form (providing details of the site, applicant and named ecologist);
- Method statement (providing a detailed description of predicted impacts and mitigation strategy);
- Reasoned statement (setting out the planning context); and
- Work schedule (setting out the timescale for the proposed work).

5.3 Mitigation Strategy

A mitigation strategy will be required to avoid or compensate for impacts on roosting bats, and the following points will need to be considered, with examples of actions that may be appropriate for implementation of the strategy:

- Measures to minimise unnecessary disturbance of bats in a roost, e.g.:
    - scheduling works for periods when bats may be absent.
- Measures to avoid causing harm to individual bats during the course of the works, e.g.:
    - toolbox talk for contractors to brief them on presence of bats and provisions of the mitigation strategy;
    - supervision of 'at risk' activities by a licensed bat ecologist; and
    - destructive search of roost features.
- Provision of alternative roost habitat for common pipistrelle bats to offset the loss of the existing roosts, e.g.:
    - bat boxes in dark, sheltered locations; and
    - incorporating potential roost features into new structures.
- Avoiding fragmentation of important bat foraging and commuting habitats, e.g.:
    - sensitive lighting design for the scheme that minimises illumination of the river corridor;

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

- lighting specification that uses narrow spectrum light sources with low ultra-violet, blue or white wavelength component to minimise insect attraction at lamps; and
- incorporating areas of soft landscaping into the development masterplan and ensuring connectivity between any new habitats and the existing river corridor.

Further guidance on lighting specifications is provided in publications available via the Bat Conservation Trust website, such as the impacts of different types of lighting (RCEP 2009), effects of artificial lighting on bat behaviour (Stone 2013) and guidelines for mitigation (BCT 2014).

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

6 References

Altringham, J.D., 2003. *British Bats*. New Naturalist Series 93. Harper Collins.

BCT, 2014. *Artificial Lighting and Wildlife. Interim Guidance: recommendations to help minimise the impact of artificial lighting* <www.bats.org.uk>

BuroHappold Engineering, 2017. *Mayfield Regeneration Development - Ecological Assessment and Bat Inspection*, Rev. 01, updated 16 November 2017.

CIEEM, 2013. *Competencies for Species Surveys: Bats*. Chartered Institute of Ecology and Environmental Management.

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

Mitchell-Jones, A.J., 2004. *Bat Mitigation Guidelines*. English Nature.

RCEP, 2009. *Artificial light in the environment*. The Royal Commission on Environmental Pollution.

Schofield, H.W., and Mitchell-Jones, A.J., 2003. *The Bats of Britain and Ireland*. The Vincent Wildlife Trust.

Stone, E. L., 2013. *Bats and lighting: overview of current evidence and mitigation guidance*.

Waters, D., and Warren, R., 2003. *Bats*. The Mammal Society.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix A – Plans

Figure 1: Bat Roost Assessment

Figure 2: Bat Transect Results (July 2017)

Figure 3: Bat Transect Results (September 2017)

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

384800 384900 385000 385100 385200 385300 385400 385500

397800 397700 397600 397500 397400

B1 - Day roost for 1 common pipistrelle bat

B2 - Day roost for 3-4 common pipistrelle bats

B23 - Day roost for 1-2 common pipistrelle bats

B26 (culvert) Day roost for approx. 5 common pipistrelle bats

B24 (culvert) Day roost for approx. 5 common pipistrelle bats

B6 - Day roost for 1 common pipistrelle bat

B22 B1 B2 B21 B23 B25 B20 B3 B4 B24 B5 B6 B19 B26 B12 B9 B7a B7b B7c B8 B10a B10b B18 B15 B16 B17 B13 B14 B11



384800 384900 385000 385100 385200 385300 385400 385500

BUROHAPPOLD ENGINEERING

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

N

ISO A3

0 10 20 40 60 80 Metres

Legend

- Site boundary
- Confirmed roost
- No evidence of roosting
- No access for survey
- Building no longer present
- Roost entrance
- Roost entrance area, precise feature not confirmed
- Location of bat droppings found in 2012

Title:

BAT ROOST ASSESSMENT

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:2,000	Drawing No.	Figure 1
Drawn By	CC	Originator HR	Date 27/10/2017
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps\Figures	Revision	A

Ordnance Survey © Crown copyright and database right 2017

384900 385000 385100 385200 385300 385400

397700 397600 397500

B22 B1 B2 B21 B23 B25 B20 B3 B4 B24 B5 B6 B7a B7b B7c B8 B9 B10a B10b B11 B12 B19 B26 B18 B15 B16 B17 B13 B14

1 START 2 3 4 5 6 7



384900 385000 385100 385200 385300 385400

BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

0 10 20 40 60 Metres

Legend

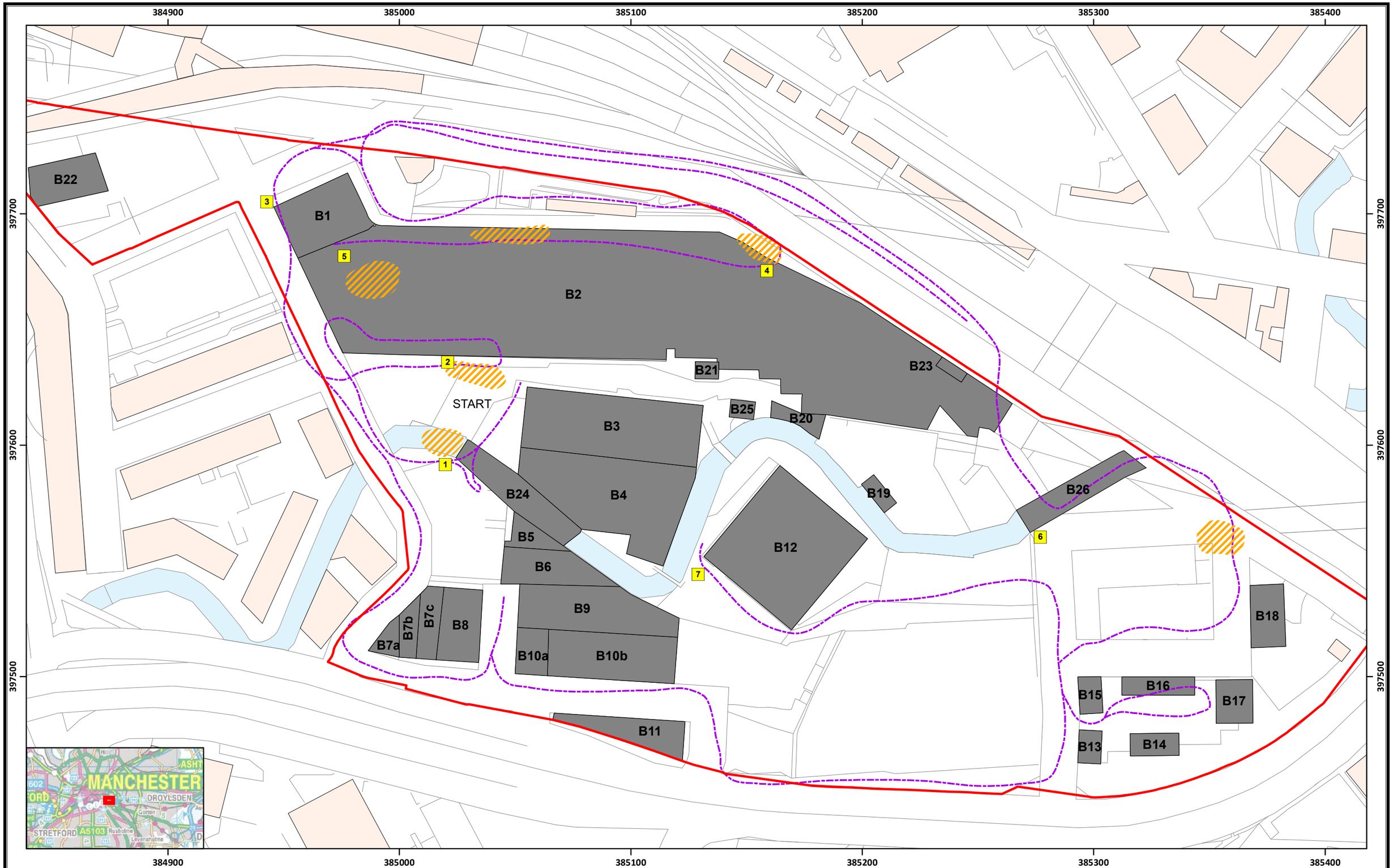
- Site boundary
- Buildings
- Transect route - July 2017
- Point count location
- Areas where bat calls were detected (Common pipistrelle)

Title:

BAT TRANSECT RESULTS (JULY 2017)

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:1,500	Drawing No.	Figure 2
Drawn By	CC	Originator HR	Date 27/10/2017
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps\Figures	Revision	A

Ordnance Survey © Crown copyright and database right 2017



BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

0 10 20 40 60 Metres

Legend

- Site boundary
- Buildings
- Transect route - Sep 2017
- Point count location
- Areas where bat calls were detected (Common pipistrelle)

Title:

BAT TRANSECT RESULTS (SEPTEMBER 2017)

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:1,500	Drawing No.	Figure 3
Drawn By	CC	Originator HR	Date 27/10/2017
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps\Figures	Revision	A

Ordnance Survey © Crown copyright and database right 2017

Appendix B - Dates of Surveys and Weather Conditions

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

APPENDIX B DATES OF SURVEYS, AND WEATHER CONDITIONS

Date	Survey Type	Start Time	Sunrise/ Sunset	End Time	Weather	Target Buildings
24/05/17	Dusk Emergence	2100	2117	2245	Dry with light wind. Temperature 17.5ºC dropping to 14.9ºC by the end. Relative humidity 73%, increasing to 93%. Cloud cover 0/8 throughout.	B1 and B2 (platform level) B23
14/06/17	Dusk Emergence	2124	2139	2255	Dry and calm, increasing to light wind by the end. Temperature 20ºC throughout. Relative humidity 42%, decreasing to 41%. Cloud cover 8/8 throughout.	B26
20/06/17	Dusk emergence	2125	2139	2255	Dry with light wind. Temperature 18ºC, decreasing to 17ºC. Relative humidity 60%, increasing to 67%. Cloud cover 1/8 throughout.	B1 and B2 (platform level) B23 B8
21/06/17	Dawn re-entry	0335	0440	0455	Dry with light wind. Temperature 16ºC, dropping to 15ºC by end. Relative humidity 68%, increasing to 72%. Cloud cover 1/8, increasing to 2/8.	B1 & B2 (ground level)
04/07/17	Dusk emergence	2125	2140	2250	Dry and calm, some light drizzle for 10 minutes. Temperature 21.8 ºC, decreasing to 18.2 ºC. Relative humidity 55%, increasing to 65%. Cloud cover 8/8 throughout.	B24 (culvert) B26 (culvert)
05/07/17	Dawn re-entry	0320	0448	0505	Light rain and light wind. Dry by the end of survey. Temperature 14.8 ºC, decreasing to 14.4 ºC. Relative humidity 88% increasing to 100%. Cloud cover 8/8 throughout.	B7 B8
12/07/17	Dusk emergence	2126	2134	2250	Dry and calm, Temperature 15ºC decreasing to 14 ºC. Relative humidity not recorded. Cloud cover 1/8 throughout.	B8 B10a

Date	Survey Type	Start Time	Sunrise/ Sunset	End Time	Weather	Target Buildings
20/07/17	Dusk emergence	2100	2124	2248	Dry and calm. Temperature 20.5ºC decreasing to 15.2 ºC. Relative humidity 34% increasing to 54%. Cloud cover 6/8 increasing to 8/8.	B1 and B2 (platform level) B23
21/07/17	Dawn re-entry	0350	0508	0525	Dry with light wind. Temperature 14ºC decreasing to 13 ºC. Relative humidity 70% increasing to 75%. Cloud cover 8/8 decreasing to 7/8.	B24 (culvert) B26 (culvert)
26/07/17	Dusk emergence	2100	2116	2230	Dry with light wind, becoming heavy rain and strong wind by the end of the survey. Temperature 18ºC decreasing to 14ºC. Relative humidity 57% increasing to 81%. Cloud cover 4/8 increasing to 8/8.	B7
10/08/17	Dawn re-entry	0425	0540	0555	Dry and calm. Temperature 7.7ºC decreasing to 6.6 ºC. Relative humidity remained at 98%. Cloud cover 0/8 throughout.	B23
17/08/17	Dusk emergence	2015	2035	2200	Dry and calm. Temperature 19.4ºC increasing to 19.8ºC. Relative humidity remained at 32%. Cloud cover 7/8 throughout.	B24 (culvert)
23/08/17	Dusk emergence	2000	2019	2125	Dry and calm. Temperature 20ºC decreasing to 17ºC. Relative humidity 44%, decreasing to 36%. Cloud cover 1/8, clearing to 0/8 by end.	B26 (culvert)
25/08/17	Dawn re-entry	0430	0606	0620	Dry and calm. Temperature 13.5ºC decreasing to 11.2ºC. Relative humidity 60%, decreasing to 80%. Cloud cover 1/8 throughout.	B1 and B2 (platform level)
01/09/17	Dawn re-entry	0505	0618	0630	Dry and calm. Temperature 11ºC throughout. Relative humidity 75%, increasing to 85%. Cloud cover 0/8 throughout.	B1 and B2 (ground level)
21/09/17	Dusk emergence	1839	1909	1939	Dry and calm. Temperature 15ºC, decreasing to 10ºC by end. Relative humidity 57%, increasing to 80%. Cloud cover 6/8, clearing to 2/8 by end.	B2 (ground level – south side only)

Appendix C - Emergence/Re-entry Survey Data

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

APPENDIX C EMERGENCE/RE-ENTRY SURVEY DATA

Date	Survey Type	Target Buildings		Bat Emergence/ Re-entry Observed
24/05/17	Dusk emergence	B1 & B2 (platform level)	Common pipistrelle (*Pipistrellus pipistrellus*) bats were first detected approximately 20 minutes after sunset and then seen and heard foraging around the station concourse frequently throughout the survey. A maximum of two individuals were seen together at any one time. No bats were seen to emerge from or enter any potential roost feature. No other bat species were seen or heard during the survey.	No
		B23	Common pipistrelle bats were seen and heard from approximately 45 minutes after sunset and then were recorded foraging around the building frequently throughout the remainder of the survey. A maximum of two individuals were seen together at any one time. At approximately 50 minutes after sunset, and again five minutes later, a single bat was seen to fly up to the eaves on the southern elevation. On both occasions the bat was not seen to fly away, and echolocation calls stopped at the point where it reached the roof; it was therefore considered likely to have entered a potential roost feature building. No other bat species were seen or heard during the survey.	Yes
14/06/17	Dusk emergence	B26	Common pipistrelle bats were seen and heard from approximately five minutes after sunset. There was frequent bat foraging and commuting activity along the river corridor throughout the survey with a maximum of two individuals seen together at any one time. No bats were seen to emerge from or enter any potential roost feature. No other bat species were seen or heard during the survey.	No
20/06/17	Dusk emergence	B1 & B2 (platform level)	Common pipistrelle bats were first detected from approximately 10 minutes after sunset and then seen and heard foraging frequently throughout the rest of the survey. A maximum of 2 individuals were seen together at any one time. No bats were seen to emerge from or enter any potential roost feature. No other bat species were seen or heard during the survey.	No

Date	Survey Type	Target Buildings		Bat Emergence/ Re-entry Observed
20/06/17	Dusk emergence	B23	Common pipistrelle bats were seen and heard from approximately 50 minutes after sunset, foraging around the building and over the nearby scrub vegetation. A maximum of two individuals were seen together at any one time. No bats were seen entering or exiting any potential roost feature; however, two bat droppings were found stuck to the wall on the south side directly below a crevice feature where the soffit meets the wall. No other bat species were seen or heard during the survey.	No
		B8	Common pipistrelle bats were first detected at approximately 35 minutes after sunset and then seen and heard occasionally throughout the rest of the survey. No bats were seen entering or exiting any potential roost feature. No other bat species were seen or heard during the survey.	No
21/06/17	Dawn re-entry	B1 & B2 (ground level)	Common pipistrelle bats were seen and heard foraging along the river corridor to the south of the building, with near constant activity by at least five individuals, some well down in the channel close to the water level and others higher at street level and along the bankside vegetation. Bats were also occasionally seen foraging over the construction compound between the building and the river. By approximately 20 minutes before sunrise only a single bat remained foraging at this location, remaining until 10 minutes before sunrise. None of the bats were seen to leave the river corridor; however, due to the tall bankside vegetation their flight path could not be seen further than approximately 10m further than the bridge on Baring St. Individual common pipistrelle bats were occasionally seen around the other sides of the building during the survey, but activity levels were generally low. No bats were seen entering or exiting any potential roost feature; however, due to access limitations during this visit there was very poor visibility of most of the southern side of the building. No other bat species were seen or heard during the survey.	No (NB note limitations to survey coverage on this visit)
04/07/17	Dusk emergence	B24 (culvert)	Bats were noted to already be active at the time survey commenced. At approximately three minutes after sunset a single common pipistrelle was seen to fly away from the wall below the fire escape on B6 where the surveyor was positioned to view the eastern end of the culvert. Common pipistrelle bats were seen and heard frequently throughout survey, flying in and out of the culvert from both the east and west and foraging over the nearby trees. A maximum of five individuals were seen flying together at any one time. No other bat species were seen or heard during the survey.	Yes (B6) No (B24 culvert) (NB bats were already active before survey started)

Date	Survey Type	Target Buildings		Bat Emergence/ Re-entry Observed
04/07/17	Dusk emergence	B26 (culvert)	Bats were noted to already be active at the time survey commenced. Common pipistrelle bats seen and heard frequently throughout the survey, foraging up and down the river corridor and occasionally entering the culvert. A maximum of four individual bats seen together at any one time.	No (NB bats were already active before survey started)
05/07/17	Dawn re-entry	B7	Common pipistrelle bats were seen and heard very occasionally during the survey, on each occasion commuting through this area of the site. The last bat detected at approximately 55 minutes before sunrise. No other bat species were seen or heard during the survey. No bats were seen entering or exiting any potential roost feature.	No
12/07/17	Dusk emergence	B8	A single common pipistrelle bat was detected at just over one hour after sunset. No other bat species were seen or heard during the survey. No bats were seen entering or exiting any potential roost feature.	No
		B10a	No bats were seen or heard during the survey. No bats were seen entering or exiting any potential roost feature.	No
20/07/17	Dusk emergence	B1 & B2 (ground level)	At approximately 10 minutes after sunset a single common pipistrelle bat was seen to emerge from a small gap beneath decorative stonework on the eastern side of B1, close to the top of the wall. This individual bat was observed to re-enter and emerge from the same feature several times during the survey. Common pipistrelle bats were occasionally seen and heard foraging along the north side of B1 and B2 and between the arches on Temperance Street. At approximately 15 minutes after sunset on the south side of B2, three to four common pipistrelle bats were suddenly detected foraging in the sheltered space between the side of the depot and the adjacent walkway. The bats were considered likely to have emerged from roost in this location, although the precise roost entrance was not identified. No other bat species were seen or heard during the survey.	Yes
		B23	Common pipistrelle bats were seen to forage and commute occasionally along the railway tracks. No other bat species were seen or heard during the survey. No bats were seen entering or exiting any potential roost feature.	No

Date	Survey Type	Target Buildings		Bat Emergence/ Re-entry Observed
21/07/17	Dawn re-entry	B24 (culvert)	Surveyors at both the eastern and western end of the culvert recorded near constant foraging and commuting activity by common pipistrelle bats during the survey, with a maximum of three individuals seen in flight together at any one time. At the eastern side activity continued until approximately 20 minutes before sunrise, when three individuals were seen to enter the culvert and did not re-emerge. Activity continued at the western end for approximately another 10 minutes. No other bat species were seen or heard during the survey.	Yes
		B26 (culvert)	Several common pipistrelle bats were first recorded approximately 80 minutes before sunrise. They were observed to be foraging along the river corridor, flying in and out of the culvert entrances. At approximately 20 minutes before sunrise, a common pipistrelle bat was observed to re-enter a roost feature on the wall of the north side of the culvert. No bat activity was recorded after 10 minutes before sunrise on the south entrance, whilst bat activity of an individual common pipistrelle was recorded up to 10 minutes after sunrise.	Yes
26/07/17	Dusk emergence	B7	A common pipistrelle bat was recorded foraging on the north side of B7 approximately 30 minutes after sunset. No bats were seen entering or exiting any potential roost feature. No other bat species were seen or heard during the survey.	No
10/08/17	Dawn re-entry	B23	No bat species were seen or heard during the survey. No bats were seen entering or exiting any potential roost feature.	No
17/08/17	Dusk emergence	B24 (culvert)	At approximately 12 minutes after sunset two common pipistrelle bats were seen emerging from the eastern end of the culvert, followed by a further one individual from the western end a minute or so later. After this time, surveyors at both ends of the culvert observed fairly constant bat foraging and commuting activity within the river corridor, with a maximum of two individuals seen together at	Yes
23/08/17	Dusk emergence	B26 (culvert)	Three common pipistrelle bats were seen emerging from the western entrance to the culvert at approximately 10 minutes after sunset. At around the same time a further one individual was seen to emerge from the eastern end of the culvert. After this time there was fairly constant foraging and commuting activity in the river corridor at the western side of the culvert, with a maximum of five individuals seen flying together at any one time. Activity at the eastern side was detected throughout the survey, but to a lesser extent.	Yes

Date	Survey Type	Target Buildings		Bat Emergence/ Re-entry Observed
25/08/17	Dawn re-entry	B1 & B2 (platform)	Common pipistrelle bats were seen and heard occasionally during the survey with maximum of one bat seen at any one time. The last individuals were detected at approximately 50 minutes before sunrise. No bats were seen entering or exiting any potential roost feature.	No
01/09/17	Dawn re-entry	B1 & B2 (ground level)	Common pipistrelle bats were seen and heard occasionally during the survey, both to the south of the building and on at the ramp on the north side. A maximum of one bat was seen at any one time and the last individuals were detected at approximately 35 minutes before sunrise. No bats were seen entering or exiting any potential roost feature.	No
21/09/17	Dusk emergence	B2 (south side)	Common pipistrelle bats were seen and heard occasionally during the survey from approximately 30 minutes after sunset. No bats were seen entering or exiting any potential roost feature.	No

Appendix D - Plates

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.



Plate 1

Building B23 – two bats seen entering during dusk survey (yellow). Also several fresh bat droppings found stuck to wall (blue).



Plate 2

Building B1 – a single common pipistrelle was seen emerging during dusk survey (yellow).



Plate 3

Southern side of B2 – 3-4 bats seen close to building at sunset during dusk surveys, considered likely to be roosting but exact roost feature not identified.



Plate 4

Southern side of B2 – roost entrance identified towards end of ramp identified during earlier survey work undertaken by other consultants during 2014.



Plate 5

Eastern entrance to B24 (culvert). Bats confirmed roosting but precise roost feature inside culvert could not be determined at this stage.



Plate 6

Western entrance to B24 (culvert).



Plate 7

B26 (culvert), viewed looking eastwards from river level. Bats confirmed to be roosting during dusk and dawn surveys but exact roost entrance not identified.



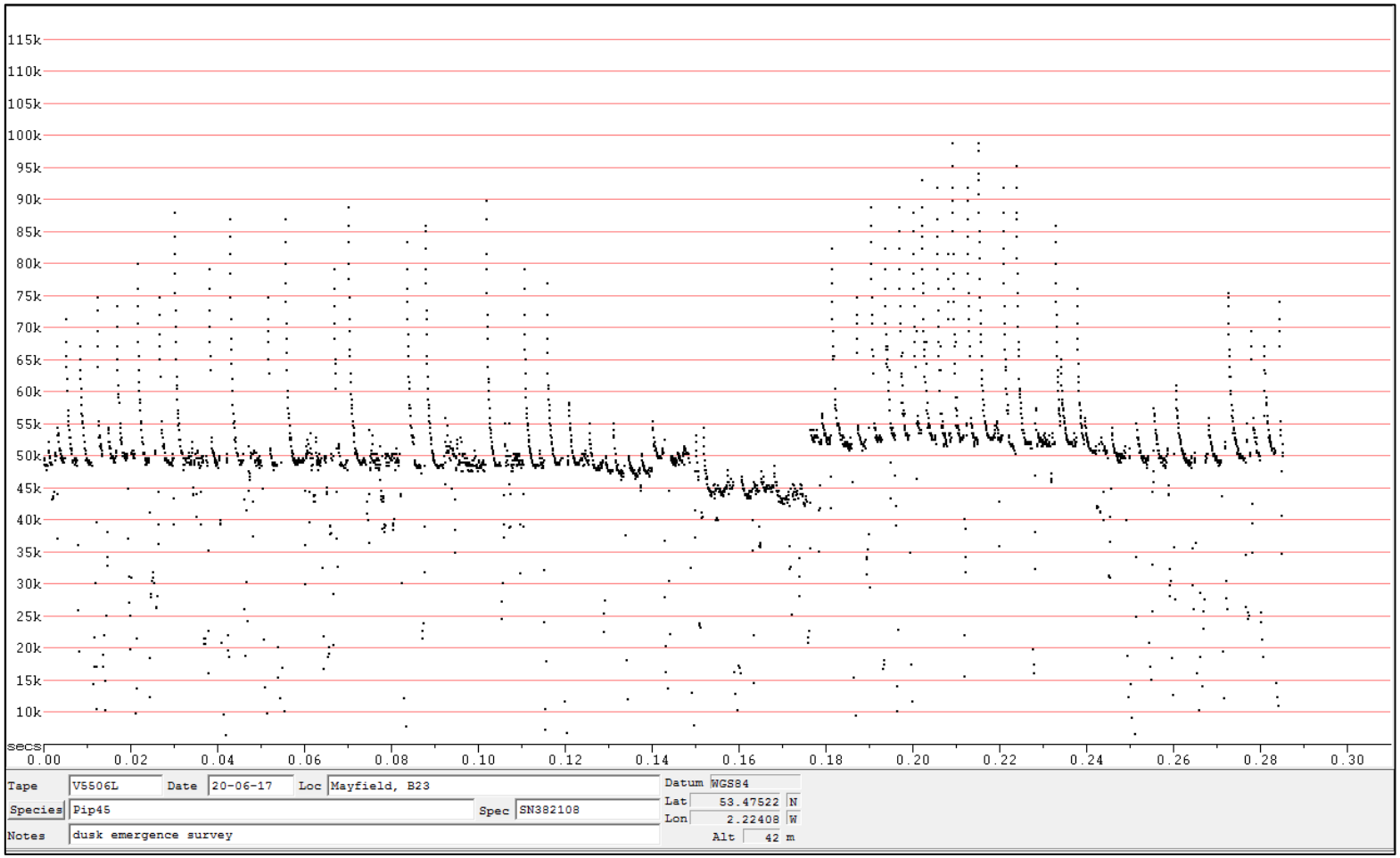
Plate 8

Building B6 – 1 bat confirmed emerging from roost on wall below fire escape during dusk survey, exact roost feature not identified.

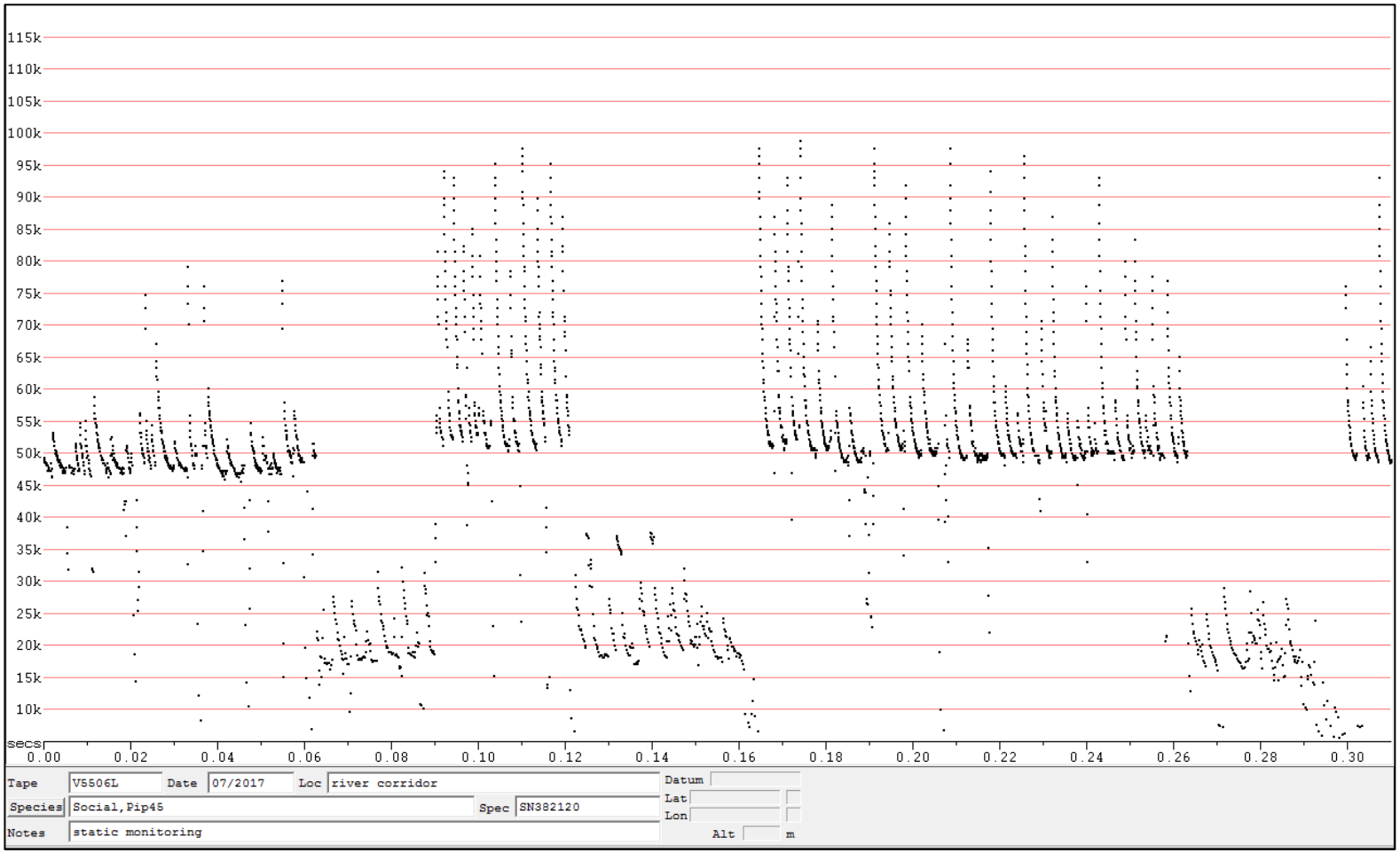
Appendix E - Sonograms

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

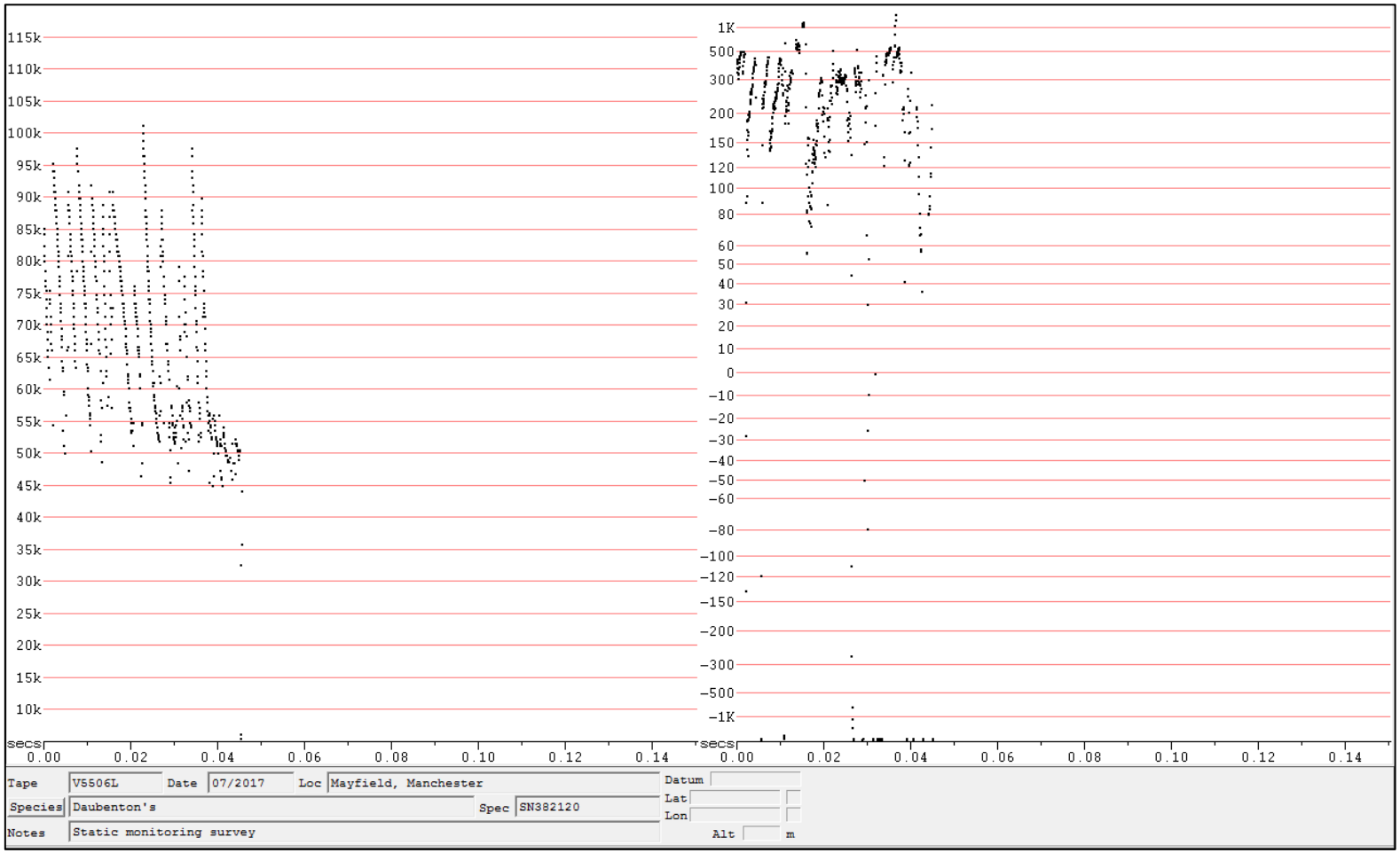
Sonogram 1: Echolocation calls of common pipistrelle bat recorded during dusk emergence survey at the site.
Recorded by Anabat SD1 and analysed using AnalookW (view: F7 compressed, frequency only).



Sonogram 2: Echolocation and social calls of common pipistrelle bats recorded during automated monitoring at the site.
Recorded by Anabat Express and analysed using AnalookW (view: F7 compressed, frequency only).



Sonogram 3: Echolocation calls of Daubenton's bat recorded during automated monitoring along the river corridor.
Recorded by Anabat Express and analysed using AnalookW (view: F7 compressed, frequency and slope).



Pernille Olsen
Buro Happold
Camden Mill
Lower Bristol Road
Bath
BA2 3DQ
UK

T: +44 (0)1225 320 600
F: +44 (0)870 787 4148
Email: Pernille.Olsen@burohappold.com

d) Mayfield Regeneration Development Black Redstart and Breeding Bird Survey Report (2017)

BUROHAPPOLD ENGINEERING

Mayfield Regeneration Development

Black Redstart and Breeding Bird Survey Report

035548

29 November 2017

Revision 00

MRP-BHE-XX-XX-RP-YM-0002

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Revision	Description	Issued by	Date	Checked
00	Black Redstart and Breeding Bird Survey Report	GH	29/11/2017	PO

O:\035548 Mayfield Regeneration Development\F32 Environmental\03 Reports\Ecology Survey Reports WIP\Mayfield BR_Breeding Bird Survey WIP\MRP-BHE-XX-XX-RP-YM-0002.docx

This report has been prepared for the sole benefit, use and information of U+I for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author	**Gerard Hawley**
date	**16/11/2017**
approved	**Pernille Olsen**
signature	
date	**29/11/2017**

..

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Contents

1 Introduction **7**

1.1 Background 7

1.2 Site Description 7

1.3 Aims 7

1.4 Legislative and Policy Context 8

1.5 Conservation Status 8

2 Methods **10**

2.1 Desk Study 10

2.2 Breeding Bird Survey 10

2.3 Black Redstart Survey 10

2.4 Visit Details 11

2.5 Determination of Breeding Status 11

2.6 Survey Limitations 11

3 Results **12**

3.1 Desk Study 12

3.2 Field Survey 13

4 Discussion and Recommendations **14**

4.1 Evaluation of Breeding Assemblage 14

4.2 Recommendations 14

5 References **17**

Appendix A – Plans

Appendix B - Results

Appendix C - Legislation Summary

Appendix D - EOAC and BTO Guidelines

Appendix E - GMEU Black Redstart Records

Table of Tables

Table 3—1 Location of Records for Black Redstart in Manchester City Centre within a 1km Radius (GMEU) 12

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Glossary

Term	Definition
BBS	Breeding Bird Survey
BTO	British Trust for Ornithology
CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside and Rights of Way
GMEU	Greater Manchester Ecology Unit
JNCC	Joint Nature Conservation Committee
NERC	Natural Environment and Rural Communities
RSPB	Royal Society for the Protection of Birds
WCA	Wildlife and Countryside Act

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

1 Introduction

1.1 Background

BuroHappold Engineering was instructed to carry out an ecological assessment that included a black redstart survey and breeding bird survey of a site in central Manchester at and around the former Mayfield Station complex, hereafter referred to as the 'site'.

The site is proposed for re-development, including demolition of the majority of existing structures on the site, refurbishment of some of the older buildings, and modification of the retaining walls along the River Medlock.

The site partially falls within the Black Redstart Priority Area. This identifies an area in central Manchester where the black redstart (*Phoenicurus ochruros*) has been recorded. This species is a rare breeder, passage migrant and winter visitor with a small population concentrated in London, Sheffield, Liverpool and the West Midlands. There are also records of black redstarts breeding in central Manchester. A Species Action Plan (Greater Manchester Biodiversity Project 2009) aims to maintain a breeding population in Greater Manchester.

This report details the results of the black redstart and breeding bird survey and evaluates the results in the context of the proposed re-development of the site, making recommendations for mitigation and/or any further survey work as required.

1.2 Site Description

The site boundary includes an area of approximately 9.1ha, comprising a series of buildings that are predominantly commercial or light industrial units and associated areas of hard and soft landscaping. Some of the existing buildings are still occupied whilst others, including the station, have been disused for many years.

The site is surrounded on all sides by dense built-up areas, with tall buildings and busy roads. Manchester Piccadilly rail station is immediately to the north and the River Medlock flows east to west through the centre of the site.

1.3 Aims

The purpose of the black redstart and breeding bird surveys were to:

- determine if black redstart are using the site for breeding and/or foraging;
- obtain an understanding of the sites function for breeding birds;
- evaluate the assemblage of birds; and
- evaluate the impact construction works and redevelopment would have on breeding birds.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

1.4 Legislative and Policy Context

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000. This legislation applies in England and Wales.

Part 1 (Section 1:1) of the WCA states that:

'If any person intentionally,

(a) kills, injures or takes any wild bird;

(b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or

(c) takes or destroys an egg of any wild bird,

he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) refers to specific birds listed on Schedule 1 of the WCA, and states that:

'If any person intentionally or recklessly,

(a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or

(b) disturbs dependent young of such a bird,

he shall be guilty of an offence and liable to a special penalty.'

Schedule 1 includes birds such as barn owl (*Tyto alba*), black redstart, wood lark (*Lullula arborea*) and Cetti's warbler (*Cettia cetti*). Please refer to the WCA for a complete list of Schedule 1 species.

Please note: the above text provides a summary of the legislation in relation to birds and the original Acts and amendments should be referred to for complete details. A summary of relevant legislation is presented in Appendix C.

1.5 Conservation Status

A number of criteria are available to determine the conservation status of species recorded. These include:

1.5.1 Birds of Conservation Concern 4 (Eaton et al. 2015)

Under this approach bird populations are assessed using quantitative criteria to determine the population status of each species, and then placed on one of three lists: red, amber or green. Red list species are of high conservation concern, having declined by 50% or more in population or breeding range in the last 25 years. Amber listed species are of medium conservation concern, having suffered between 25% and 49% reduction in breeding or non-breeding populations, breeding or wintering ranges. Green list species have a favourable conservation status.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

1.5.2 Section 41 Priority Species (former Biodiversity Action Plan species) (UK Biodiversity Steering Group 1995)

Local, regional and national biodiversity targets identify habitats and species, including birds, of conservation concern for which Action Plans have been devised to help safeguard the most threatened species. Of particular relevance to this survey are species listed within the Greater Manchester priority species lists.

1.5.3 Quality of Life Indicator Species

The Quality of Life index is a UK Government scheme to measure the changes in 15 headline indicators of sustainable development and quality of life. Within these 15 indicators are population, economic growth, health and the state of the environment. The wild bird index is a summary of the population trends of the more common native species that breed in the UK and is divided in to species groups, namely farmland and woodland species. The UK Government is committed to reversing these declines by 2020 and will use this indicator to assess its performance.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

2 Methods

2.1 Desk Study

Records of protected species within 1km of the site, including birds, were obtained from the Greater Manchester Ecology Unit (GMEU), which hold biological records for the ten district councils that make up Greater Manchester. In addition, and more specifically concerning the black redstart, the website of the Manchester Birding Forum (2017) was consulted, which has recent sightings of black redstart listed.

2.2 Breeding Bird Survey

The breeding bird survey was carried out by Principal Ecologist Paul Fisher (MCIEEM[1]) and Assistant Ecologist Abigail Case.

The survey methodology was based on the breeding bird survey (BBS) methodology devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC) (Gilbert *et al*. 1998). This methodology requires three visits to be made between late March and early July, with each visit being at least four weeks apart. The start and finish dates for a particular site will vary depending upon latitude and altitude. The first of these visits is required to scope the site, record the habitats and set up a route and survey approach. This was completed as part of an earlier scoping exercise, which established the distribution of habitat types and identified their potential function for breeding birds, allowing an appropriate survey methodology to be applied.

On each of the survey visits the following details were recorded:

- bird numbers, species, age and sex;
- habitats being used; and
- bird behaviour, e.g. singing, feeding, paying particular attention to evidence of breeding.

In keeping with the methodology, surveys began early in the morning and avoided poor weather conditions, which reduce visibility and can suppress bird activity.

The survey area was surveyed using a combination of transects and point observations. This involved following a predetermined route at a slow walking pace and longer periods of observations were made at strategic points. Sightings were registered on a basemap using standard BTO codes.

2.3 Black Redstart Survey

Black redstarts' breeding habitat includes industrialised sites, and built-up and/or derelict surroundings. The Mayfield site has many features that favour black redstart whose preferred feeding habitat is small sparsely vegetated areas with rubble, close to slow moving water and an area that is relatively undisturbed. The buildings are also ostensibly suitable as nesting habitat with vertical features and ledges as well as high singing posts.

[1] Full Member of the Chartered Institute of Ecology and Environmental Management

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

The Greater Manchester Biodiversity Project (2009) proposed survey guidelines for habitat suitable for breeding. This requires three visits of two-hour survey effort, with at least one week between each visit in the optimum survey season (April to July inclusive) to establish evidence of breeding, which would be:

- nest site with young;
- fledged young; and
- singing males.

The survey method involves timing visits when weather conditions are favourable, e.g. warm and windless days and to start one hour before dawn, as they sing at this time often from high perching positions.

The black redstart survey was conducted at the same time as the breeding bird survey by Principal Ecologist Paul Fisher (MCIEEM) and Assistant Ecologist Abigail Case.

2.4 Visit Details

The three survey visits for the black redstart and breeding bird surveys were conducted on the following dates:

- Visit 1 – 28 April 2017;
- Visit 2 – 26 May 2017; and
- Visit 3 – 16 June 2017.

2.5 Determination of Breeding Status

The breeding status of each species can be classified into four categories: confirmed breeder, probable breeder, possible breeder and non-breeder. The behaviour, sex, age and location of individual birds allow conclusions to be drawn about breeding status, based on categories devised by the European Ornithology Atlas Committee (EOAC 1979) and the BTO. Breeding evidence used in this report follows EOAC guidelines 1979 and BTO guidelines (see Appendix D).

The four categories: confirmed, probable, possible and non-breeders are used to indicate the likely breeding status within the survey area.

2.6 Survey Limitations

The conditions were suitable on each survey day being calm, warm and clear. Access was restricted to some parts of the site although it is considered that reasonable coverage was available, and that the survey results have enabled a robust assessment of the breeding bird assemblage to be undertaken

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

3 Results

3.1 Desk Study

A number of bird species of conservation interest have been recorded within the 1km search radius. The majority of these records were recent and within the last decade. GMEU returned records for a number of Section 41 species[2] including common bullfinch (*Pyrrhula pyrrhula*), dunnock (*Prunella modularis*), herring gull (*Larus argentatus*), house sparrow (*Passer domesticus*), song thrush (*Turdus philomelos*) and common starling (*Sturnus vulgaris*).

There is a single record of common kingfisher (*Alcedo atthis*) in the 1km search area. Common kingfishers are found by still and slow-flowing water, such as canals and rivers, and they nest in holes tunnelled into earth banks. The closest record is about 900m to the west of the site on a side branch of the Rochdale Canal.

There is a single record for little ringed plover (*Charadrius dubius*) at a brownfield site approximately 800m to the north-east at Ancoats, in an area close to a branch of the Ashton Canal. Little ringed plovers first bred in the UK in 1938. They are summer visitors and breed in unvegetated man-made habitats such as industrial and post-industrial land, gravel pits and shingle river banks.

GMEU returned a number of records for black redstart supplied by the Greater Manchester Bird Recording Group, all recorded within the last ten years and within 1km of the site. The closest sighting is at Piccadilly Station approximately 200m to the north of the site. The full list is presented in Appendix E and an abridged table presented as Table 3—1 listing the location and number of records in Manchester City centre up until 2016.

Table 3—1 Location of Records for Black Redstart in Manchester City Centre within a 1km Radius (GMEU)

Location	Number
Albert Square	2
Canal St Minshull St Courts	2
Central Retail Park Ancoats	2
China Lane	7
Chinatown	1
Manchester Town Hall	9
Oxford Road	1
Piccadilly Station	1
Port Street	4
Shudhill	3
St Anne's Square	2
St Peter's Square	1

The Manchester Birding Forum website (http://manchesterbirding.activeboard.com/) has a number of records of sightings and calling records for black redstart up until June 2017 at Lloyd Street (900m to north-east), Albert Square (800m to north-east) and Newton Street (350m to the north).

[2] *Under Section 41 of the Natural Environment and Rural Communities (NERC) Act, the Secretary of State must, as respects England, publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity*

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

3.2 Field Survey

3.2.1 Black Redstart

There were no sightings of black redstart. However, this is not to discount the possibility of black redstart using the site at times.

3.2.2 Breeding Bird Assemblage

A total of 18 species were recorded during the three site visits. Five Birds of Conservation Concern (BoCC) were recorded including amber-listed common bullfinch and dunnock, and red-listed common starling.

The common bullfinch is more commonly associated with gardens, scrub and woodland. UK common bullfinch populations have declined by 36% since 1967 believed to be related to the deterioration of habitat quality caused by agricultural intensification and the reduction in woodland diversity (BTO 2017).

The dunnock is a resident breeder and passage winter visitor. The amber status for the dunnock is because of a more recent population decline in both the breeding and winter population as well as a decline in the range. The cause of the decline is unknown (BTO 2017).

The willow warbler is a summer visitor placed on the amber list owing to a recent decline in numbers, particularly in southern England. The cause is thought to be a deterioration of habitat in its wintering grounds in Africa and changes in woodland management in Britain (Wildlife Trust 2017).

The mallard is a familiar duck, commonly seen on lakes in city parks and along rivers. The mallard has been amber-listed because of a recent breeding population decline as well as a breeding range and winter range decline (Wildfowl and Wetlands Trust 2017).

Despite the common starling being relatively conspicuous and widespread, there has been a decline in the breeding population and decline in the breeding and winter range. It was red-listed following its population being halved over three decades and in Greater Manchester common starlings have declined by 41% over the past two decades (RSPB 2017).

3.2.3 Evidence of Breeding

Following EOAC guidelines (1979) and BTO guidelines, 11 of the species recorded were assessed as breeding within the site, five as probable breeders and two as possible breeders. Please refer to Appendix A, Figures 1, 2 and 3, which use BTO abbreviation codes to identify the species' location and behaviour.

The majority of species classified as confirmed breeders were recorded at each site survey visit and were displaying and singing in a habitat where nesting and foraging opportunities were present. Please refer to the table in Appendix B.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

4 Discussion and Recommendations

4.1 Evaluation of Breeding Assemblage

The breeding assemblage consisted primarily of common and widespread species. The undisturbed nature of the habitat and the development of scrub and ruderal sparse vegetation across the site has attracted a relatively diverse yet small number of species. Nevertheless, the assemblage in terms of numbers and diversity most likely compares favourably with other sites within central Manchester.

Black redstart was not recorded during the surveys but the site contains suitable habitats for both foraging and nesting black redstart.

4.2 Recommendations

All wild birds, their nests and eggs are protected under the WCA 1981 (as amended). It is, therefore, recommended that potential breeding bird habitats within the application site including buildings, trees, scrub and dense vegetation are removed outside the breeding season, which runs from March to September (inclusive).

If this is not possible, a suitably experienced ecologist must check the vegetation no more than 48 hours prior to site clearance to ensure no active nests are present. If nesting birds are confirmed to be present then works would be postponed until young have fledged and/or nesting had been completed. It may be necessary to cordon off the nest and monitor it until it is completed. This approach is recommended to minimise the risk of destroying active nests and, therefore, any infringement of the wildlife legislation.

The final design for the redevelopment has yet to be produced. However, redevelopment of the site presents an opportunity to increase biodiversity and add ecological value, including for black redstart. Below are a number of general considerations and enhancement measures that would benefit birds and other wildlife.

4.2.1 Native Species

Planting schemes used in urban environments often include non-native species. These may be selected for their aesthetic appeal, pollution tolerance, evergreen foliage and low maintenance, and many nectar-bearing exotic species do support insects and provide foraging and nesting opportunities for birds. However, native species, preferably of local provenance, tend to support greater biodiversity as they have evolved to the local conditions. It is recommended that, wherever practical, native trees and shrubs are selected for landscape designs. However, there are limitations to the strict adherence to an all-native landscaping scheme as it does restrict plant choices. Across the site it may be more productive to use a combination of native and exotic species (although the latter should constitute a small fraction of the total planted, particularly if BREEAM accreditation is being sought for the development) to maximise the range of annual and perennial, deciduous and evergreen, foliage and flowering, climbing and creeping species.

4.2.2 Green and Brown Roofs

Green roofs (living roofs) are intrinsically of greater benefit to biodiversity than more traditional roofing methods. Green roofs can vary in their appearance and character. They can be designed to support low-growing mosses and sedums, wildflowers and grasses.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Sedums are widely-used plants for living roofs as they have many advantages in terms of hardiness and frost resistance. Sedums are succulents and actively store water in their tissues, increasing drought tolerance and it has been demonstrated that sedum roofs provide a number of ecological benefits.

Commonly used species on living roofs include non-native white stonecrop (*Sedum album)* and native biting stonecrop (*Sedum acre*). White stonecrop and biting stonecrop have some of the most impressive flowering displays and are very attractive to bees, butterflies and other insects. Sedum can also form a closed sward that is colonised by mosses and ruderal species. Surveys of sedum roofs at Canary Wharf found they supported a wide range of notable and scarce invertebrate species (Jones 2002).

Brown roofs have a similar construction to green roofs and also aim to encourage biodiversity and can be designed to support specific species. In this instance the target species could be the black redstart, which is known to breed in central Manchester. Brown roofs make use of local soils and spoil, and colonisation by local plant species generally forms a bigger component of the habitat. The Black Redstart Species Action Plan (2009) provides advice on habitat creation to replace the brownfield areas lost in Manchester as a consequence of redevelopment.

Research on the black redstart has demonstrated that the best breeding habitat has a number of key features:

- Small areas of sparsely vegetated rubble and rocky terrain that promote the kind of plants that support invertebrates on which black redstart feed;
- Holes and ledges at various heights within structures that act as nesting sites; and
- Built structures with vertical features that mimic the natural cliff faces and gorges of the black redstart's natural habitat that also provide protection from predators, nesting sites and singing posts.

4.2.3 Species Composition and Planting

Native species, such as ivy (*Hedera helix*), dog rose (*Rosa canina*), old man's beard (*Clematis vitalba*), common hop (*Humulus lupulus*) and honeysuckle (*Lonicera periclymenum*), all provide important food and nesting resources. Although native species are more likely to attract wildlife, some exotic species are also effective in this respect, such as Virginia creeper (*Parthenocissus quinquefolia*) and wisteria (*Wisteria* sp.).

The aspect of a climbing plant on a wall can have significant ancillary effects, such as insulation and moisture retention. For example, north-facing walls are more suitable for supporting native herbs and a wider range of plants due to the higher moisture regime. Care must also be taken when using ivy if there are cavities in the walls, as the root systems may cause damage (www.livingroofs.com).

Plants that do well in a stone wall are varied in nature - from small, delicately leaved, creeping plants such as woolly creeping thyme (*Thymus pseudolanuginosus*) or prostrate rosemary (*Rosmarinus officinalis*), to drought-tolerant plants with minimal root systems such as hens and chicks (*Echeveria 'Imbricata'*) or other succulents. Other candidate species include annuals such as wallflowers (*Erysimum cheiri*), trailing lobelia (*Lobelia erinus)* and snapdragons (*Antirrhinum majus*) that re-seed themselves from year to year. As a general rule, young, drought tolerant plant species, whose roots will easily fit in the planting pockets, should be used.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

4.2.4 Bird Boxes

It is recommended that a variety of bird boxes should be installed, targeted towards species currently known to utilise the site and its surrounds, to potentially accommodate a range of small birds. Traditional nest boxes should be attached in various locations around the site on the south-west or south-eastern side of trees and buildings, near to foraging areas but away from disturbance.

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

5 References

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D., 2015. Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, **108**, 708–746.

EOAC, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.
Gilbert, G., Gibbons, D.W. and Evans, J., 1998. *Bird Monitoring Methods.* RSPB.
Greater Manchester Biodiversity Project, 2009. *Black Redstart Species Action Plan*.

Jones, R.A., 2002. *Tecticolous Invertebrates: A preliminary investigation of the invertebrate fauna on green roofs in urban London.* English Nature.

Manchester Birding Forum, 2017. Re: Black Redstarts in Manchester City Centre http://96752.activeboard.com/t28378416/black-redstarts-in-manchester-city-centre/ (accessed 26/06/2017).

UK Biodiversity Steering Group, 1995. *Biodiversity: The UK Action Plan*. HMSO.

Websites

BTO, 2017. https://www.bto.org (accessed 26/06/2017).

RSPB, 2017. https://www.rspb.org.uk (accessed 26/06/2017).

Wildfowl and Wetlands Trust, 2017. http://www.wwt.org.uk (accessed 26/06/2017).

Wildlife Trust, 2017. http://www.wildlifetrusts.org/species/willow-warbler (accessed 26/06/2017).

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

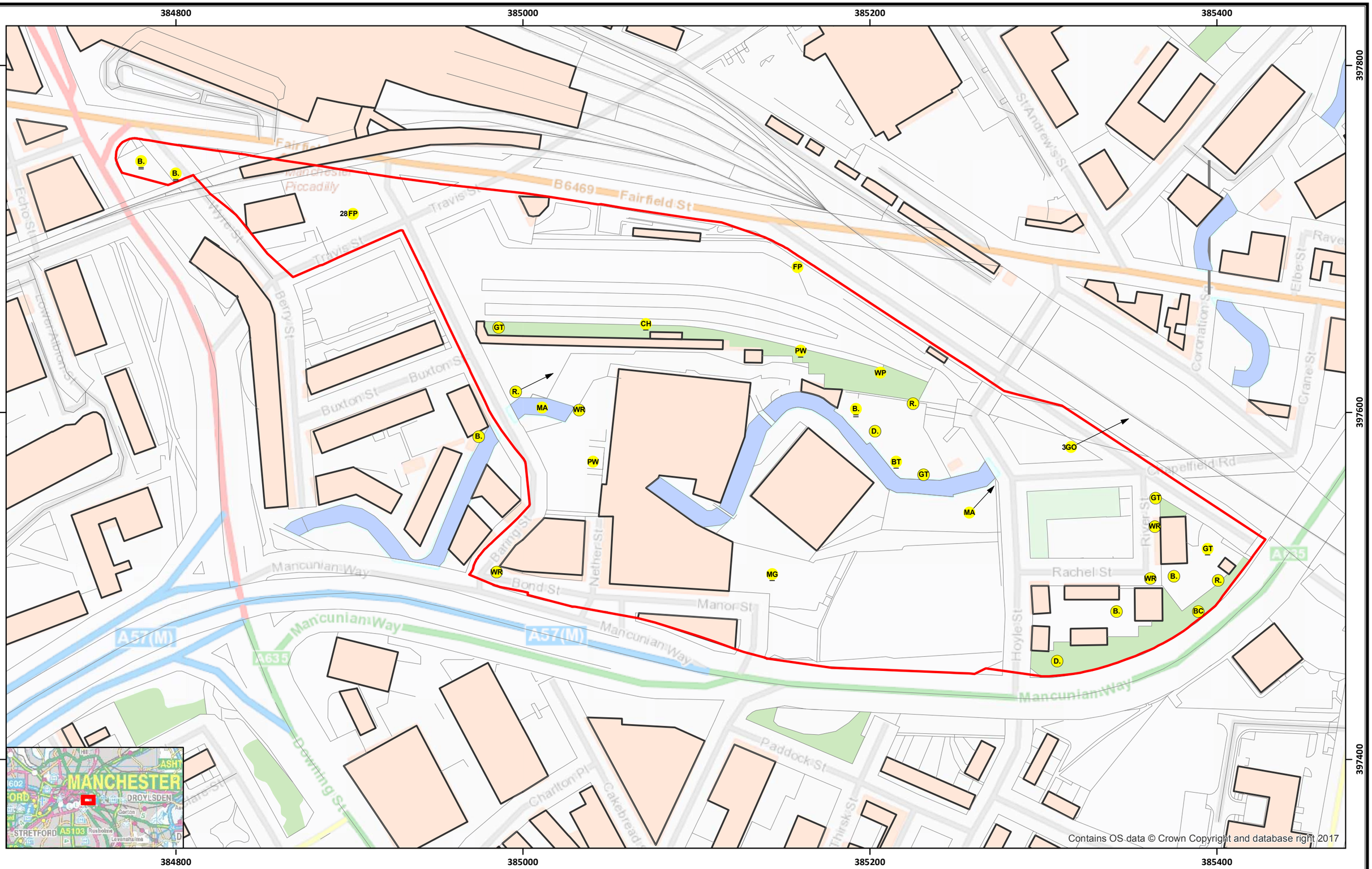
Appendix A – Plans

Figure 1: Breeding Bird Survey Visit 1 – 28/04/2017

Figure 2: Breeding Bird Survey Visit 2 – 26/05/2017

Figure 3: Breeding Bird Survey Visit 3 – 16/06/2017

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.



BUROHAPPOLD ENGINEERING

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

N

0 10 20 40 60 80 Metres

Legend

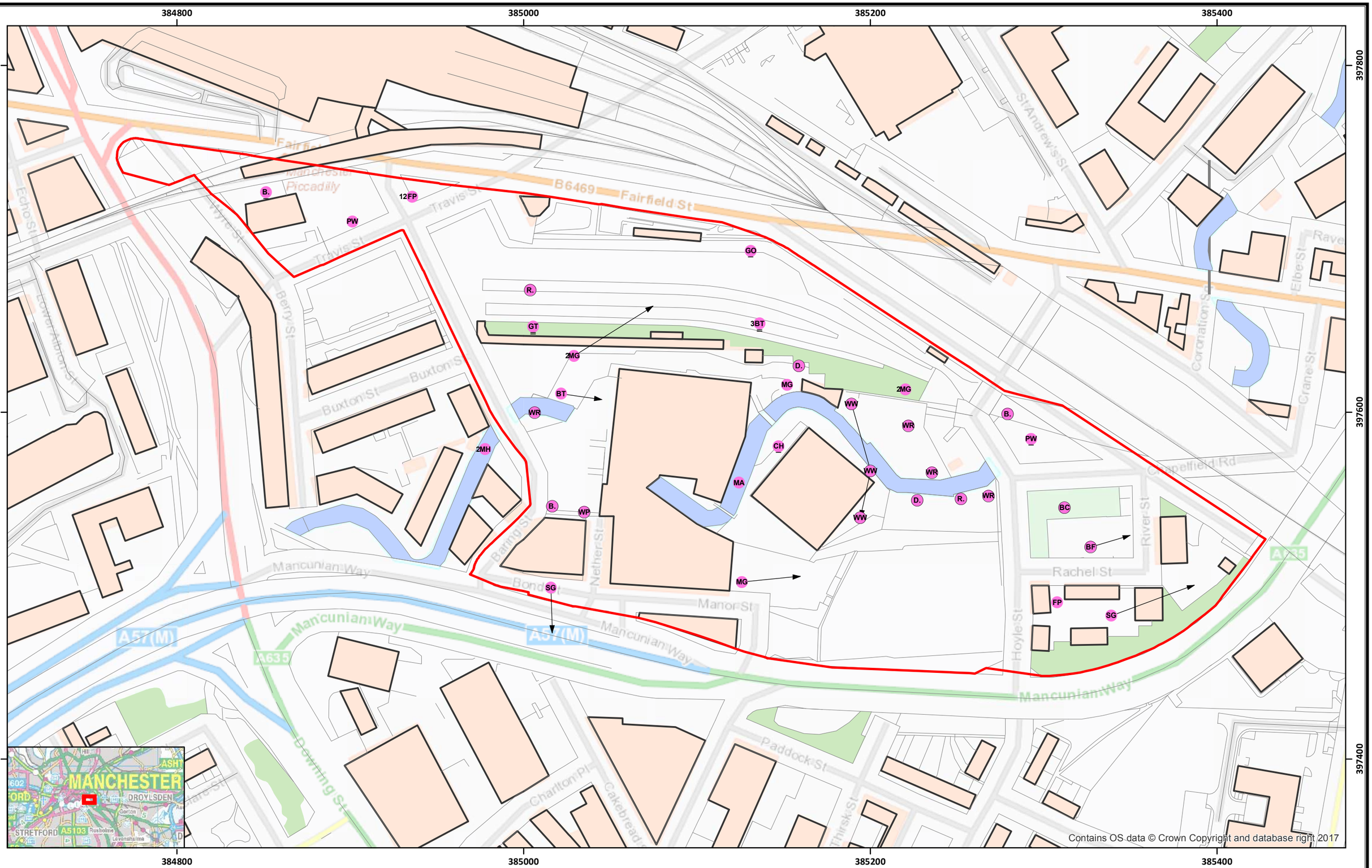
- Site boundary
- Survey Results
  - Bird registration
  - Bird singing
  - Bird calling
  - Bird alarm calling
  - Bird flight

B.	Blackbird	MA	Mallard
BC	Blackcap	MG	Magpie
BT	Bluetit	PW	Pied wagtail
CH	Chaffinch	R.	Robin
D.	Dunnock	WP	Woodpigeon
FP	Feral pigeon	WR	Wren
GO	Goldfinch		
GT	Great tit		

Title:

BREEDING BIRD SURVEY VISIT 1 - 28/04/17

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:2,000	Drawing No.	Figure 1a
Drawn By	CC	Originator GJH	Date 13/07/2017
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly \Maps\Figures\BBS_July_2017		Revision A



BUROHAPPOLD ENGINEERING

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

N

ISO A3

0 10 20 40 60 80 Metres

Legend

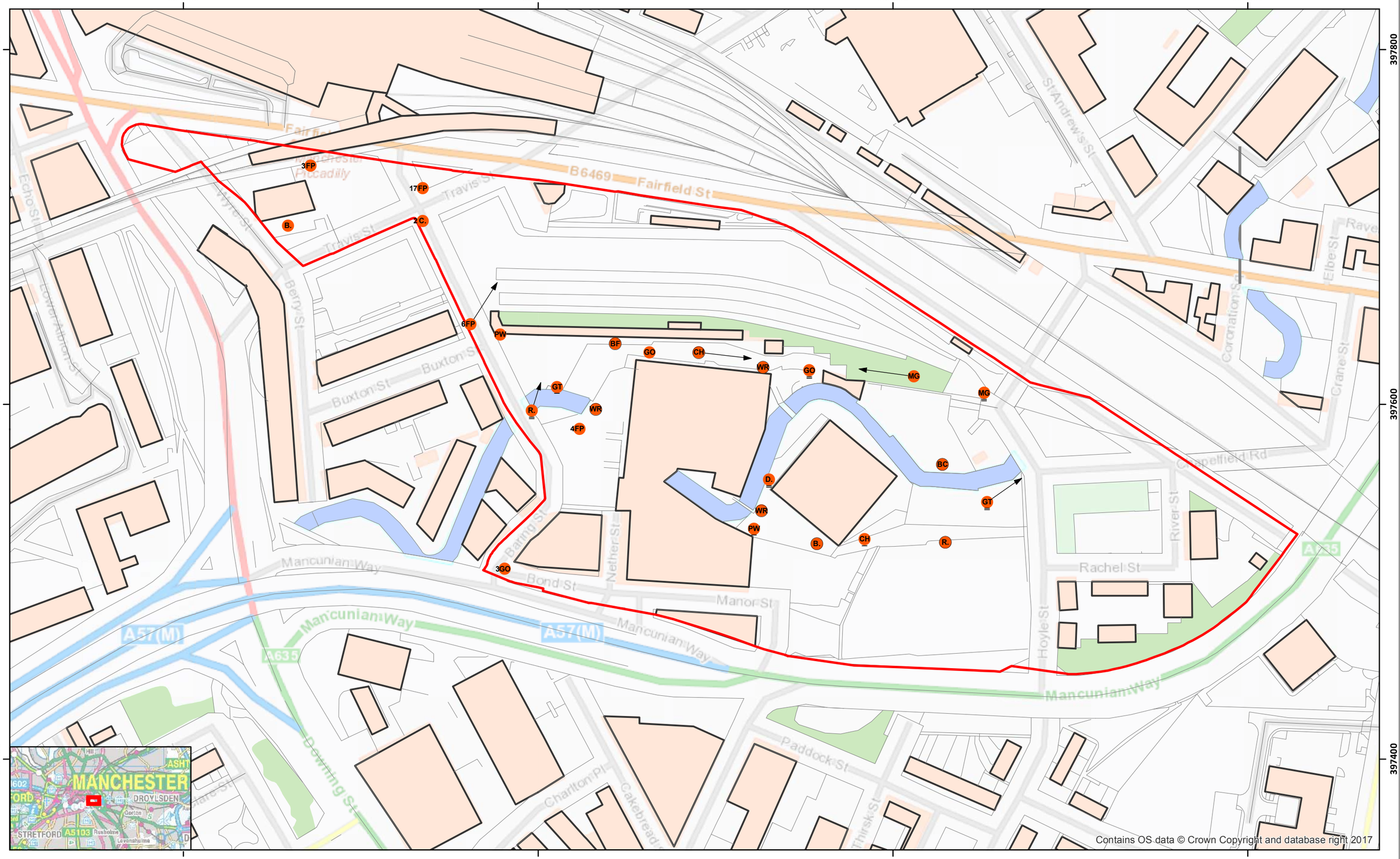
- Site boundary
- Survey Results
  - Bird registration
  - Bird singing
  - Bird calling
  - Bird alarm calling
  - Bird flight

B.	Blackbird	GT	Great tit	WR	Wren
BC	Blackcap	MA	Mallard	WW	Willow warbler
BF	Bullfinch	MG	Magpie		
BT	Bluetit	MH	Moorhen		
CH	Chaffinch	PW	Pied wagtail		
D.	Dunnock	R.	Robin		
FP	Feral pigeon	SG	Starling		
GO	Goldfinch	WP	Woodpigeon		

Title:

BREEDING BIRD SURVEY VISIT 2 - 26/05/17

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:2,000	Drawing No.	Figure 1b
Drawn By	CC	Originator	GJH
Date	13/07/2017		
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps\Figures\BBS_July_2017	Revision	A



BUROHAPPOLD ENGINEERING

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

0 10 20 40 60 80 Metres

Legend

- Site boundary
- Survey Results
  - Bird registration
  - Bird singing
  - Bird calling
  - Bird alarm calling
  - Bird flight

B.	Blackbird	GT	Great tit
BC	Blackcap	MG	Magpie
BF	Bullfinch	PW	Pied wagtail
C.	Carrion crow	R.	Robin
CH	Chaffinch	WR	Wren
D.	Dunnock		
FP	Feral pigeon		
GO	Goldfinch		

Title:

BREEDING BIRD SURVEY VISIT 3 - 16/06/17

Project Name	Mayfield, Manchester		
Discipline	Ecology		
Scale	1:2,000	Drawing No.	Figure 1c
Drawn By	CC	Originator GJH	Date 13/07/2017
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps\Figures\BBS_July_2017	Revision	A

Appendix B - Results

Common Name*	Scientific Name	V1 28/04/17	V2 26/05/17	V3 16/06/17	Conservation Status			Breeding Status		
					Red	Amber	Sch. 1	CO	PR	PO
Black-billed magpie [MG]	*Pica pica*	x	x	x					x	
Blackcap [BC]	*Sylvia atricapilla*	x	x	x				x		
Blue tit [BT]	*Cyanistes caeruleus*	x	x	x					x	
Carrion crow [C]	*Corvus corone*			x						x
Chaffinch [CH]	*Fringilla coelebs*	x	x	x				x		
Common blackbird [B]	*Turdus merula*	x	x	x				x		
Common bullfinch [BF]	*Pyrrhula pyrrhula*		x	x		x		x		
Common starling [SG]	*Sturnus vulgaris*	x	x	x	x				x	
Common woodpigeon [WP]	*Columba palumbus*								x	
Dunnock [D]	*Prunella modularis*	x	x	x		x		x		
European goldfinch [GO]	*Carduelis Carduelis*	x	x	x					x	
European robin [R]	*Erithacus rubecula*	x	x	x				x		
Feral pigeon [FP]	*Columba livia domestica*	x	x	x				x		
Great tit [GT]	*Parus major*	x	x	x				x		
Mallard [MA]	*Anas platyrhynchos*	x	x	x		x				x
White wagtail [PW]	*Motacilla alba*	x	x	x				x		
Willow warbler [WW]	*Phylloscopus trochilus*		x			x		x		
Winter wren [WR]	*Troglodytes troglodytes*	x	x	x				x		

Key: CO = Confirmed Breeder; PR = Probable Breeder; PO = Possible Breeder; *BTO species code in brackets

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix C - Legislation Summary

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

SUMMARY OF LEGISLATION RELATING TO BLACK REDSTART

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000.

Black redstarts (*Phoenicurus ochruros*) are additionally protected as they are listed on Schedule 1 of the WCA. Therefore, black redstarts, their nests, eggs and young are fully protected at all times throughout England and Wales.

Part 1 (Section 1:1) of the WCA states that:

'If any person intentionally,

(a) kills, injures or takes any wild bird;

(b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or

(c) takes or destroys an egg of any wild bird,

he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) states that:

'If any person intentionally or recklessly,

(a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or

(b) disturbs dependent young of such a bird,

he shall be guilty of an offence and liable to a special penalty.'

In addition, the black redstart is identified as a bird species of moderate conservation concern (‘Amber’ listed) due to its declining breeding population and its rarity as a breeding species within Britain.

Please note: the above text provides a brief summary of the legislation in relation to black redstart for England and Wales and the original Act and any amendments should be referred to for the precise wording.

SUMMARY OF THE LEGISLATION RELATING TO BREEDING BIRDS

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000. This legislation applies in England and Wales.

Part 1 (Section 1:1) of the WCA states that:

> 'If any person intentionally,
>
> (a) kills, injures or takes any wild bird;
>
> (b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
>
> (c) takes or destroys an egg of any wild bird,
>
> he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) refers to specific birds listed on Schedule 1 of the WCA, and states that:

> 'If any person intentionally or recklessly,
>
> (a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
>
> (b) disturbs dependent young of such a bird,
>
> he shall be guilty of an offence and liable to a special penalty.'

Schedule 1 includes birds such as barn owl (*Tyto alba*), black redstart (*Phoenicurus ochruros*), wood lark (*Lullula arborea*) and Cetti's warbler (*Cettia cetti*). Please refer to the WCA for a complete list of Schedule 1 species.

Some provisions are made to allow the killing and taking of certain species under certain circumstances, as follows:

- Birds listed on Schedule 2 (Part 1) of the Act may be taken or killed outside of the 'close season' for each individual species (the 'close season' is defined by the Act). This includes various wild duck and geese species.
- Birds listed on Schedule 2 (Part 2) of the Act may be killed or taken by authorised persons at all times. This includes species such as carrion crow (*Corvus corone*), black-billed magpie (*Pica pica*), feral pigeon (*Columba livia*) and greater Canada goose (*Branta canadensis*). An 'authorised person' is defined as a person who has written authorisation to undertake the act from the relevant statutory authority. The written authority is in the form of a licence, either a general licence which covers a number of the more typical 'pest' species, or an individual licence for other individual species. In England these licences are issued by Natural England and in Wales by the Welsh Assembly Government.

Please note: the above text provides a brief summary of the legislation in relation to breeding birds in England and Wales and the original Act and any amendments should be referred to for the precise wording.

Appendix D - EOAC and BTO Guidelines

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

Appendix D Categories of Breeding Bird Evidence

Class	Category of Evidence
Non-breeding	Flying over
	Species observed but suspected to be still on migration
	Species observed but suspected to be summering non-breeder
Possible Breeding	Species observed in breeding season in possible nesting habitat
	Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat
Probable Breeding	Pairs observed in suitable nesting habitat in breeding season
	Permanent territory presumed through registration of territorial behaviour (song etc) on at least two different days, a week apart, at the same place, or many individuals on one day.
	Display and courtship (judged to be near potential breeding habitat).
	Visiting probable nest site
	Agitated behaviour or anxiety calls from adults, suggesting probably presence of nest or young nearby
	Brood patch on adult examined in the hand, suggesting incubation
	Building nest or excavating nest-hole
Confirmed Breeding	Distraction display or injury feigning
	Used nest or egg shells found (occupied or laid within the survey period)
	Recently fledged young (nidicolous species) or downy young (nififugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significent geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful.
	Adults entering or leaving nest site in circumstances indicating occupied nest or adult sitting on nest
	Adults carrying food for young or faecal sacs
	Nests containing eggs
	Nest with young seen or heard

EOAC and BTO Guidelines (combined)

Appendix E - GMEU Black Redstart Records

Copyright © 1976 - 2017 BuroHappold Engineering. All Rights Reserved.

site	startDate	endDate	abundance	sex	stage	status
Albert Square Manchester	09/06/2015	09/06/2015	1			Probable Breeder T - permanent Territory
Albert Square Manchester	08/06/2015	08/06/2015	1		Adult	
Canal St/Minshull St Courts (Manchester City Centre)	17/06/2009	17/06/2009	1	male	Adult	Possible Breeder H - in suitable nesting Habitat
Canal St/Minshull St Courts (Manchester City Centre)	04/06/2009	04/06/2009	1		Adult	Possible Breeder H - in suitable nesting Habitat
Central Retail Park Ancoats	02/06/2008	02/06/2008	1		Adult	
Central Retail Park Ancoats	11/04/2008	11/04/2008	1		Adult	
China Lane Manchester city centre	19/07/2009	19/07/2009	2		Adult	Probable Breeder P - Pair in suitable nesting habitat
China Lane Manchester city centre	14/07/2009	14/07/2009	2		Adult	Probable Breeder P - Pair in suitable nesting habitat
China Lane Manchester city centre	13/07/2009	13/07/2009	1	male	Adult	Probable Breeder T - permanent Territory
China Lane Manchester city centre	12/07/2009	12/07/2009	1		Adult	
China Lane Manchester city centre	05/07/2009	05/07/2009	1		Adult	Confirmed Breeder ON - Occupied Nest
China Lane Manchester city centre	16/06/2009	16/06/2009	3		Adult	Probable Breeder D - courtship and Display
China Lane Manchester city centre	16/06/2009	16/06/2009	2		Adult	
Chinatown, Manchester city centre	25/06/2010	25/06/2010	1	male	Adult	Possible Breeder S - Singing male
Manchester Town Hall	08/10/2015	08/10/2015	1			Probable Breeder T - permanent Territory
Manchester Town Hall	12/06/2015	12/06/2015	1		Adult	Probable Breeder T - permanent Territory
Manchester Town Hall	08/04/2015	08/04/2015	1			Possible Breeder S - Singing male
Manchester Town Hall	26/09/2013	26/09/2013	1			Probable Breeder T - permanent Territory
Manchester Town Hall	01/08/2013	01/08/2013	1			Probable Breeder T - permanent Territory
Manchester Town Hall	25/07/2013	25/07/2013	1			Probable Breeder T - permanent Territory
Manchester Town Hall	03/07/2013	03/07/2013	1			Probable Breeder T - permanent Territory
Manchester Town Hall	03/06/2011	03/06/2011	1	male		
Manchester Town Hall	07/06/2010	07/06/2010	1	male	Adult	Possible Breeder S - Singing male
Oxford Rd Manchester	18/05/2012	18/05/2012	1			Possible Breeder S - Singing male
Piccadilly Station Manchester	01/08/2009	01/08/2009	1	female	Adult	
Port St Manchester city centre	03/08/2009	03/08/2009	1	male		Possible Breeder H - in suitable nesting Habitat
Port St Manchester city centre	15/07/2009	15/07/2009	1	male	Adult	Possible Breeder S - Singing male
Port St Manchester city centre	28/06/2009	28/06/2009	2			Possible Breeder H - in suitable nesting Habitat
Port St Manchester city centre	21/06/2009	21/06/2009	1	female	Adult	Possible Breeder H - in suitable nesting Habitat
Shudehill Manchester City Centre	29/06/2009	29/06/2009	1		Adult	Possible Breeder S - Singing male
Shudehill Manchester City Centre	27/05/2008	27/05/2008	1		Adult	
Shudehill Manchester City Centre	09/06/2010	09/06/2010	1	male	Adult	Possible Breeder S - Singing male
St. Ann's Square Manchester city centre	11/06/2015	11/06/2015	1		Adult	Probable Breeder T - permanent Territory
St. Ann's Square Manchester city centre	14/06/2010	14/06/2010	1	male	Adult	Possible Breeder S - Singing male
St. Peter's Square Manchester City Centre	14/05/2008	14/05/2008	1		Adult	

Pernille Olsen
Buro Happold Limited
Camden Mill
Lower Bristol Road
Bath
BA2 3DQ
UK

T: +44 (0)1225 320 600
F: +44 (0)870 787 4148
Email: Pernille.Olsen@burohappold.com

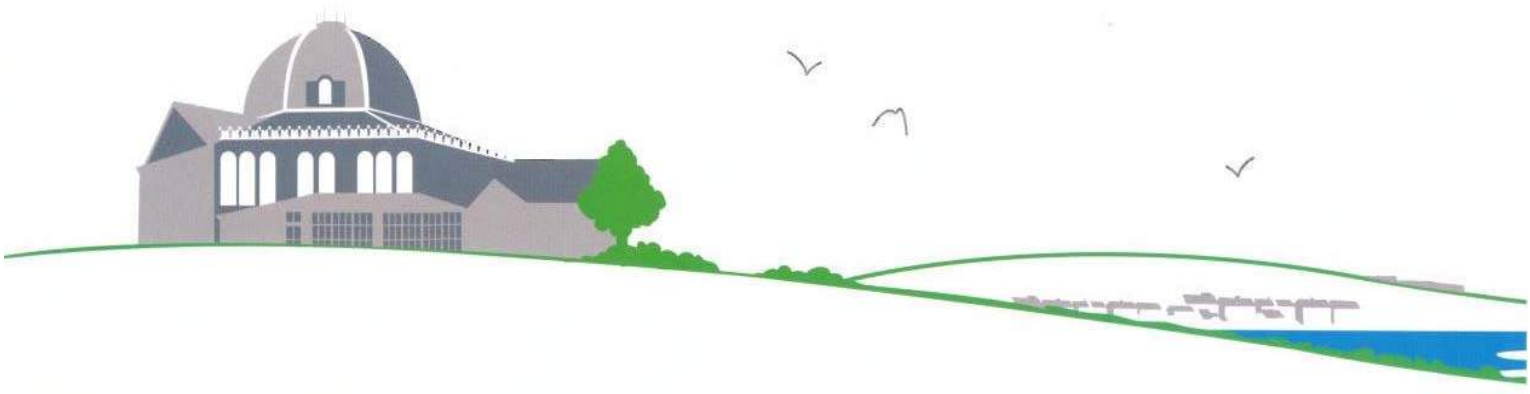
e) Mayfield, Manchester Ecological Assessment (2019)

Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

BUROHAPPOLD ENGINEERING

MAYFIELD, MANCHESTER

ECOLOGICAL ASSESSMENT



BUROHAPPOLD ENGINEERING

MAYFIELD, MANCHESTER

ECOLOGICAL ASSESSMENT

Penny Anderson Associates Limited
'Park Lea'
60 Park Road
Buxton
Derbyshire
SK17 6SN

Project Manager
Gerard Hawley BA (Hons), MSc, DipPSE (Dist), MCIEEM

Authors
Gerard Hawley
Helen Hamilton BSc (Hons), MSc, MCIEEM, CEnv

March 2019

This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed:_____

CONTENTS

Page

1. INTRODUCTION 1
   - Background 1
   - Site Description 1
   - Legislative Context 1
   - Invasive Species 2
     - Protected Species 3
2. METHODS 4
   - Desk Study 4
   - Phase 1 Habitat Survey 4
   - Protected Species Assessment 4
   - Limitations 4
3. RESULTS 5
   - Desk Study 5
     - Statutory Protected Sites 5
       - Special Area of Conservation 5
       - Sites of Special Scientific Interest 5
     - Non-Statutory Protected Sites 5
       - Site of Biological Interest 5
       - Regionally Important Geological and Geomorphological Sites (RIGS) 6
     - Protected and Notable Species 6
       - Badgers (*Meles meles*) 6
       - Bats 6
     - Section 41 Species 7
       - West European Hedgehog (*Erinaceus europaeus*) 7
       - Birds 7
       - Invertebrates 8
       - Other Protected Species 8
   - Phase 1 Habitat Update Survey 8
     - Main Habitat Types Present 8
     - Built Structures and Hardstanding 9
     - Spoil 9
     - Ephemeral Short Perennial Vegetation 9

Scattered Broadleaved Trees....10
Tall Ruderal Vegetation....10
Scattered Scrub....10
Semi-improved Neutral Grassland....10
Introduced Shrub....10
Amenity Grassland....11
Semi-Natural Broadleaved Woodland....11
Running Water....11
Invasive Non-native Species....11
Protected Species Assessment....11
Birds....11
Bats....12
Other Protected Species....12
4. EVALUATION....14
Designated Sites....14
Habitats and Botanical Interest....14
Protected Species....14
Birds....14
Otter and Water Vole....14
Bats....14
Other Protected/Notable Species....15
5. RECOMMENDATIONS....16
Birds....16
Protected Species and Habitats....16
Invasive Non-native Species....16
6. REFERENCES AND ABBREVIATIONS....17
7. ABBREVIATIONS....18

TABLES

1 Bat Records Provided by GMEU....6
2 Bird Species of Principal Importance Records from GMEU....7
3 Birds Confirmed as Breeding 2017....12

FIGURE

1 Phase 1 Habitat Map 2019

APPENDICES

1 Relevant Protected Species Summary Legislation

2 Species List

3 Desk Study Data

4 Site Photographs

1. INTRODUCTION

Background

1.1 Penny Anderson Associates Ltd (PAA) was commissioned by BuroHappold Engineering to carry out an ecological assessment of a site in central Manchester at and immediately around the former Mayfield Station complex (hereafter referred to as the 'site').

1.2 The site is proposed for re-development, including demolition of the majority of existing structures on the site, refurbishment of some of the older remedial works, and modification of the retaining walls along the River Medlock.

1.3 This report details the results of a desk study and site survey in February 2019. This was carried out to update an earlier survey in November 2016 (results reported in PAA 2017a) and determine if any significant habitat changes have occurred that would change the assessment of the ecological value of habitats.

Site Description

1.4 The site boundary includes an area approximately 9.1ha, comprising a series of buildings that are predominantly commercial or light industrial units and associated areas of hard and soft landscaping.

1.5 The site is surrounded on all sides by dense urban development, with tall buildings and busy roads. Manchester Piccadilly rail station is immediately to the north, and the River Medlock flows east to west through the centre of the site.

Legislative Context

1.6 The text below provides a brief summary of the legislation in relation to the species or species group in England and Wales. The original Acts, Regulations and any amendments should be referred to for the precise wording.

1.7 A range of international and national legislation has been established in the UK to protect important nature conservation sites and priority species. At the international level, European Union (EU) Directives require individual member states to implement their conservation provisions nationally for the benefit of Europe as a whole. These Directives have been transposed into UK law by the Conservation of Habitats and Species Regulations 2017; further details can be obtained from the Joint Nature Conservation Committee (JNCC) web site at www.jncc.defra.gov.uk.

1.8 Other international conventions include: the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving particular protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA) (1981) (as amended) and Countryside and Rights of Way (CRoW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI).

1.9 At the national level, the UK Post-2010 Biodiversity Framework published in 2012 is the Government's response to the Convention on Biological Diversity (2010). It describes the UK's biological resources, commits a detailed plan for the protection of these resources within the UK's devolved framework across England, Wales, Scotland and Northern Ireland. The document identifies future priorities for nature conservation and adopts a more strategic approach, including ecosystem services and sustainability alongside biodiversity. Despite

administrative changes following devolution, there is still an underlying objective of protecting and enhancing a range of priority species and habitats, often still based on the objectives and classifications of the original UK Biodiversity Action Plan. Biodiversity 2020 is England's national biodiversity strategy. Building on the Natural Environment White Paper published in 2011, this provides a means of delivering the international and EU commitments to biodiversity. Under Biodiversity 2020, Priority Species and Habitats referred to are those of 'Principal Importance' for the conservation of biodiversity in England listed on Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.

1.10 Finally, the National Planning Policy Framework (NPPF), updated 2019, provides guidance for local authorities on the content of the Local Plans and is a material consideration in determining planning applications. Briefly, with an overall focus on sustainable development, the NPPF states that developments should aim to engender positive outcomes for habitats and biodiversity, with a particular focus on the maintenance and creation of ecological networks. Furthermore, the NPPF also states that any planning proposals for which significant negative impacts on biodiversity cannot be avoided, mitigated or compensated for should be refused. The NPPF states that the planning system should contribute to and enhance the natural environment through a range of actions, including:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils;
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services; and
- minimising impacts on biodiversity and providing net gains for biodiversity including establishing coherent ecological networks that are more resilient to current and future pressures.

1.11 To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Invasive Species

1.12 Certain non-native species that have been introduced into the UK are regarded as being a threat to native biodiversity. Legislative measures have, therefore, been put in place to prevent the spread of these invasive species in the wild.

1.13 Under section 14 of the WCA 1981 (as amended), it is illegal to introduce plants listed under Part II of Schedule 9 of the WCA into the wild or sell these species. Offences include causing the spread of viable plant material or neglecting to contain or appropriately manage non-native species.

1.14 Commonly introduced Schedule 9 species include non-native cotoneaster species, specifically, small-leaved cotoneaster (*Cotoneaster microphylla*) and wall cotoneaster (*C. horizontalis*), Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed (*Fallopia japonica*).

Protected Species

1.15 Details of the protected species legislation relevant to this report can be found in Appendix 1.

2. METHODS

Desk Study

2.1 The desk study consisted of a consultation exercise to gather local and site-specific ecological information, the data from which, along with survey results, was used to assess the potential likely effect of the proposed development on habitats and protected species at the site and the surrounding areas.

2.2 A request for records of protected and notable species and wildlife sites within 2km of the centre of the site was made to Greater Manchester Ecology Unit (GMEU) in February 2019.

2.3 It is important to note that the desk study results provide an indication of the species present in and around the site, but do not confirm current presence or absence of any particular species. Protected species are often under-recorded in county wildlife databases.

Phase 1 Habitat Survey

2.4 The update habitat survey was undertaken by Principal Ecologist Helen Hamilton (MCIEEM)[1] and Principal Scientist Gerard Hawley (MCIEEM) on 14th February 2019.

2.5 This survey reviewed the findings of the earlier Phase 1 habitat survey completed in 2016, which followed standard methods as set out in the *Handbook for Phase 1 Habitat Survey* (JNCC 2010) for classifying and mapping British habitats based on the identification of individual plant species. The plant species recorded in 2016 within the site and their relative abundances at that time are listed in Appendix 2, which shows both common and scientific names according to Stace (2010); common names only are referred to in the text.

Protected Species Assessment

2.6 The survey included an update assessment for the presence or potential presence of protected species, noting any areas of suitable habitat, along with the location and type of any incidental field signs of protected species.

Limitations

2.7 The habitat survey was undertaken in February, which is outside of the recommended Phase 1 habitat survey period of March to October. Some plant species and habitats are less readily identifiable in the winter period. Furthermore, as stated earlier, some areas had been cleared and less vegetation remained to be identified. However, the nature of the habitats was such that sufficient data were collected and the results of this update survey are considered tenable.

[1] *Full member of the Chartered Institute of Ecology and Environmental Management*.

3. RESULTS

Desk Study

3.1 Desk study data for designated sites, habitats and species are described in further detail under the sub-headings below, with maps to illustrate locations of various features provided in Appendix 3.

Statutory Protected Sites

Special Area of Conservation

3.2 Special Areas of Conservation (SACs) are protected sites with strict conservation protection, designated under Article 3 of the European Commission Habitats Directive.

3.3 There are no SACs in the 2km search area for the site. However, certain stretches of the Rochdale Canal, which is approximately 500m to the north of the site, have been designated a SAC and Site of Special Scientific Interest (SSSI) because they support the European Protected Species floating water plantain (*Luronium natans*)[2]. The canal also has a population of white-clawed crayfish (*Austropotamobius pallipes*), which has some legal protection and American pondweed (*Potamogeton epihydrus*), which is a red data book species[3]. Furthermore, sections of the Ashton Canal to the north of the site have floating water plantain and the nationally scarce grasswrack pondweed (*Potamogeton compressus*), both of which are UK Biodiversity Priority Species (detailed in Map 2 of the desk study data, but not attached in Appendix 3 as it is not for release into the public domain).

Sites of Special Scientific Interest

3.4 Sites of Special Scientific Interest are statutory sites designated to support species of plants and animals that find it more difficult to survive in the wider environment. They represent a selection of this country's best wildlife and geological sites, and cover approximately 7% of the terrestrial area of the country (with over 4,000 separate sites in England).

3.5 There are no SSSI in the search zone for the site, although please note paragraph 3.3 above.

Non-Statutory Protected Sites

Site of Biological Interest

3.6 A Site of Biological Interest (SBI) has no legal protection, but does receive some protection through different policies and must be taken into consideration by the planning authority when planning applications affect the site. SBIs are assigned one of three grades:

- Grade A SBIs are of county or regional importance (assumes a presumption against development);

---

[2] *Floating water-plantain is protected under Schedule 8 of the WCA 1981. It is also protected under the European Communities Directive 92/43/EEC, on the Conservation of Natural Habitats and of Wild Fauna and Flora - the Habitats Directive and is a S41 priority species..*

[3] *The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red Data List) is an inventory of the global conservation status of biological species.*

- Grade B SBIs are those of district importance; and
- Grade C SBIs are those of local importance.

3.7 Rochdale Canal, Stott's Lane - Ducie Street Basin and Ashton Canal approximately 500m to the north are both Grade A SBIs. As stated earlier, the Rochdale Canal supports regionally important aquatic habitat and species, including internationally important populations of floating water plantain, and the Ashton Canal is recognised as important for its submerged aquatic flora including glass-wrack pondweed (refer to Appendix 3, Map 1).

Regionally Important Geological and Geomorphological Sites (RIGS)

3.8 Regionally Important Geological and Geomorphological Sites (RIGS) are locally designated sites of local, regional and national importance for geodiversity and protect important Earth Science and landscape features. They are conserved and protected from development as a material consideration through the planning system.

3.9 There are no RIGS within the search zone for the site.

Protected and Notable Species

Badgers (*Meles meles*)

3.10 There are records of unspecified badger signs within the 2km search area and a sett. The closest records were approximately 850m from the perimeter of the site. Please note that information relating to badgers and their setts is confidential and the map provided by GMEU showing the location of the signs and sett is not included in Appendix 3 for this reason.

Bats

3.11 Table 1 shows the number of each species of bat recorded in the search zone and the proximity to the site of the closest roost for each. The most recorded species in the area are common pipistrelle (*Pipistrellus pipistrellus*) and unspecified pipistrelle species (*Pipistrellus* sp.), and a pipistrelle roost is the closest roost to the site (refer to Appendix 3, Maps 4a and 4b).

Table 1 Bat Records Provided by GMEU

Species		No. Roosts	Closest Record of Roost (m)	No. other Signs	Closest Record of Sign (m)
Common Name	**Latin Name**				
Common pipistrelle	*Pipistrellus pipistrellus*	20	650	28	290
Daubenton's bat	*Myotis daubentonii*	1	1950	1	1500
Soprano pipistrelle	*Pipistrellus pygmaeus*	2	370	2	1100
Pipistrelle species	*Pipistrellus* sp.	20	On site	79	10
Bat species	*Chiroptera* sp.	0	n/a	6	80

3.12 The majority of the records returned are for pipistrelle species. There are two native species - common pipistrelle and soprano pipistrelle (*Pipistrellus pygmaeus*). The common pipistrelle is one of the UK's most common bat species, found in a wide range of habitats including suburban and urban habitats. Soprano pipistrelle is also widely distributed across the UK. One of the soprano pipistrelle records is close to the Rochdale Canal and one is close to the River Irwell, which is consistent with its preferred feeding habitat by water and on the invertebrates it attracts. Where the distinction between the two species has not been made, they are recorded as pipistrelle species. Daubenton's bat (*Myotis daubentonii*) characteristically flies and

forages over water, and the record for a roost and a sign are close to the River Irwell to the north of the site.

3.13 There are records for pipistrelle roosts within the site, in the old station (grid reference SJ 8503 9768) and immediately to the west and north-west of the site.

Section 41 Species

3.14 Some of the rarest and most threatened species are listed under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act as Species of Principal Importance. The Government's Biodiversity 2020 strategy has an ambition to ensure that by 2020 there will be an overall improvement in the status of wildlife and no further extinctions of known threatened species. To achieve this, a range of actions have been identified to help in the recovery of S41 species.

West European Hedgehog (*Erinaceus europaeus*)

3.15 West European hedgehog is classed as a Species of Principal Importance under Section 41 of the NERC Act 2006. Surveys in urban and rural areas indicate falling numbers of hedgehog.

3.16 There are five records for hedgehog in the search area, the closest being approximately 550m to the south-west of the site, close to the Mancunian Way (refer to Appendix 3 Map 5).

Birds

3.17 The majority of S41 species returned are for birds. These are listed in Table 2, along with their conservation status, and the distribution is illustrated on Map 5 in Appendix 3.

Table 2 Bird Species of Principal Importance Records from GMEU

Common Name	Scientific Name	Number Recorded	Amber	Red	Sch 1
Black redstart	*Phoenicurus ochruros*	24		x	x
Bullfinch	*Pyrrhula pyrrhula*	6	x		
Common starling	*Sturnus vulgaris*	11		x	
Dunnock	*Prunella modularis*	29	x		
Herring gull	*Larus canus*	1		x	
House sparrow	*Passer domesticus*	15		x	
Kingfisher	*Alcedo atthis*	14	x		x
Lapwing	*Vanellus vanellus*	6		x	
Lesser redpoll	*Carduelis cabaret*	2		x	
Linnet	*Carduelis cannabina*	2		x	
Little ringed plover	*Charadrius dubius*	6			x
Peregrine falcon	*Falco peregrinus*	12			x
Song thrush	*Turdus philomelos*	12		x	
Spotted flycatcher	*Muscicapa striata*	1		x	
Twite	*Carduelis flavirostris*	1		x	
Yellow wagtail	*Motacilla flava*	1		x	

3.18 Please note that the number of records does not necessarily indicate the population size. Rarer species tend to attract the attention of recorders and some of the more common species may not be included in counts.

3.19 The Red and Amber conservation status assessment (Eaton *et al*. 2015) is based on a number of criteria: historical decline, trends in population and range, rarity, localised distribution and international importance. Nevertheless, some species remain relatively common, such as the common starling[4], dunnock and house sparrow. Species are Red listed because of a 50% decline in their population.

3.20 Schedule 1 species are protected under the WCA 1981 as amended by the Environmental Protection Act 1990. It is an offence to intentionally disturb any of these species during the breeding season without a valid licence. The Schedule 1 species recorded include black redstart, kingfisher, little ringed plover and peregrine falcon. Please note the location of records for these species is provided, but records are not to be placed within the public domain.

3.21 A section of the site falls within the Black Redstart Priority Area. This identifies an area in central Manchester where the black redstart has been recorded. This species is a rare breeder, passage migrant and winter visitor with a small population concentrated in London and the West Midlands. There are also records of black redstarts attempting to breed in the Piccadilly Basin area of Greater Manchester. A Species Action Plan (Greater Manchester Biodiversity Project 2009) aims to maintain a breeding population in Greater Manchester.

3.22 There are 14 records of kingfisher in the search area. Kingfisher is found by still and slow-flowing water, such as canals and rivers, and they nest in holes tunnelled into earth banks.

3.23 The peregrine falcon faced extinction in the UK in the 1960s largely as a result of pesticides. However, they have made a rapid comeback and many now nest on high buildings in city centres. There are 12 records for peregrine falcon within the search area.

3.24 There are six records for little ringed plover. Little ringed plover first bred in the UK in 1938. They are summer visitors and breed in un-vegetated man-made habitats such as industrial and post-industrial land, gravel pits and shingle river banks.

Invertebrates

3.25 Eight unspecified moth species are recorded.

Other Protected Species

3.26 No records were returned for other protected species e.g. otter (*Lutra lutra*), reptiles or amphibians.

Phase 1 Habitat Update Survey

Main Habitat Types Present

3.27 The site chiefly comprises the following habitats, as shown on the Extended Phase 1 habitat map 2019 (Figure 1). There have been no significant changes in habitat, which can be categorised as the following:

- built structures and hardstanding;

[4] *Please see Appendix 3 and Table 2 for scientific names of species – common names are used in the text.*

- spoil;
- ephemeral short perennial vegetation;
- scattered broadleaved trees;
- tall ruderal
- scattered scrub;
- semi-improved neutral grassland;
- introduced shrub;
- amenity grassland;
- broadleaved semi-natural woodland; and
- running water (River Medlock).

3.28 A selection of illustrative photographs of the site is presented in Appendix 4.

3.29 The site is broadly separated into three main areas. The northern boundary is occupied by a former railway station building, platform and associated track bed. This area is at a raised level compared to the rest of the site. Immediately to the south of the former railway station complex is an area known as Colourgates Yard, which is at street level. The remainder of the site is a complex of buildings, mainly warehouses.

Built Structures and Hardstanding

3.30 A large proportion of the site is flat hardstanding. In the northern section, this reflects the site's former use as a railway station. Throughout the remainder of the site there are roads, pavements and car parks (Plate 1).

3.31 The site has a number of built structures of varying ages and styles. For ease of reference, these have been numbered B1, B2, B3 etc. as illustrated on Figure 1: Phase 1 Habitat Plan 2019. At the time of the update survey 2019 buildings B7a and B7b were being demolished. A new building B27 now stands in an area of what was semi-improved neutral grassland at the east of the site. This is now surrounded by hardstanding with small areas partially covered in wood chippings (Plates 2 and 3).

Spoil

3.32 Towards the south-eastern corner of the site is an aggregate recycling yard, which is in constant use, and consequently no vegetation is present on the spoil mounds.

Ephemeral Short Perennial Vegetation

3.33 Throughout the site, small patches of ephemeral short perennial vegetation have developed within gaps and crevices in the hardstanding. The vegetation is most extensive where surfaces have fallen into disrepair.

3.34 The vegetation is not dominated by any particular species, instead comprising a mixture of mostly low-growing species such as willowherb, mugwort and Michaelmas-daisy. The vegetation consists entirely of widespread and common species that are typically found in urban and wasteland habitats (Plate 4).

Scattered Broadleaved Trees

3.35 A number of scattered broadleaved trees were present in 2016, ranging from immature to mature and comprising a variety of species including ash, sycamore and willow. These are mostly self-seeded. Mature trees also occur along the south-eastern boundary with the Mancunian Way, where they remain today as a row of planted poplars. They are approximately 15m in height and appear to be in good condition. Another area of planted trees occurs at the far western end of the site, associated with a small amenity area.

3.36 The River Medlock runs through the centre of the site and the edges of the river corridor were lined with a range of tree species, including ash, sycamore and elder. However, at the time of the 2019 survey these trees had been felled (Plate 5).

Tall Ruderal Vegetation

3.37 In 2016, scattered mainly throughout the southern section of the site, were areas of tall ruderal vegetation that had developed in areas not in use or not managed for some time. In 2019, some of these areas were found to have been cleared recently (Plate 6).

3.38 Tall ruderal vegetation remains within Colourgates Yard, immediately south of the former railway station complex (Plates 7a and 7b). The vegetation is not dominated by any particular species and includes common nettle, creeping thistle and rosebay willowherb. The vegetation composition is not species-rich and consists of common and widespread species.

3.39 Some areas of tall ruderal vegetation, especially along the River Medlock corridor, were found to have been cleared in winter 2019, in preparation for the forthcoming site clearance and building demolition.

Scattered Scrub

3.40 There are small patches of scattered scrub throughout the site, associated with areas of tall ruderal vegetation. Bramble is a common ground flora component of these patches.

Semi-improved Neutral Grassland

3.41 Within the northern section of the site small patches of semi-improved neutral grassland are present, mainly located on the ballast between the old station platforms where the railway lines ran. The most dominant grass is creeping bent, with Yorkshire fog locally abundant and cock's-foot locally occasional. There were a variety of forbs present, including dandelion, creeping buttercup, colt's-foot and evening primrose, some of which suggest that the grassland was a succession habitat from ephemeral short perennial vegetation. The grassland is not species-rich. More recently there has been an increase in scrub with colonisation by butterfly bush and birch (Plate 8). In 2016, southern marsh orchids were recorded in this habitat on the former Mayfield station.

Introduced Shrub

3.42 Throughout the site butterfly-bush occurs frequently. It has established within gaps in the hardstanding surface, resulting in a scattered occurrence across the entire site, including the former railway platform. It is also present within gaps in the mortar of walls and buildings. It frequently occurs within other semi-natural habitat types, including the edges of the river corridor.

3.43 There are a small number of amenity planting areas, associated with the buildings in the southern section of the site, dominated by non-native shrubs comprising cherry laurel and Oregon-grape.

Amenity Grassland

3.44 There are a small number of blocks of amenity grassland within the southern and north-western parts of the site. These formal landscaping areas are associated with roadside areas, and are generally managed by mowing. The species composition is poor and typical of sown grasslands, with perennial rye-grass abundant and few forbs present.

Semi-Natural Broadleaved Woodland

3.45 Within the former railway station complex, the southern edge of the platform supports self-colonised young birch woodland. The trees are of a similar age and height. There is very little understorey, with some bramble present (Plate 9).

3.46 Areas of habitat containing trees along the River Medlock were found to have been cleared in winter 2019, in preparation for the forthcoming site clearance and building demolition.

Running Water

3.47 The River Medlock runs through the centre of the site. A detailed fluvial audit and Phase 1 habitat survey was carried out in 2017 (PAA 2017b) and the 2019 survey found little had changed. It is incised, heavily engineered and contained by high vertical brick and stone sides. The riparian corridor vegetation is dominated by the invasive non-native species Japanese knotweed and Himalayan balsam. There is no in-channel aquatic vegetation (Plate 10).

Invasive Non-native Species

3.48 Four species listed on Schedule 9 are present within the site: Japanese knotweed, Himalayan balsam, wall cotoneaster and Himalayan cotoneaster.

3.49 Japanese knotweed is present on the silt banks of the River Medlock in a number of locations. The extent has been mapped as part of the river corridor survey (PAA 2017) (Plate 11). Japanese knotweed was not found to be present in any area of the site outside of the river channel.

3.50 Himalayan balsam was observed in a variety of locations within Colourgates Yard, including the top of the river corridor. There was also an individual plant growing within a gap in the hardstanding at the north-western corner of B3. Himalayan balsam has colonised bank sections along the river channel.

3.51 Three individual plants of wall cotoneaster are located towards the southern edge of the former railway platform. Two further cotoneaster plants are located in two separate locations within the southern section of the site. The exact species could not be confirmed as there are many similar species of cotoneaster, and both flowers and fruits are required for positive identification. However, the species within the hedgerow is likely to be Himalayan cotoneaster, which is a Schedule 9 species.

Protected Species Assessment

3.52 The potential of habitats on site to support protected or notable species are set out below.

Birds

3.53 The site visit was carried out at a time of year when bird activity is generally low and summer visitors are absent. A small number of birds were recorded including feral pigeon (*Columba livia*), blue tit (*Cyanistes caeruleus*), common starling (Greater Manchester Biodiversity Project, 2008), European robin (*Erithacus rubecula*) and carrion crow (*Corvus corone*)

3.54 A black redstart and breeding bird survey was carried out in 2017 (PAA 2017c) and a total of 11 bird species were confirmed as breeding across the site. This did not include black redstart. The species recorded are listed in Table 3.

Table 3 Birds Confirmed as Breeding 2017

Common Name	Scientific Name
Blackcap	*Sylvia atricapilla*
Chaffinch	*Fringilla coelebs*
Common blackbird	*Turdus merula*
Common bullfinch	*Pyrrhula pyrrhula*
Dunnock	*Prunella modularis*
European robin	*Erithacus rubecula*
Feral pigeon	*Columba livia domestica*
Great tit	*Parus major*
White wagtail	*Motacilla alba*
Willow warbler	*Phylloscopus trochilus*
Winter wren	*Troglodytes troglodytes*

3.55 Since 2017 the site has been cleared of mature trees, areas of scrub and tall ruderal vegetation. This will likely have the effect of significantly reducing foraging habitat and the number of potential breeding sites and there is an expectation that fewer species will breed this year.

3.56 The site partially falls within the Black Redstart Priority Area (Greater Manchester Biodiversity Project, 2008) where this species has been recorded and is known to breed. No evidence of presence and breeding was recorded in 2017.

3.57 Manchester Birding Forum (2019) has recorded black redstart singing, feeding and showing in other areas of the city centre indicating breeding. However, sightings have been concentrated around the Town Hall and Deansgate that lie to the west of the site.

Bats

3.58 A comprehensive range of bat surveys has been completed at the site, and non-breeding summer common pipistrelle roosts have been confirmed in B1, B2, and culvert B24. The details of survey methods and results are presented in a number of reports, including PAA 2017 and PAA 2019.

Other Protected Species

3.59 No signs of badger were observed during the survey, and habitats were poor for this species.

3.60 No signs of water vole (*Arvicola amphibius*) or otter were found using the River Medlock. This is consistent with the findings of earlier surveys. The water quality and known incidents of very high flow conditions make the habitat unsuitable for water vole.

3.61 The water quality and known incidents of very high flow conditions also make the habitat unsuitable for white-clawed crayfish and there are no records of its presence.

3.62 Brownfield sites in urban areas can sometimes provide suitable habitat for reptiles. The semi-natural habitats surrounding the former railway station complex, including Colourgates Yard immediately to the south, ostensibly provide some habitats suitable for reptiles for foraging and also potential refuge and hibernacula features. However, given the isolation by urban development, it is considered highly unlikely that reptiles are present within the site.

3.63 There are no records of great crested newt (GCN) within 2km of the site. There are no suitable breeding ponds within or near to the site, which is isolated by urban development and the river that present a significant barrier to GCN dispersal. It is therefore considered highly unlikely that the site supports GCN.

4. EVALUATION

4.1 A primary aim of the survey was to determine if there had been significant changes in habitats and their biodiversity value. The general conclusion is that the habitats are fundamentally the same, but with the start of enabling works there has been a moderate decrease in value. However, this situation is common to re-development and with good landscaping design there is a potential for overall longer-term biodiversity gain.

Designated Sites

4.2 The desk study identified a number of protected sites within the search area, which had not changed from 2016. These are considered to be sufficiently distant and isolated from the site not to be impacted by the development proposals.

Habitats and Botanical Interest

4.3 The original Phase 1 habitat survey highlighted no areas of habitat of nature conservation interest on site and this remains the case. The site does not support species-rich habitats.

4.4 Earlier surveys of the site in 2009 (BuroHappold 2009), 2010 (BuroHappold 2010) and recorded in 2016 (PAA 2017a) identified a colony of southern marsh orchid (*Dactylorhiza praetermissa*) growing on ballast substrate between the old platforms. It is likely that they are still present but would not be identifiable in the winter months. The birch and scrub encroachment may reduce the habitat suitability and although orchids are prized for their appearance they are not afforded special protection.

Protected Species

Birds

4.5 The semi-natural habitats and some of the buildings provide suitable foraging and nesting habitat for a range of bird species. However, with the start of enabling works and vegetation clearance the habitat value has decreased and is less likely to support the number and range of bird species as before.

Otter and Water Vole

4.6 Although there is some (albeit limited) shelter for otter, the poor water quality, lack of fish and noisy urban context means the river and riparian corridor provide very poor habitat for otter to become resident. Similarly, pollution, water flow ranges and unsuitable boundary materials for burrowing make the habitat for water vole extremely poor.

Bats

4.7 Summer non-breeding roosts have been identified and building demolition or refurbishment could result in disturbance or loss of the roost(s), as well as presenting a risk of causing harm to individual bats, all of which would be an offence under current wildlife legislation. Works that have the potential to impact on bats is being licensed and mitigation to provide alternative roosts provided. Day-lighting of culverts is proposed as part of the re-development and careful landscaping design, the appropriate selection of native plant species and naturalisation of the river corridor have the potential to improve the overall habitat quality for bats and other wildlife. Sensitive lighting design to avoid over-illumination of the site and particularly the river corridor should create in the longer-term an improved environment for bats.

Other Protected/Notable Species

4.8 Due to a lack of suitable habitat and/or isolation from other potential habitats, no other protected species are anticipated to be affected by the proposals.

5. RECOMMENDATIONS

Birds

5.1 Where possible, site clearance should continue to be undertaken during the period October to February inclusive to avoid the bird nesting season. Prior to any clearance of potential nesting habitat at other times of the year, a check for nests should be made by a suitably experienced ecologist no more than 48hrs in advance of clearance. Any active nests will need to be left *in situ* and undisturbed until the young have fledged, which may be a period of several weeks.

Protected Species and Habitats

5.2 Additional surveys or special measures for protected species are not considered necessary.

Invasive Non-native Species

5.3 It is recommended that a programme is introduced for the safe removal and disposal of Japanese knotweed, Himalayan balsam and cotoneaster as they are invasive Schedule 9 species. Similarly, if any other invasive, non-native species colonise the site, appropriate control and eradication measures to prevent spread of the species would need to be implemented.

6. REFERENCES AND ABBREVIATIONS

Buro Happold, 2009. *Mayfield Station: Preliminary Ecological Appraisal.*

Buro Happold, 2010. *Mayfield Station: Protected Species Surveys.*

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D., 2015. Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, 108, 708–746.

Greater Manchester Biodiversity Project, 2008. *Black Redstart Species Action Plan*.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey – a technique for environmental audit.* Joint Nature Conservation Committee (revised edition 2010).

Manchester Birding Forum, 2019. <https://manchesterbirding.activeboard.com/t28378416/black-redstarts-in-manchester-city-centre/>

PAA, 2017a. *Ecological Assessment and Bat Inspection.* Report prepared for BuroHappold Engineering.

PAA, 2017b. *Mayfield Manchester, River Survey Report*. Report prepared for BuroHappold Engineering.

PAA, 2017c. *Black Redstart and Breeding Bird Survey report*. Report prepared for BuroHappold Engineering.

PAA, 2019. *Bat Inspection and Emergence Survey Report Building B2 and Culverts B24/26.* Report prepared for BuroHappold Engineering.

Stace, C., 2010. *New Flora of the British Isles*. Third Edition. Cambridge University Press.

7. ABBREVIATIONS

BAP	Biodiversity Action Plan
CRoW	Countryside and Rights of Way
GMEU	Greater Manchester Ecology Unit
EU	European Union
JNCC	Joint Nature Conservation Committee
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd
RIGS	Regionally Important Geological and Geographical Sites
SAC	Special Area of Conservation
SBI	Site of Biological Importance
SSSI	Site of Special Scientific Interest
WCA	Wildlife and Countryside Act

FIGURE





Legend

- Site boundary

Habitat

- Broadleaved woodland - semi-natural
- Broadleaved woodland - recently cleared
- Scattered scrub
- SI — Neutral grassland - semi-improved
- Tall ruderal
- Tall ruderal - recently cleared
- Running water
- S — Spoil
- A — Amenity grassland
- Ephemeral/short perennial
- Introduced shrub
- Building
- Hardstanding
- Culvert
- Building below other features
- Fenceline
- Wall
- Broadleaved scattered trees
- Ephemeral/short perennial - scattered
- Introduced shrub - scattered

N

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

Metres

0 10 20 40 60 80

Buro Happold

Penny Anderson Associates Ltd,
Parklea, 60 Park Road,
Buxton, Derbyshire, SK17 6SN.
Telephone 01298 27086

Title:

PHASE 1 HABITAT MAP 2019

Project Name	Mayfield Station, Manchester		
Discipline	Ecology		
Scale	1:2,250	Drawing No.	Figure 1
Drawn By	MDM	Originator GJH	Date March 2019
PAA Ref.	G:\BUHA01_1_Mayfield_Picadilly\Maps	Revision	A

APPENDICES

APPENDIX 1

Relevant Protected Species Summary Legislation

SUMMARY OF THE LEGISLATION RELATING TO BATS

All wild species of bat are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by later legislation, including the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017, and this legislation is applicable to England and Wales. Bats are listed on Schedule 5 of the WCA and are therefore subject to some the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection (S9:4b).
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat (S9:4c).

There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.

Bat species are also listed under Annexes IIa and IVa of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017.

The Conservation of Habitats and Species Regulations 2017 state that a person commits an offence if they:

(a) deliberately capture, injure or kill any wild animal of a European protected species,

(b) deliberately disturb wild animals of any such species, in such a way as –

  (i) to impair their ability to survive, to breed or reproduce, or to rear their young, or

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or

  (iii) to affect significantly the local distribution or abundance of the species to which they belong;

(c) deliberately take or destroy the eggs of such an animal, or

(d) damage or destroy a breeding site or resting place of such an animal.

Under these Regulations it is an offence to damage or destroy a breeding site or resting place whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead bat or part of such an animal.

In addition, seven native British bat species, including the soprano pipistrelle (*Pipistrellus pygmaeus*) and the brown long-eared bat (*Plecotus auritus*), that are frequently found in buildings, are listed as a 'Priority Species' under the under the 2011 biodiversity strategy for England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services,* under the 2012 UK Post-2010 UK Biodiversity Framework. These Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRoW Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006.

Section 15 of the National Planning Policy Framework (NPPF 2018) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF also includes the requirement to contribute to the Government's commitment to halt the overall decline in biodiversity and to promote the reservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

Local authorities in England are required to ensure that where significant harm resulting from development cannot be avoided (through locating on alternative sites with less harmful impacts),

adequately mitigated, or, as a last resort, compensated for, planning permission is refused. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

Please note: the above text provides a brief summary of the legislation in relation to bats in England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

SUMMARY OF THE LEGISLATION RELATING TO BREEDING BIRDS

All wild species of breeding birds and their nests are protected under Part 1 of the Wildlife and Countryside Act (WCA) 1981, as amended by later legislation including the Countryside and Rights of Way (CRoW) Act 2000. This legislation applies in England and Wales.

Part 1 (Section 1:1) of the WCA states that:

> 'If any person intentionally,
>
> (a) kills, injures or takes any wild bird;
>
> (b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
>
> (c) takes or destroys an egg of any wild bird,
>
> he shall be guilty of an offence.'

Part 1 (Section 1:5) of the WCA (amended by the CRoW Act 2000) refers to specific birds listed on Schedule 1 of the WCA, and states that:

> 'If any person intentionally or recklessly,
>
> (a) disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
>
> (b) disturbs dependent young of such a bird,
>
> he shall be guilty of an offence and liable to a special penalty.'

Schedule 1 includes birds such as barn owl (*Tyto alba*), black redstart (*Phoenicurus ochruros*), wood lark (*Lullula arborea*) and Cetti's warbler (*Cettia cetti*). Please refer to the WCA for a complete list of Schedule 1 species.

Some provisions are made to allow the killing and taking of certain species under certain circumstances, as follows:

- Birds listed on Schedule 2 (Part 1) of the Act may be taken or killed outside of the 'close season' for each individual species (the 'close season' is defined by the Act). This includes various wild duck and geese species.
- Birds listed on Schedule 2 (Part 2) of the Act may be killed or taken by authorised persons at all times. This includes species such as carrion crow (*Corvus corone*), black-billed magpie (*Pica pica*), feral pigeon (*Columba livia*) and greater Canada goose (*Branta canadensis*). An 'authorised person' is defined as a person who has written authorisation to undertake the act from the relevant statutory authority. The written authority is in the form of a licence, either a general licence which covers a number of the more typical 'pest' species, or an individual licence for other individual species. In England these licences are issued by Natural England and in Wales by the Welsh Assembly Government.

Please note: the above text provides a brief summary of the legislation in relation to breeding birds in England and Wales and the original Act and any amendments should be referred to for the precise wording.

APPENDIX 2

Species List

Appendix 2 Plant Species Recorded on the Application Site

Common Name	Latin Name	Habitat Type with Phase 1 Codes								
		Ephemeral/Short Perennial (J1.3)	Broadleaved Scattered Trees (A3.1)	Tall Ruderal (C3.1)	Scattered Scrub (A2.2)	Semi-improved Neutral Grassland (B2.2)	Introduced Shrub - Scattered/ Amenity planting (J1.4)	Amenity Grassland (J1.2)	Broadleaved Semi-natural Woodland (A1.1.1)	Hedgerow (J2.1.2)
Trees and Shrubs										
Alder	*Alnus glutinosa*		R							
An apple	*Malus* sp.		R							
Ash	*Fraxinus excelsior*		F						O - F	
Birch species	*Betula* sp.								LF	
Broom	*Cytisus scoparius*			R						
Butterfly bush	*Buddleja davidii*						D		R - LO	
Cherry laurel	*Prunus laurocerasus*						LO			D
Cherry species	*Prunus* sp.		R						R	
Dogwood	*Cornus sanguinea*								LO	
Elder	*Sambucus nigra*		O - LD							
Holly	*Ilex aquifolium*								R	
Poplar species	*Populus* sp.		LO - LF							
Silver birch	*Betula pendula*								A - LD	
Swedish whitebeam	*Sorbus intermedia* agg.		R							
Sycamore	*Acer pseudoplatanus*		O - F						O - F	
Willow sp.	*Salix* sp.		R - O						R	
Herbs, Grasses and Ferns										
Annual meadow-grass	*Poa annua*					R				
Black medick	*Medicago lupulina*							LF		
Bracken	*Pteridium aquilinum*			LR						
Bramble	*Rubus fruticosus* agg.	O		O - LF	D	LO	LF		LD	
Canadian fleabane	*Conyza canadensis*	O - F								
Cleavers	*Galium aparine*			LO						
Cock's-foot	*Dactylis glomerata*					R - LO				
Colt's-foot	*Tussilago farfara*					R				
Common bent	*Agrostis capillaris*	F						O		
Common cat's-ear	*Hypochaeris radicata*					O-F				
Common centaury	*Centaurium erythraea*					O-F				
Common figwort	*Scrophularia nodosa*	R								
Common mouse-ear	*Cerastium fontanum*	R						R - O		
Common nettle	*Urtica dioica*	F		O - LD						
Common ragwort	*Senecio jacobaea*	O - F				O		R - O		
Cotoneaster species	*Cotoneaster sp. cf Cotoneaster simonsii*			R			R			
Cow parsley	*Anthriscus sylvestris*			R						
Crane's-bill species	*Geranium* sp.							R		
Creeping bent	*Agrostis stolonifera*					F - LD				
Creeping buttercup	*Ranunculus repens*	R				O		O		
Creeping cinquefoil	*Potentilla reptans*	O-F								
Creeping thistle	*Cirsium arvense*	R		O - F						
Dandelion	*Taraxacum officinale agg.*	O - F				O		O - F		
Dock species	*Rumex* sp.	O		R		R		R		
Evening primrose species	*Oenothera* sp.					R				
Eyebright	*Euphrasia nemorosa*					O-F				
Fern species	*Dryopteris* sp.			O - LF						
Field horsetail	*Equisetum arvense*					O				
Garden lady's-mantle	*Alchemilla mollis*					LR				
Garlic mustard	*Alliaria petiolata*	R		R						
Goat's-beard	*Tragopogon pratensis*	O-F				O-F				
Goldenrod	*Solidago virgaurea*			O - F		R				
Greater plantain	*Plantago major*	O								
Groundsel	*Senecio vulgaris*	R - O								
Hart's-tongue	*Asplenium scholopendrium*	R								
Hawkweed species	*Hieracium* sp.					O-F				
Hedge bindweed	*Calystegia sepium*			LR						

Appendix 2 Plant Species Recorded on the Application Site

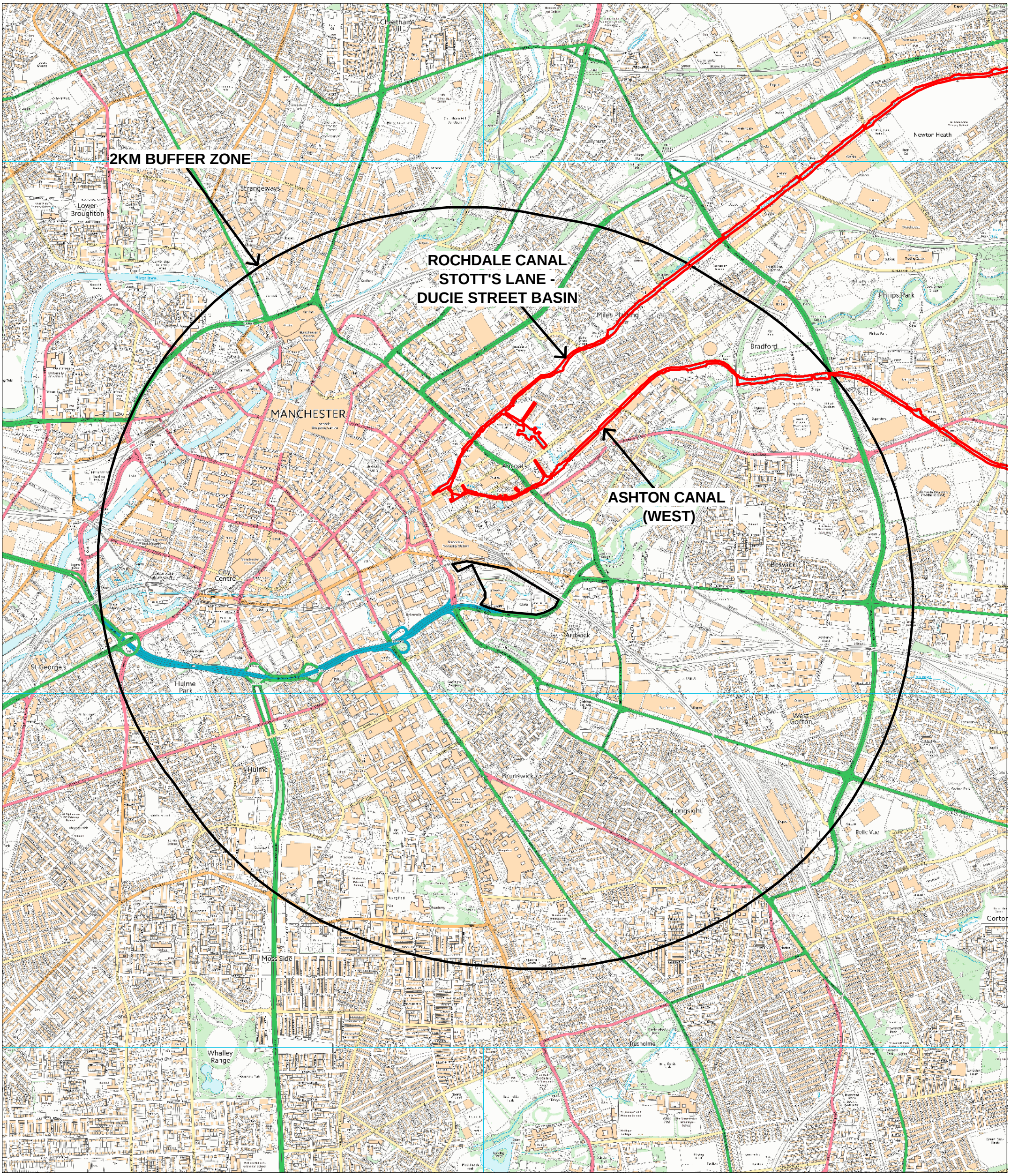
Common Name	Latin Name	Habitat Type with Phase 1 Codes								
		Ephemeral/Short Perennial (J1.3)	Broadleaved Scattered Trees (A3.1)	Tall Ruderal (C3.1)	Scattered Scrub (A2.2)	Semi-improved Neutral Grassland (B2.2)	Introduced Shrub - Scattered/ Amenity planting (J1.4)	Amenity Grassland (J1.2)	Broadleaved Semi-natural Woodland (A1.1.1)	Hedgerow (J2.1.2)
Hedge mustard	*Sisymbrium officinale*	R								
Hemp agrimony	*Eupatorium cannabinum*			O-F	O-F					
Herb-Robert	*Geranium robertianum*	R								
Himalayan balsam	*Impatiens glandulifera*					LO				
Hogweed	*Heracleum sphondylium*			LO						
Ivy	*Hedera helix*	LO								
Knotgrass	*Polygonum aviculare*	R								
Maidenhair spleenwort	*Asplenium trichomanes*	R								
Michaelmas-daisy species	*Aster novi-belgii* agg.	O - F								
Mugwort	*Artemisia vulgaris*	F - LA		O		O				
Nipplewort	*Lapsana communis*	R - O								
Oregon-grape	*Mahonia aquifolium*						LA			
Oxford ragwort	*Senecio squalidus*					R				
Pendulous sedge	*Carex pendula*	R								
Perennial rye-grass	*Lolium perenne*							A		
Perennial sow-thistle	*Sonchus arvensis*	O-F								
Perforate St. John's wort	*Hypericum perforatum*					R				
Polypody species	*Polypodium* sp.	R								
Red clover	*Trifolium pratense*	R				R		R		
Red fescue	*Festuca rubra*	O						O		
Redshank	*Persicaria maculosa*	R								
Ribwort plantain	*Plantago lanceolata*					O		R		
Rosebay willowherb	*Chamerion angustifolium*			O - F						
Scentless mayweed	*Tripleurospermum inodorum*	R								
Shepherd's-purse	*Capsella bursa-pastoris*	R								
Smooth sow-thistle	*Sonchus oleraceus*	O								
Soft-rush	*Juncus effusus*					LR				
Southern marsh-orchid	*Dactylorhiza praetermissa*	LF								
Spear thistle	*Cirsium vulgare*	LR		LO						
Tufted hair-grass	*Deschampsia caespitosa*					LR				
Vetch species	*Vicia* sp.					R		LR		
Wall cotoneaster	*Cotoneaster horizontalis*								LR	
Wavy bitter-cress	*Cardamine flexuosa*	R - O				LF				
White clover	*Trifolium repens*					O		LF		
Willowherb species	*Epilobium* sp.(annual)	F		O - F		R		R		
Yorkshire fog	*Holcus lanatus*					O - LA		R		

Key

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

APPENDIX 3

Desk Study Data



KEY

SITE OF BIOLOGICAL IMPORTANCE

SBI BOUNDARY

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 851 975
MAYFIELD - MAP 1

SCALE 1:20,000

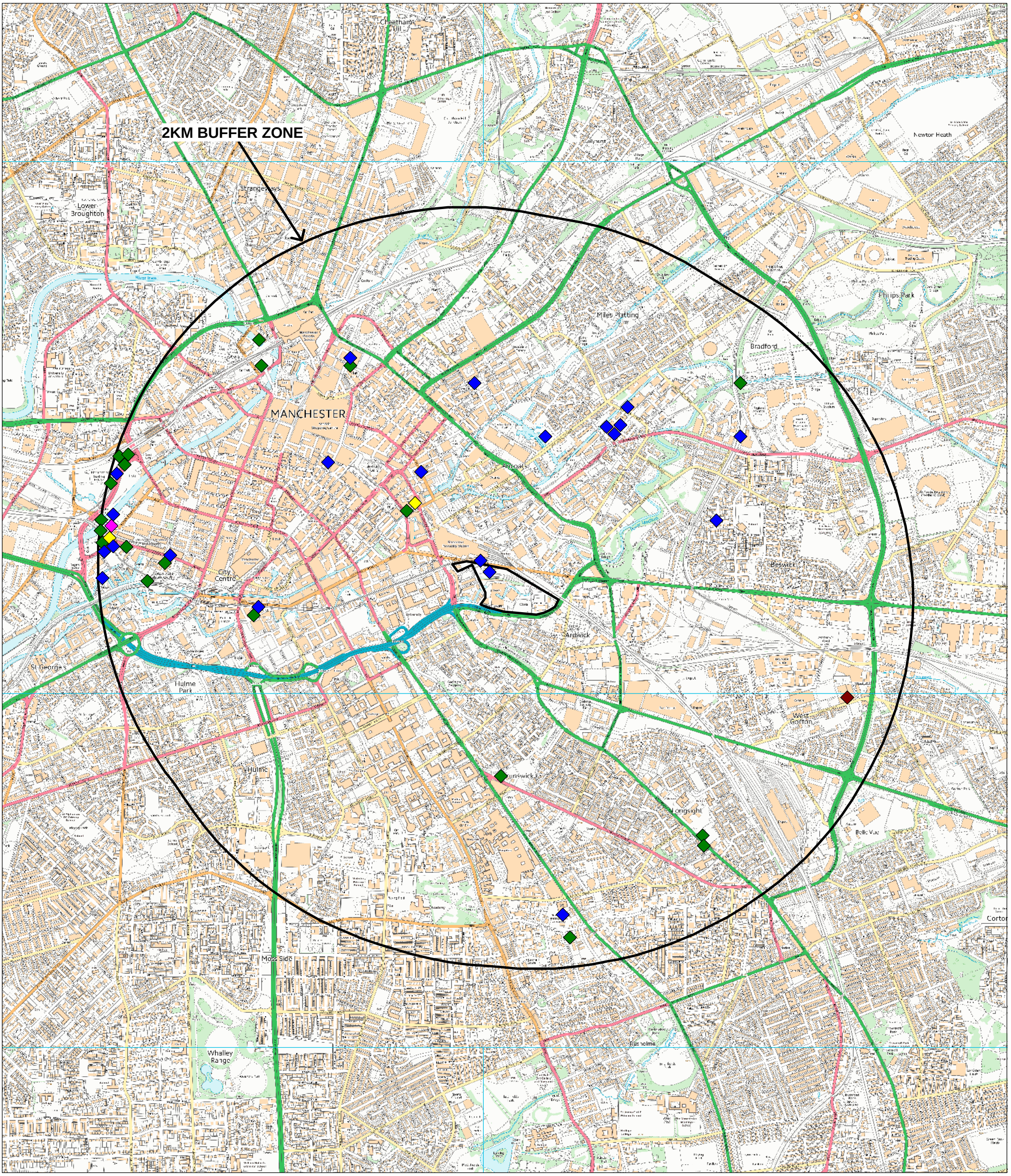
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2019

Greater Manchester Ecology Unit

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 19/02/2019



KEY

BAT ROOSTS

- BROWN LONG-EARED BAT
- COMMON PIPISTRELLE
- DAUBENTON'S BAT
- PIPISTRELLE SP
- SOPRANO PIPISTRELLE

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 851 975
MAYFIELD - MAP 4A

SCALE 1:20,000

BAT DATA COURTESY OF SOUTH LANCS BAT GROUP

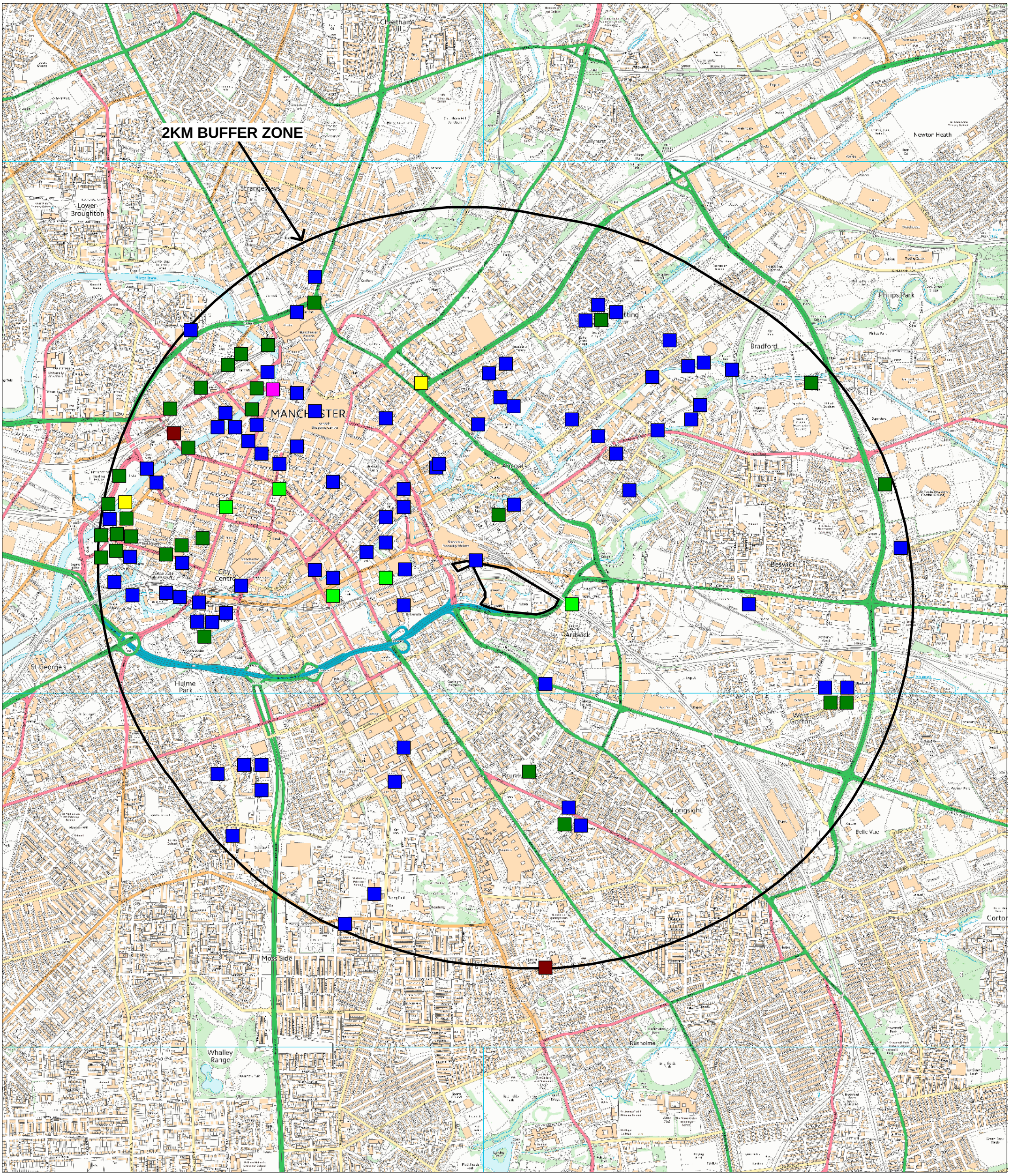
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT
UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2019

Greater Manchester Ecology Unit

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 20/02/2019



KEY

BAT SIGNS

- BAT SP
- BROWN LONG-EARED BAT
- COMMON PIPISTRELLE
- DAUBENTON'S BAT
- PIPISTRELLE SP
- SOPRANO PIPISTRELLE

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 851 975
MAYFIELD - MAP 4B

SCALE 1:20,000

BAT DATA COURTESY OF SOUTH LANCS BAT GROUP

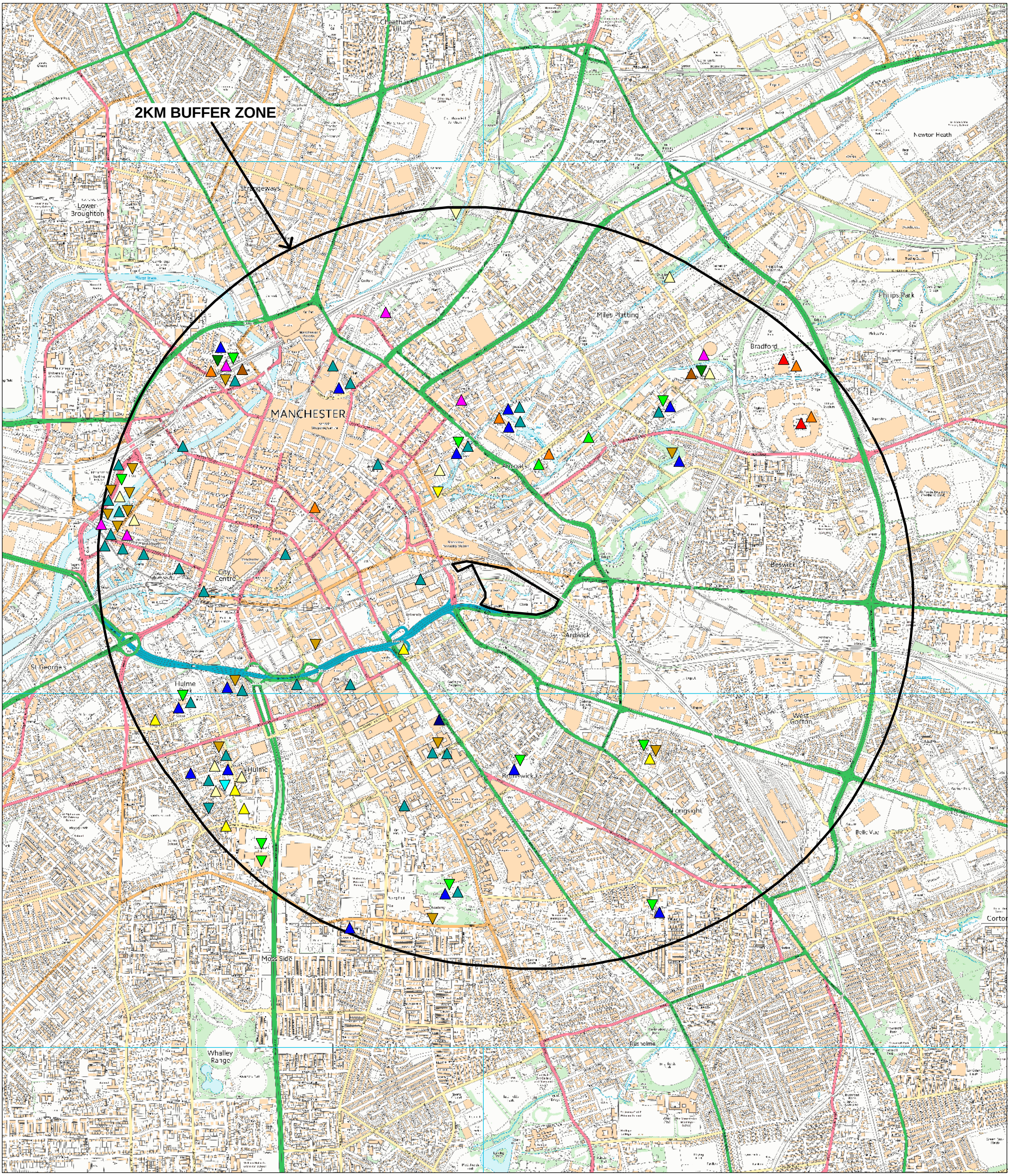
THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2019

Greater Manchester Ecology Unit

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 20/02/2019



KEY

SECTION 41 SPECIES

- BULLFINCH
- DUNNOCK
- GRS-WRK PONDWEED
- HEDGEHOG
- HERRING GULL
- HOUSE SPARROW
- LAPWING
- LESSER REDPOLL
- LINNET
- S41 MOTH
- SONG THRUSH
- SPOTTED FLYCATCHER
- STARLING
- TREE SPARROW
- TWITE
- YELLOW BIRD'S-NEST
- YELLOW WAGTAIL

GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 851 975
MAYFIELD - MAP 5

SCALE 1:20,000

THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HMSO ©CROWN COPYRIGHT
UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2019

Greater Manchester Ecology Unit

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 20/02/2019

APPENDIX 4

Site Photographs



Plate 1

Typical area of hardstanding, eastern area of site



Plate 2

Building B27 recently constructed with cobbled area



Plate 3

B27 showing woodchip ground covering



Plate 4

Ephemeral short perennial vegetation (February 2019)



Plate 5

River Medlock looking downstream. Felled trees on left bank



Plate 6

Recently cleared tall ruderal vegetation



Plate 7a

Tall ruderal vegetation (B27 to the right of picture)



Plate 7b

Tall ruderal to south of old railway station (B3 to the right of picture)



Plate 8

Semi-improved species-poor grassland with scattered butterfly-bush - former railway lines



Plate 9

Self-colonised immature birch woodland, southern edge of former railway station complex



Plate 10

River Medlock looking upstream towards culvert B24



Plate 11

River Medlock showing dense stands of Japanese knotweed (August 2017)

Penny Anderson Associates Ltd

CONSULTANT ECOLOGISTS



Park Lea, 60 Park Road, Buxton, Derbyshire SK17 6SN

Registered Offices Above | Registered in England & Wales | Company No. 4223109 Directors: Mrs P Anderson Mr P Worrall Miss S Rogers

f) Mayfield Site Compound, Updated Ecological Surveys (2023)

BURO HAPPOLD

Technical Note

Project	Mayfield, Manchester
Subject	Mayfield Site Compound
Project no	0046688
Date	23 November 2023

Revision	Description	Issued by	Date	Approved (signature)
00	Updated ecological surveys	JR	23/11/2023	MLS

1 Introduction

Buro Happold has been appointed by Landsec U+I to undertake ecology services, including an updated preliminary roost assessment of existing buildings, of an area within the footprint of a submitted planning application for a Mayfield Site Compound located to the south east of Manchester Piccadilly Station, in central Manchester (137072/FO/2023).

The updated preliminary roost assessment was commissioned following comments received from the Greater Manchester Ecology Unit (GMEU) on the planning application. The buildings on site have previously been subject to survey and assessment by Buro Happold and Penny Anderson Associates in affiliation with the wider Mayfield development area, within which the proposed redline for the planning application in question sits wholly within. The comment received by GMEU, which this Technical Note seeks to address, is as follows:

"Bats

The bat assessment is dated 2016. This is no longer valid. Current guidance is that the maximum age of a report prior to a full resurvey is 3 years. Whilst the building were assessed as negligible risk, the buildings are not of a type with no risk. Bats also have been recorded roosting elsewhere on the Mayfield Site. Given Current guidance states it is essential that the presence or otherwise of protected species and the extent that they may be affected by the proposed development is established before the planning permission is granted (UK Government Guidance within the ODPM Government Circular 06/2005), I recommend that:

Prior to determination a updated bat assessment is carried out by a suitably experienced bat worker. The assessment should include as a minimum a visual inspection of the existing roof space for evidence of bats and exterior of the building for potential bat access points. Should the property be assessed as more than low risk, further information will be required prior to determination."

This Technical Note has been prepared to present the findings of an updated ecological site walkover and preliminary roost assessment survey conducted on 16th November 2023.

1.1 Site context

The Mayfield Site Compound, hereafter referred to as the 'proposed development', is situated in central Manchester to the south east of the Manchester Piccadilly train station (OS central grid reference: SJ 85317 97524). The development area, hereafter referred to as the 'site', is located wholly within the wider redline of the Mayfield development area and is located immediately to the east and south of Mayfield Park. The site is divided north-south by Hoyle Street into two areas (as illustrated in Figure 1-1). The site is bordered by the A635 and a line of urban trees to the southeast, the raised railway to the north and northeast, a recently regenerated area of Mayfield Park and a cleared area of land to the west. The wider landscape is dominated by dense urban development, with industrial and residential buildings and busy roads.

This Design Note has been prepared for the sole benefit, use and information of Landsec U+I for the purposes set out in the Design Note or instructions commissioning it and shall be subject to the express contract terms with Landsec U+I. BH assumes no liability or responsibility for any reliance placed on this Design Note by any third party. All concepts and proposals are copyright © 1976 – 2023 Buro Happold. All rights reserved. Issued in commercial confidence.

The current development proposal comprises the site's clearance and the demolition of the buildings for a temporary construction compound. It intends to provide an interim use of this part of the Mayfield development site, where built plots are not intended to come forward until later in the phasing programme for the development. The proposed compound area is intended to support the construction of the Phase 1 development plots within Mayfield as well as other neighbouring infrastructure developments until July 2030.

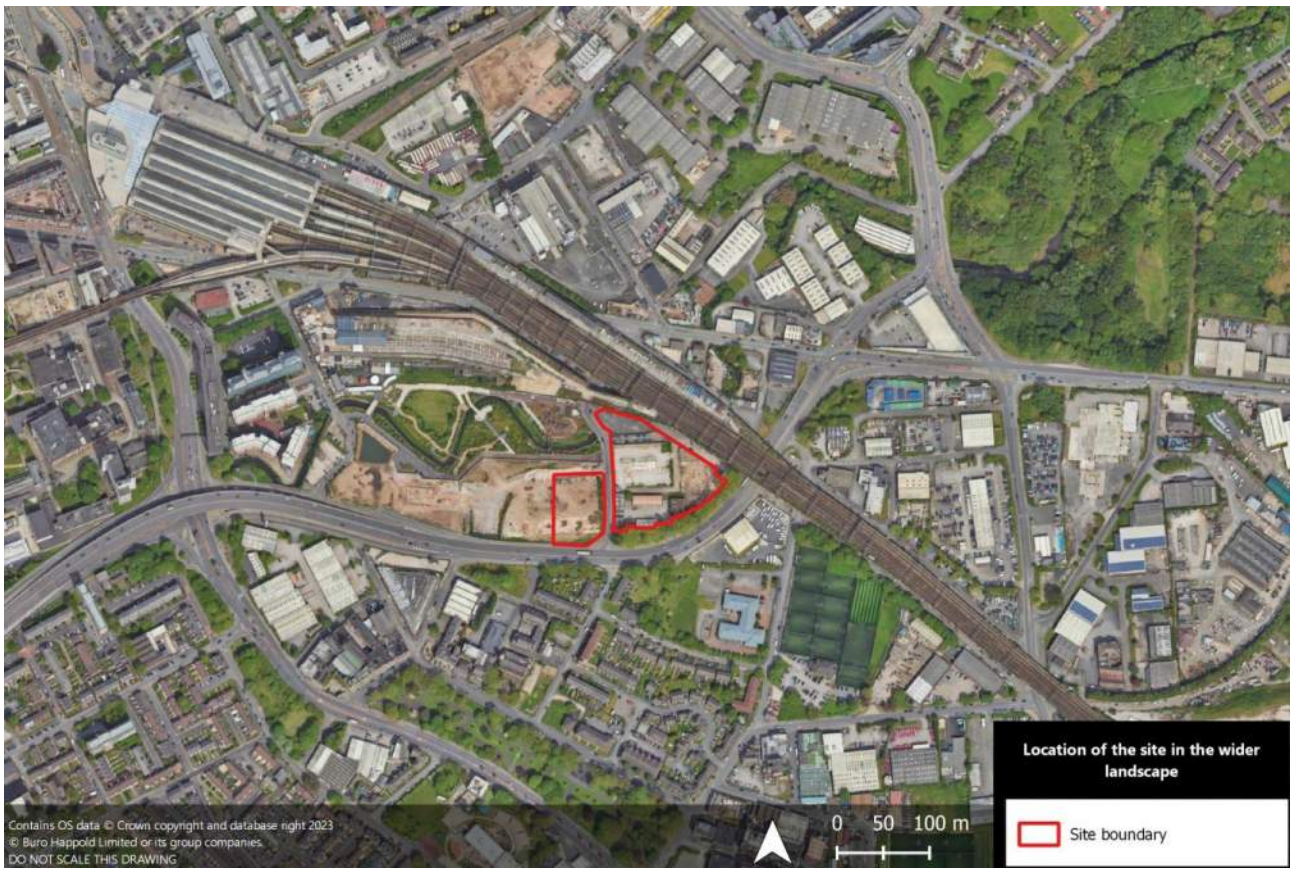


Figure 1-1 Location of the site in the wider landscape

1.2 Methods

1.2.1 Desk study

The methods included an updated desk study comprising an ecological data search on the open-access Multi-Agency Geographic Information for the Countryside (MAGIC) website for statutory designated sites, priority habitats and records of granted protected species licenses within 1km of the site. In addition, the previous ecological survey work carried out for the Mayfield development on site was also reviewed and considered as part of this assessment. The reviewed documents included:

- Buro Happold Engineering (November, 2017) Ecological Assessment and Bat Inspection;
- Buro Happold Engineering (November, 2017) Bat Survey Report;
- Penny Anderson Associates (March, 2019) Ecological Assessment;
- Penny Anderson Associates (March, 2019) Bat Inspection and Emergence Survey Report – Building B2 and Culverts B24/B26; and
- Buro Happold (June, 2023) Update Ecology Strategy with Biodiversity Net Gain – Phase 1.

1.2.2 Updated field surveys

The updated field survey was conducted on 16th November 2023 by two experienced ecologists from Buro Happold, including a Natural England Bat Class 1 Licence holder to undertake the updated preliminary roost assessment survey of the buildings. The survey was undertaken in good weather conditions, with the day being dry throughout.

The field surveys included an ecological site walkover to assess any changes in habitats since the last habitat survey, an updated roost assessment of the remaining buildings within the site, and an updated appraisal of the site for its potential to support other protected, priority or notable species.

The entire site was walked by both ecologists, noting changes from the previous ecological surveys and identifying where further habitat establishment may have occurred. Consideration was made throughout for the potential of any habitats within the site to support protected, priority or notable species and to identify any potential ecological risks that may need to be considered with site clearance for the proposed development and use of the site as a compound area.

The buildings were assessed in accordance with the latest available bat survey guidelines[1] by an experienced and licenced ecologist and a supporting assistant ecologist. The survey made use of binoculars and high-powered torches to support the investigation of any potential roosting features identified, in accordance with the licence held.

1.3 Limitations

Not all buildings were open and internally accessible during the bat roost assessment survey. This is not considered a significant limitation to the survey as those that were open exhibited that the internal spaces are typically open to the roof. Additionally, these open roof voids identified that the structure is typically steel framed with composite, or other material, corrugated sheet type roofing, with limited roosting potential for bats. From external assessment, all buildings were identified to have similar roofing sheets, and so roosting potential of the roof space was considered likely to be similar across all of the buildings.

The central area of the site was not accessible due to the enclosing fencing not providing an access gate. The area was visible through the fence and appeared to include unsealed surface supporting sparse buddleia and ephemeral species assemblages similar to other accessible areas of the site during the survey. Therefore, this is not considered to be a significant limitation to the survey results.

No other limitations were encountered during the survey.

2 Results

2.1 Desk study

2.1.1 Designated sites

Two statutory designated sites are recorded within 1km of the site boundary. Stretches of the Rochdale Canal, designated as a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). There are no other statutory designated sites within a 1km search area for the site.

Previous reports relating to the Mayfield development identify that there are two Sites of Biological Interest (SBIs) within 1km from the site – Rochdale Canal, Stott's Lane - Ducie Street Basin SBI and Ashton Canal SBI. The Rochdale Canal provides habitat for regionally and internationally important species such as floating water plantain *Luronium natans*, and the Ashton Canal is recognised as important for its submerged aquatic flora.

It is considered unlikely that the proposed use of the site as a compound by Mayfield Site would result in adverse impacts on these statutory and non-statutory designated sites, and so they are not considered further within this Technical Note.

2.1.2 Habitats

The data search did not return any priority habitats within the site boundary. The priority habitats within 1km of the site include deciduous woodland located about 250m south of the site as well as the River Medlock, which is both a UK and a Manchester priority habitat. The river is culverted beneath the northern portion of the site, but has recently experienced enhancement to its previously channelised form as part of the establishment of the Mayfield Park, immediately to the east of the site boundary.

[1] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

The previous habitat surveys undertaken for the wider Mayfield development area, the most recent of which was in 2019, identified a number of habitats across the site area considered in this Technical Note. Self-established habitats across the site included broadleaved woodland, introduced shrub and ephemeral/ short perennial vegetation on unsealed surfaces (Figure 2-1). The site was otherwise found to be dominated by hard standing, buildings and spoil storage in the north and west of the site.

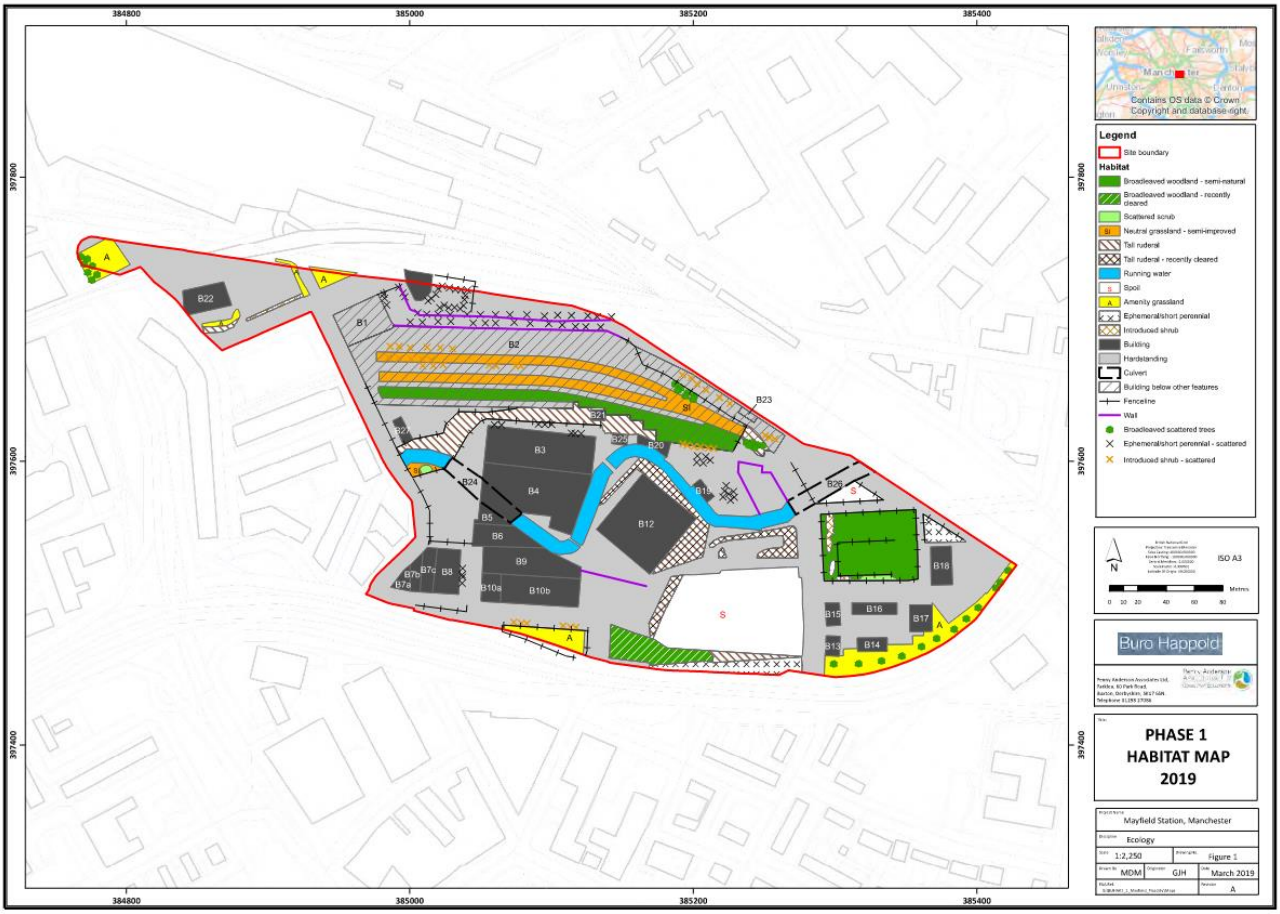


Figure 2-1 2019 habitat survey results for the wider Mayfield development, demonstrating broadleaved woodland, introduced shrub and ephemeral/ short perennial vegetation with the proposed Mayfield Site Compound area.

The creation of the Mayfield Park, which opened in September 2022, and the associated improvements to the River Medlock corridor, provide new ecologically valuable habitats to support a number of local and UK biodiversity priority species, including bat, bird and invertebrate species. The habitats created include urban green space, a priority habitat within the Manchester BAP. Further, the creation of the Mayfield Park delivered a network of green infrastructure, including landscaping with native species and replacement tree planting, incorporating wildlife planting for pollinators and providing habitat features. Whilst the Mayfield Park is offsite, it is in close proximity to the northern west boundary of the application area.

2.1.3 Species

A record of a bat species - common pipistrelle *Pipistrellus pipistrellus,* was returned about 200m south from the site on the MAGIC data search. The Mayfield Regeneration Development Bat Surveys conducted in 2017 recorded the presence of multiple common pipistrelle bats and bat roosts within the Mayfield site and a single Daubenton's bat *Myotis daubentonii* commuting along the River Medlock corridor. All roosts were recorded outside of the site boundary assessed within this Technical Note. The river corridor west of the site boundary was considered to be the most important habitat for bats within the survey area. Bats were recorded foraging along the river corridor and occasionally entering the culvert in the north of the site. Also, a day roost for approximately five common pipistrelle bats, was found in the culvert within the Mayfield boundary. Roosts have since been affected on site by the use of the Depot building and the de-culverting of the River Medlock. Mitigation roosting spaces are in place across the Mayfield Park, including two boxes mounted on the eastern end of the Depot building and within the restored river wall structure of the River Medlock.

Previously, no evidence of roosting bats was found within the buildings that are on site, and the buildings were considered to offer negligible potential at the time of the previous survey (see Figure 2-2). The previous reports describe

the on site buildings as modern structures of brick and metal with no features suitable for use by bats on the interior or exterior.

The site also includes the Hoyle Street culvert. Surveys in 2017 identified that the culvert may be used by roosting pipistrelle bats, however a detailed inspection of the culvert in 2019 failed to identify roosting spaces. A cautious approach has since been applied to the culvert to minimise potential disturbance from construction activity works in case that a roost is present somewhere within the structure.

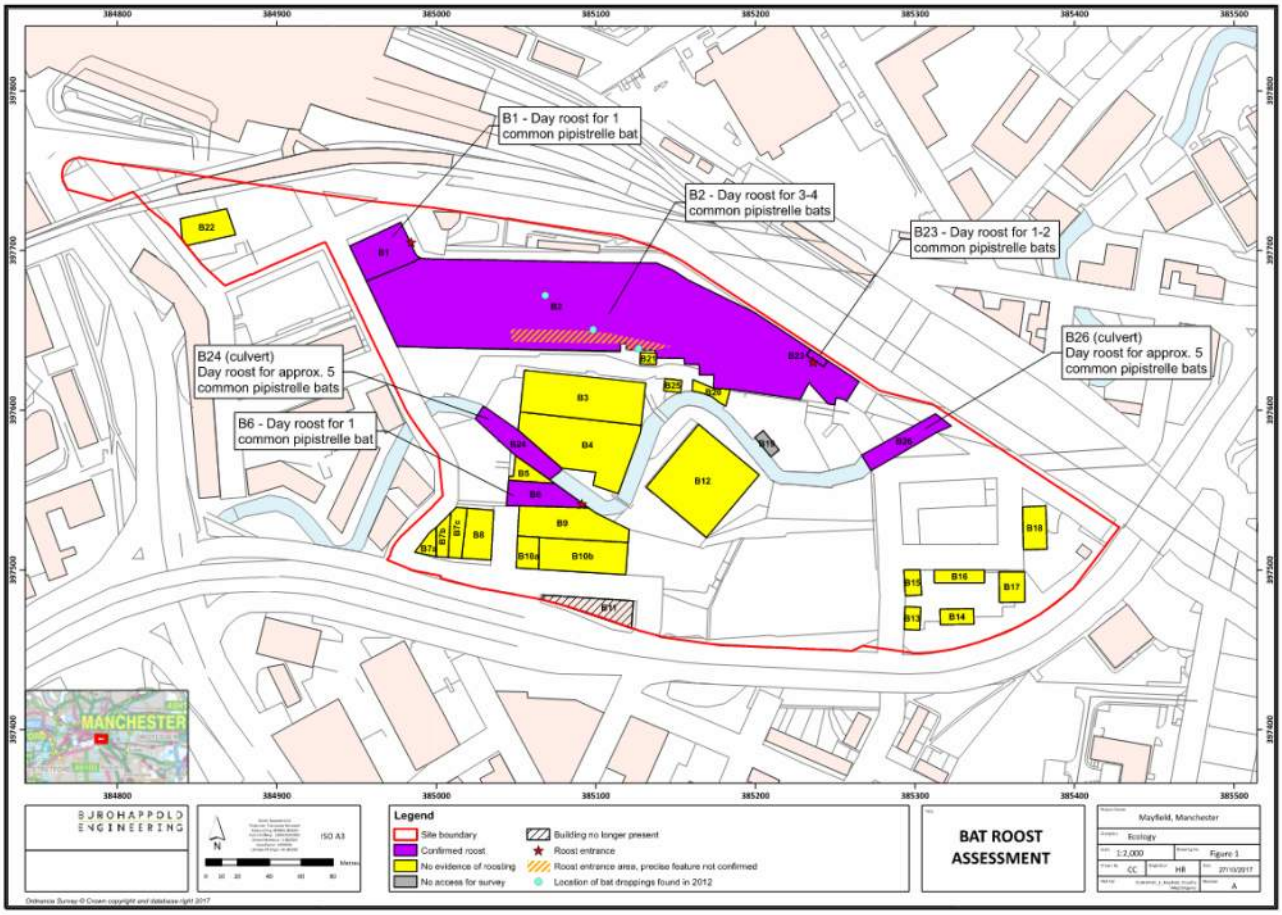


Figure 2-2 The 2017 bat survey results plan of identified bat roosts within the wider Mayfield Development area.

The results of other previous ecological surveys for the Mayfield development, identified habitats suitable for foraging and nesting birds. These included semi-natural habitats, some buildings, and scattered trees. Because of the brownfield nature of the baseline site, it was considered to have a suitable habitat for the black redstart *Phoenicurus ochruros*, a rare breeder in the UK known to occur near the Mayfield site, although targeted surveys did not identify any on site. Birds that were recorded on site during breeding bird surveys undertaken in 2017 were generally common and widespread species that are often associated with urban, or more developed, areas. Such species included wren *Troglodytes troglodytes*, dunnock *Prunella modularis*, blackbird *Turdus merula*, great tit *Parus major*, blackcap *Sylvia atricapilla*, robin *Erithacus rubecula* and feral pigeon *Columbia livia domestica*. Starling *Sturnus vulgaris* and bullfinch *Pyrrhula pyrrhula*, were also recorded flying over the site, but were not considered to use the site.

The development of the Mayfield Park included the installation of new bat boxes within parts of the retained river wall, as well as features to support wagtails, kingfishers, generalist bird species and invertebrates and significantly increased the habitats suitable for many species.

2.2 Field survey

2.2.1 Habitats

Due to interim works that have been undertaken on site, associated with the construction of Mayfield Park and activation of the wider Mayfield development, the site was found to have a lower ecological value than what was previously recorded in habitat surveys undertaken to support the Mayfield planning application (see section 2.1.2). Habitats

removed as part of the Mayfield development have approved mitigation in place as part of the development proposals submitted within the previous planning application relating to the site, which is in part delivered by the Mayfield Park, and therefore, does not need to be considered as part of this planning application.

During the field survey, it was found that the habitats previously recorded on site as discussed in the desk study section, have largely been removed. This includes the area of broadleaved woodland in the centre of the site, which is now a cleared site dominated by an unsealed substrate with scattered ephemeral vegetation growth in places, and some buddleia establishing (Figure 2-3). This is typical across the northern, eastern, central and western portions of the site which have been cleared and are no longer in active continuous use. The northern and western sections of the site (Figures 2-4 and 2-5, respectively) do show signs of occasional use as car parking and material storage areas.

The western area of the site still has remnant use as an area of spoil deposition and an area where waste from park management and maintenance appears to be stored and managed. Spoil deposition is not at the rate of the previous site use as a recycling plant area, although there is clear signs of ongoing disturbance from vehicles through the area. There is a small strip of dense buddleia scrub that has established between two fence lines on the border of the western parcel of the site and Hoyle Street (Figure 2-6).

The southern area of the site, which contains the remaining buildings on site and is otherwise dominated by hard standing, remains in active use at the time of the survey. The building units continue to be occupied by a variety of industry uses. There is some vegetation growth to the north of the building area, where it borders Rachel Street and a single tree is present, which will be lost as part of the proposed development (Figure 2-7).

The line of mature trees and amenity grassland to the south of the site, bordering the Mancunian Way, will be retained and protected outside of the site boundary (Figure 2-8).



Figure 2-3 The central area of land that previously contained self-established broadleaved woodland, which has since been cleared.



Figure 2-4 The northern area of the site, currently in use for occasional car parking and storage within the arches.



Figure 2-5 The western area of the site, where some spoil remains. The area appears to be occasionally used to support maintenance and management of the Mayfield Park.



Figure 2-6 An area of dense buddleia growth between two fence lines in the western area of the site, adjacent to Hoyle Street



Figure 2-7 Vegetation growth, including a single semi-mature tree, along the building area boundary with Rachel Street



Figure 2-8 Line of mature trees to the south of the building area which will be retained and protected outside of the proposed development

2.2.2 Species

The buildings on site were re-assessed for their potential to support roosting bats. As identified in section 2.1.3, buildings B13 – B18 fall within the site boundary, all of which were previously identified to have negligible potential to support roosting bats at the time of the 2017 bat roost inspection surveys.

Since the previous surveys, building B18 has been demolished. Buildings B13 – B17 were reassessed, and all were considered to continue to have negligible potential to support roosting bats. All buildings remain in use and have limited roosting opportunities internally or on the external elevations of the buildings. The construction type, with metal cladding on the upper portions of the buildings (Figure 2-9), provide little suitable roosting space. Where there is exposed brick in the lower sections of the elevations, the mortar is generally in good condition with no features identified that are likely to provide access to a suitable cavity space for roosting.

The units that were open at the time of the survey confirmed that they remain open to the roof structure. Across the buildings, all roofs continue to be covered with corrugated roofing sheets of either composite or metal materials, affording little roosting potential for bats. Where visible, several of the roofs were also noted to include light panels, which creates a light environment within the buildings themselves, making the internal space unsuitable for roosting (Figure 2-10). It is therefore considered that all buildings on site continue to offer negligible potential for roosting bats.

The bat roost assessment also included a survey of the railway structure that forms the northern boundary of the site. This isn't recorded within the previous Mayfield development bat inspection surveys. The archways associated with the railway structure were largely damp, with numerous pipes draining water from the tracks above into the arches and down several of the walls of the structure (Figure 2-11). These areas were considered to offer negligible potential for roosting bats due to the inherently wet nature of any potential roosting access/ egress points here. In drier areas of the arches, some gaps were identified between where the layers of the arches meet without mortar (Figure 2-12). These could provide roosting space, although no evidence of roosting, such as droppings, was found beneath the openings. Additionally, there are some areas where there is missing mortar on the elevational brick work, which could afford a cavity roosting space (Figure 2-13). It is considered that these features have low potential to support roosting bats.

With regards to other species, the site generally has limited potential to support other species of note. A birds' nest was noted in the tree to be removed on the border of Rachel Street (Figure 2-7). The dense buddleia on the edge of Hoyle Street and the western parcel of the site may also have potential to support nesting birds due to the size and density of the vegetation growth here.

No other evidence or potential for protected, priority or notable species was identified during the survey.



Figure 2-9 The typical construction type of buildings B13-17.



Figure 2-10 Illustrating how the buildings are open to the roof and include lighting panels

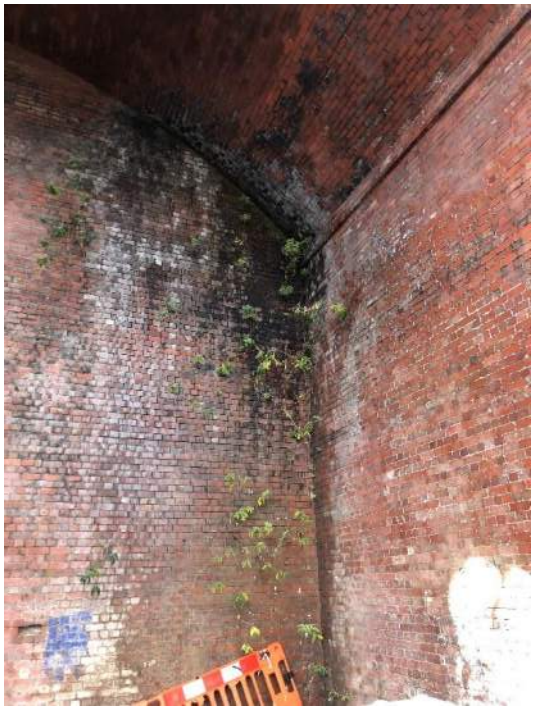


Figure 2-11 Damp areas beneath the arches in the north of the site due to open pipes draining the trackway above.



Figure 2-12 The location of gaps where the layered arches meet (in green)

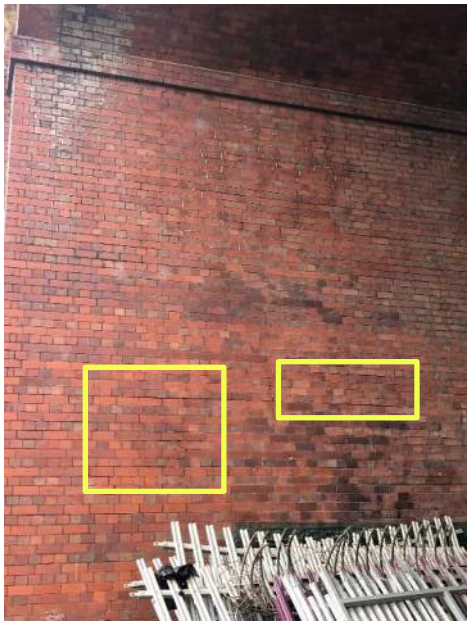


Figure 2-13 Gaps between brickwork due to missing mortar (in yellow)

3 Conclusion

The site currently has limited ecological value due to previously recorded habitats having been cleared as part of the works associated with the Mayfield development. Additionally, buildings B13 – B17 were considered to have negligible potential to support roosting bats, and so there is considered to be limited with regards to the demolition of the buildings as part of the proposed development.

It is therefore considered that there a limited ecological risks assocaited with the proposed development of the site and proposed use as a Mayfield Site compound area. The following outline mitigation actions that are considered appropriate for the intended use of the site:

- The railway arches on the northern boundary of the site were considered to support features that have low potential to support roosting bats. The arches will be retained as part of the works due to their association with the active railway structure. This area of the site is already used for material storage, with any potential roosts in the arches exposed to the associated disturbance of vehicle movement to transport materials in and out of the archways currently. Additionally, the potential roosting features were identified to be a good height above the material storage, and so is considered to be unlikely to be inadvertently blocked as a result of future use of the site. The only potential risk that is considered with regards to these potential roosting features is regard to security or other works-related lighting which may be required as part of the site use. If this is required, it should be designed to not illuminate the archways, and maintain a dark corridor along the face of the railway arches, which may form part of a commuting corridor for bats locally, although the Hoyle Street culvert beneath this part of the site is likely to provide the main commuting route in this location.
- Clearance of the tree on site and dense buddleia vegetation should be undertaken outside of the nesting bird season (March – August inclusive) to avoid the potential for damage or destruction of active nests which would be unlawful under the Wildlife and Countryside Act 1981 (as amended).
- Site clearance and operation should seek to minimise indirect impacts on the adjacent Mayfield Park which may arise from uncontrolled noise, dust and lighting. It is considered that standard good construction and operational practice as would otherwise be required, would satisfy these requirements. No lighting columns, for security or otherwise, should be directed in a way that creates additional illumination on the Mayfield Park and, in particular, the River Medlock corridor.

It is considered that by applying the above mitigation actions, the proposed use of the site as a compound to support Mayfield Site's activities will not result in an adverse impact on ecology locally.