

NOMA Angel Square – Public Realm M60 0AG

ECOLOGICAL SURVEY AND ASSESSMENT

September 2022

[ERAP (Consultant Ecologists) Ltd ref: 2022-285]

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Document Control

Survey Type:	Surveyor	Survey Date
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Reporting	Personnel	Date
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SUMMARY

Introduction and Scope

- i. This ecological survey and assessment presents the ecological, biodiversity and nature conservation status of the Public Realm area at NOMA Angel Square. The assessment was requested in connection with proposals to enhance and improve this area.
- ii. This report presents the results of a desktop study and extended Phase 1 Habitat Survey carried out in August 2022. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.
- iii. The site comprises landscape planting, and area of amenity grassland and hard standing.

Results of Survey and Assessment

- iv. The proposals will have no adverse effect on statutory or non-statutory designated sites for nature conservation.
- v. Only common and widespread plant species were found. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present. No Priority Habitats are present.
- vi. In terms of each habitat's importance in a geographical context, the landscape planting and amenity grassland are of 'local' importance as they contribute to the diversity of habitats within the local area. The hard standing is not considered to hold any importance in terms of its geographical context.
- vii. No invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected within the site.
- viii. The trees and shrubs are suitable for use by nesting bird species. Measures for the protection of nesting birds are presented at **Section 5.2** of this report. No other protected species have been detected.

Recommendations

- ix. The recommendations in **Section 5.0** outline all the mandatory measures and additional actions to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- x. The proposals will secure an opportunity to implement beneficial measures such as habitat creation that will safeguard habitats for wildlife such as birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF.

Conclusion

- xi. It is concluded that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. The proposed enhancements to the public realm areas will provide an opportunity to secure ecological enhancement for wildlife associated with urban areas.

1.0 INTRODUCTION

1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Gardiner & Theobald LLP to carry out an ecological assessment of the public realm area at NOMA, Angel Square, Manchester (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SJ 84297 99013. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).
- 1.1.2 The assessment was requested in connection with proposals to enhance and improve the areas of public realm within NOMA Angel Square.

1.2 Scope of Works

- 1.2.1 The scope of ecological works undertaken in August 2022 comprised:
- A desktop study for known ecological information at the site and the local area;
 - An Extended Phase 1 Habitat Survey and assessment;
 - Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
 - Survey and assessment of all habitats for relevant statutorily protected species¹ and other wildlife including badger (*Meles meles*), bird species and reptiles;
 - The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
 - The identification of any further surveys or precautionary actions that may be required prior to the commencement of any construction activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study

- 2.1.1 The following sources of information and ecological records were consulted:
- MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites; and
 - Greater Manchester Biodiversity Action Plan (BAP).
- 2.1.2 The proposals at the site are small scale and will be of limited impact upon the site and local area. In accordance with *Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK* (CIEEM, 2020),

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development. In this instance there are no ponds within an unobstructed 500 metre radius of the site, and no water bodies or water courses within or adjacent to the site; there has been no requirement to consider great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*) or otter (*Lutra lutra*) as part of this assessment.

it is considered that the purchase of ecological records (as provided by Greater Manchester Local Record Centre) is not required in this instance.

2.2 Vegetation and Habitats

- 2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Brian Robinson on 30th August 2022. The weather was dry and sunny with a light air (Beaufort scale 1) and an air temperature of 18°C.
- 2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area at a scale of 1:1000 (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.
- 2.2.3 On site habitat mapping was assisted via use of GPS technology and QField on-site mapping software, using *MAS_AHR-00-XX-DR-A-00-001.dxf* (a plan provided by the client) and *ESRI World Imagery* as base plans.
- 2.2.4 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.
- 2.2.5 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.
- 2.2.6 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m² or 5 metres length is appropriate.
- 2.2.7 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).
- 2.2.8 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

- 2.3.1 The survey area for badger covered the site (as annotated on **Figure 2**) and extended to accessible land within a radius of 50 metres from the site boundary. Private gardens / land were excluded from the survey.
- 2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.3.3 The following signs of badger activity were searched for:
 - a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - b. Large spoil heaps outside sett entrances;

- c. Bedding outside sett entrances;
- d. Badger footprints;
- e. Badger paths;
- f. Latrines;
- g. Badger hairs on fences or bushes;
- h. Scratching posts; and
- i. Signs of digging for food.

- 2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Daylight Survey

Survey Personnel

- 2.3.5 The site was assessed for its suitability to support roosting bats by Brian Robinson, Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-13161-CLS-CLS. The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

Buildings

- 2.3.6 Three circular structures are present within the site, and will be unaffected by the proposals. The structures were assessed in terms of their suitability for use by roosting bats in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).
- 2.3.7 An inspection of the external surfaces, of the structures was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out.
- 2.3.8 The suitability of the structures has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the building (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Trees

- 2.3.9 A preliminary assessment of the trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.
- 2.3.10 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

- 2.3.11 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

Habitat Assessment for Commuting / Foraging Bats

- 2.3.12 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented at **Table 2.1**, below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Bird Species

- 2.3.13 Bird species observed and heard during the survey were recorded.
- 2.3.14 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

Reptile Species

- 2.3.15 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined in **Table 2.2**, below.

Table 2.2: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Other Wildlife

- 2.3.16 Evidence of other wildlife (including Priority Species) observed whilst on site (but for which specific surveys were not made) was recorded and has been included in this report where it is considered of relevance to the planning application.

2.4 Survey and Reporting Limitations

- 2.4.1 All areas of the site were accessible and the survey was completed at a suitable time of year. No survey limitations were experienced.
- 2.4.2 All measurements within this report are approximate only, and have been either measured (using QField) or estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

2.5 Evaluation Methods

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge, et al., 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).
- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017* (as amended), is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study

Designated Sites for Nature Conservation

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

- 3.1.1 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the overlapping Rochdale Canal SSSI and Special Area of Conservation (SAC), located 5.1 kilometres to the north-east of the site and designated for their aquatic plants and emergent vegetation, including Floating Water-plantain (*Luronium natans*).

- 3.1.2 The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2022):
- Livestock and poultry units with a floorspace greater than 500m², slurry lagoons and digestate stores greater than 4000m².
 - General combustion processes greater than 50 megawatts energy input, including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works and other incineration / combustion.
- 3.1.3 The presence of these statutory designated sites present in the wider area is considered further at **Section 4.2** below.

Non-statutory Designated Sites for Nature Conservation

- 3.1.4 The site is not and does not form part of any on-statutory designated site for nature conservation, called 'Sites of Biological Importance' or 'SBIs' in Greater Manchester. The site lies within a 2 kilometres radius of three SBIs, which are summarised at **Table 3.1** below.

Table 3.1: SBIs within 2 Kilometres of the Site

SBI Name	Distance and Direction from the Site	Reasons for Designation
Rochdale Canal, Stott's Lane - Ducie Street Basin	0.81 kilometres to the east	Canal (Fw3); Floating water plantain (GSG1)
Ashton Canal (West)	0.96 kilometres to the east	Canal (Fw3)
River Irwell	1.8 kilometres to the north-west	Birds (Br6)

- 3.1.5 The presence of the SBIs is considered further at **Section 4.2** below.

Priority Habitats Inventory

- 3.1.6 The Priority Habitats Inventory² was checked via MAGiC Maps. No Priority Habitats are reported for the site.

3.2 Vegetation and Habitats

- 3.2.1 A Phase 1 Habitat Survey map is appended at **Figure 2**, and can be referred to for all habitat descriptions. Photographs are appended at **Section 8.1**.
- 3.2.2 The approximately 0.49 hectare site is located within an urban area of central Manchester and supports hard standing within landscape planting associated with the public realm area of NOMA Angel Square.
- 3.2.3 The northern site boundary is defined by Dantzic Street and the Co-op building, beyond which lies Angel Street, residential apartments and St Michaels's Flag and Angel Meadow Park. The eastern site boundary is defined by Angel Square, beyond which lies Angel Street and residential apartments. The south-eastern site boundary is defined by footpaths, beyond which lies an ongoing construction site.
- 3.2.4 The southern site boundary is defined by Miller Street, beyond which lies office buildings. The western site boundary is defined by a concrete wall, beyond which lies car parking and a construction site.
- 3.2.5 The site supports landscape planting, and area of amenity grassland, and areas of paved hard standing.
- 3.2.6 Refer to **Photos 1** and **2**. The landscape planting is characterised by non-native shrubs and herbs with occasional young trees. The ornamental landscape planting is characterised by locally abundant Dogwood species (*Cornus* sp.), *Aster* species, *Hebe* species and Japanese Skimmia (*Skimmia japonica*), very locally

² A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

frequent Russian Sage (*Perovskia atriplicifolia*), Japanese Kerria (*Kerria japonica*) and Crane's-bill species (*Geranium* sp.) and occasional Cherry species (*Prunus* sp.), New Zealand Flax (*Phormium tenax*), False-acacia (*Robinia pseudoacacia*), Black-eyed Susan (*Rudbeckia fulgida*), Creeping Comfrey (*Symphytum grandiflorum*), Garden Lady's-mantle (*Alchemilla mollis*) and Rose species (*Rosa* sp.).

- 3.2.7 The vegetation is not typical of any NVC community and is described by the UKHab as h3h mixed scrub with the following secondary codes: 11 scattered trees and 48 non-native.
- 3.2.8 Refer to **Photo 3**. An area of short-mown amenity grassland is located at the eastern end of the site, and is characterised by constant and abundant Perennial Rye-grass (*Lolium perenne*) with occasional and locally frequent Dandelion (*Taraxacum officinale* agg.), Daisy (*Bellis perennis*) and White Clover (*Trifolium repens*) and occasional Ribwort Plantain (*Plantago lanceolata*), Greater Plantain (*Plantago major*) and Annual Meadow-grass (*Poa annua*). Young, planted trees are present, comprising ornamental Birch species (*Betula* sp.).
- 3.2.9 The vegetation is typical of an *MG7 Perennial Rye-grass leys and related grasslands* (Rodwell, 1992) of the NVC, and is described by the UKHab as g4 modified grassland with the following secondary codes: 11 scattered trees, 75 active management and 66 frequently mown.
- 3.2.10 Refer to **Photos 4 and 5**. The remainder of the site is composed of three circular structures (which will be unaffected by the proposals) and paved hard standing which is largely devoid of vegetation but supports very locally frequent Annual Meadow-grass, Procumbent Pearlwort (*Sagina procumbens*) and Dandelion growing between the flags. This vegetation is not typical of any NVC community, and these areas of the site are described by the UKHab as u1b6 other developed land. No secondary codes were noted.

Invasive Plant Species

- 3.2.11 No invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected within the site.

3.3 Animal Life

Badger

- 3.3.1 No badger or signs of badger were detected within the site or within the access 50 metres around the site. The presence of badger is reasonably discounted.

Bat Species

- 3.3.2 Refer to **Photo 5**. The three circular structures, which are used for ventilation for the N.O.M.A. building, are composed of metal and support an external cladding of metal strips. No features suitable for use by roosting bats were detected at the buildings, and no signs of roosting bats were detected. The structures are of negligible suitability for use by roosting bats.
- 3.3.3 None of the young trees within the site support any features suitable for use by roosting bats.
- 3.3.4 The landscape planting within the site may be suitable for and contribute to the wider foraging area of low numbers of common species of edge-feeding foraging bats, such as common pipistrelle (*Pipistrellus pipistrellus*), however the site is located within an area characterised by urban development and does not support (and is not linked to) any areas of woodland, mature tree lines, or water bodies.
- 3.3.5 It is considered that the site is of low suitability for use by foraging and commuting bats.

Bird Species

- 3.3.6 No birds were detected within the site during the site survey. The young trees and ornamental shrubs provide suitable habitat for use by nesting passerine (i.e. perching) species, including those detected within the site during the survey. This is considered further at **Section 4.4**, below.

Reptiles

- 3.3.7 The regularly disturbed and heavily managed habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles. There are no piles of garden waste or other suitable debris for use by sheltering or hibernating reptiles, and the site supports no favourable habitat for basking reptiles. The species-poor habitats within the site are reasonably unlikely to support a large population or a variety of invertebrate prey.
- 3.3.8 The site is not adjacent or linked to any areas of favourable habitat for reptile species. The presence of reptiles within the site is reasonably discounted.

Other Wildlife

- 3.3.9 No other wildlife was detected during the site visit, however the landscape planting will provide suitable foraging habitat for nectaring invertebrates such as common species of bee and butterfly.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 In accordance with *Angel Square, Manchester: Landscape Masterplan Drg No. 2962-PLA-XX-XX-DR-L-0002 Rev. P03* (Planit I.E. Limited, 2022), hereafter the 'landscape masterplan', it is proposed to increase the area of landscape planting within the site and increase the number of trees within the site.
- 4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

- 4.2.1 It is considered that the site is sufficiently small and distant from all designated sites for nature conservation that the proposed development will have no impact upon them.

4.3 Vegetation and Habitats

- 4.3.1 Only common and widespread plant species were found. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present. No Priority Habitats are present.
- 4.3.2 In terms of each habitat's importance in a geographical context³, the landscape planting and amenity grassland are of 'local' importance as they contribute to the diversity of habitats within the local area. The hard standing is not considered to hold any importance in terms of its geographical context.
- 4.3.3 In accordance with *Angel Square, Manchester: Tree Retention and Removal Drg. No. 2962-PLA-XX-XX-DR-L-0003 Rev. P01* (Planit I.E. Limited, 2022), hereafter the 'tree retention and removal plan' it is proposed to retained three trees and remove six. It is considered that the removal of these trees is acceptable as the proposals will plant a greater number of trees within the site. Recommendations for the protection of the retained trees are presented at **Section 5.2** below.

³ Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

4.4 Protected Species and Other Wildlife

- 4.4.1 The habitats within the site are suitable for use by nesting birds. Measures for the protection of nesting birds are presented at **Section 5.2** of this report.
- 4.4.2 Habitats within and adjacent to the site are suitable for foraging and commuting bats. Recommendations relating to the retention of features suitable for use by foraging and commuting bats are presented at **Section 5.2**.
- 4.4.3 The landscape planting presents an opportunity to provide suitable foraging nesting habitat for species of birds associated with urban areas. Recommendations for features to include within the landscape planting at the site for the benefit of biodiversity associated with urban areas are presented at **Section 5.3** of this report.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 These recommendations aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 5.1.2 In accordance with Chapter 15, paragraph 180(d) of the NPPF:
'opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.
- 5.1.3 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified.
- 5.1.4 All recommendations are appropriate to the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the site post-construction) and take into consideration the end use of the site.

5.2 Protection of Existing Vegetation

Protection of Trees and Shrubs

- 5.2.1 Temporary protective demarcation fencing will be used for the protection of the retained trees during the construction phase of the proposed works. The fencing must extend outside the canopy of the retained trees and must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.
- 5.2.2 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Consideration of Lighting

- 5.2.3 Paragraph 185(c) in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:
'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

- 5.2.4 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.2.5 The lighting scheme will be designed with reference to current guidance, namely:
- Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

Protection of Nesting Birds

- 5.2.6 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive (Natural England, 2015).
- 5.2.7 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

5.3 Ecological Enhancements and Landscape Planting

Landscape Planting

- 5.3.1 It is recommended that the landscape planting within the site is composed from species known to be of value for the attraction of wildlife and (at least in part) native species.
- 5.3.2 It is recommended that trees which support blossom and fruit which will attract insects are incorporated into the landscape planting. Suitable species are presented at **Table 5.1**, below.

Table 5.1: Suitable Native Species for Tree and Shrub Planting

Scientific Name	Common Name	Scientific Name	Common Name
<i>Acer campestre</i>	Field Maple	<i>Prunus spinosa</i>	Blackthorn
<i>Corylus avellana</i>	Hazel	<i>Rosa arvensis</i>	Field Rose
<i>Crataegus monogyna</i>	Hawthorn	<i>Rosa canina</i>	Dog-rose
<i>Ilex aquifolium</i>	Holly	<i>Sambucus nigra</i>	Elder
<i>Malus sylvestris</i>	Crab Apple	<i>Sorbus aucuparia</i>	Rowan
<i>Prunus avium</i>	Wild Cherry	<i>Ulmus glabra</i>	Wych Elm
<i>Prunus padus</i>	Bird Cherry	<i>Viburnum opulus</i>	Gelder Rose

- 5.3.3 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.
- 5.3.4 Planting schemes that include flowering species such as *Viburnum*, *Ceanothus*, *Hebe*, *Lavandula*, *Lonicera*, *Potentilla*, *Rosmarinus* and *Vinca* can maximise opportunities for feeding invertebrates and for the attraction of foraging bats and birds.
- 5.3.5 For further plants suitable for the attraction of pollinators please refer to the *Perfect for Pollinators Plant List* (Royal Horticultural Society, 2012). It is recommended that the selection of plant species at the site ensures that a variety of flowering species are available throughout the year.

Bee Hotels

- 5.3.6 Bee hotels, such as those presented at **Insert 1**, below, can provide suitable nesting habitat for solitary bees associated with suburban and urban areas such as the red mason-bee (*Osmia bicornis*), mining bee species (*Andrena* sp.) and other pollinating invertebrates found within urban areas.



Insert 1: Bee hotels

- 5.3.7 Such bee hotels are available from the NHBS (www.nhbs.com) and Wild Care Shop (www.wildcareshop.com). If used, ERAP Ltd will advise on the siting of the bee hotels.

6.0 CONCLUSION

- 6.1 This ecological assessment has demonstrated that the proposed enhancements to the public realm at the site are feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.
- 6.2 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as nesting birds and commuting / foraging bats associated with the site.
- 6.3 The proposed enhancements at the site will provide an opportunity to secure ecological enhancement for fauna typically associated with urban areas such as breeding birds and nectaring invertebrates.

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8.0 APPENDIX: PHOTOGRAPHS AND FIGURES

8.1 Photographs



Photo 1: Landscape planting



Photo 2: Landscape planting and young trees



Photo 3: Amenity grassland



Photo 4: Hard standing



Photo 5: Three circular structures within the landscape planting

8.2 Figures

Figure 1: Aerial Image of the Site and its Surroundings

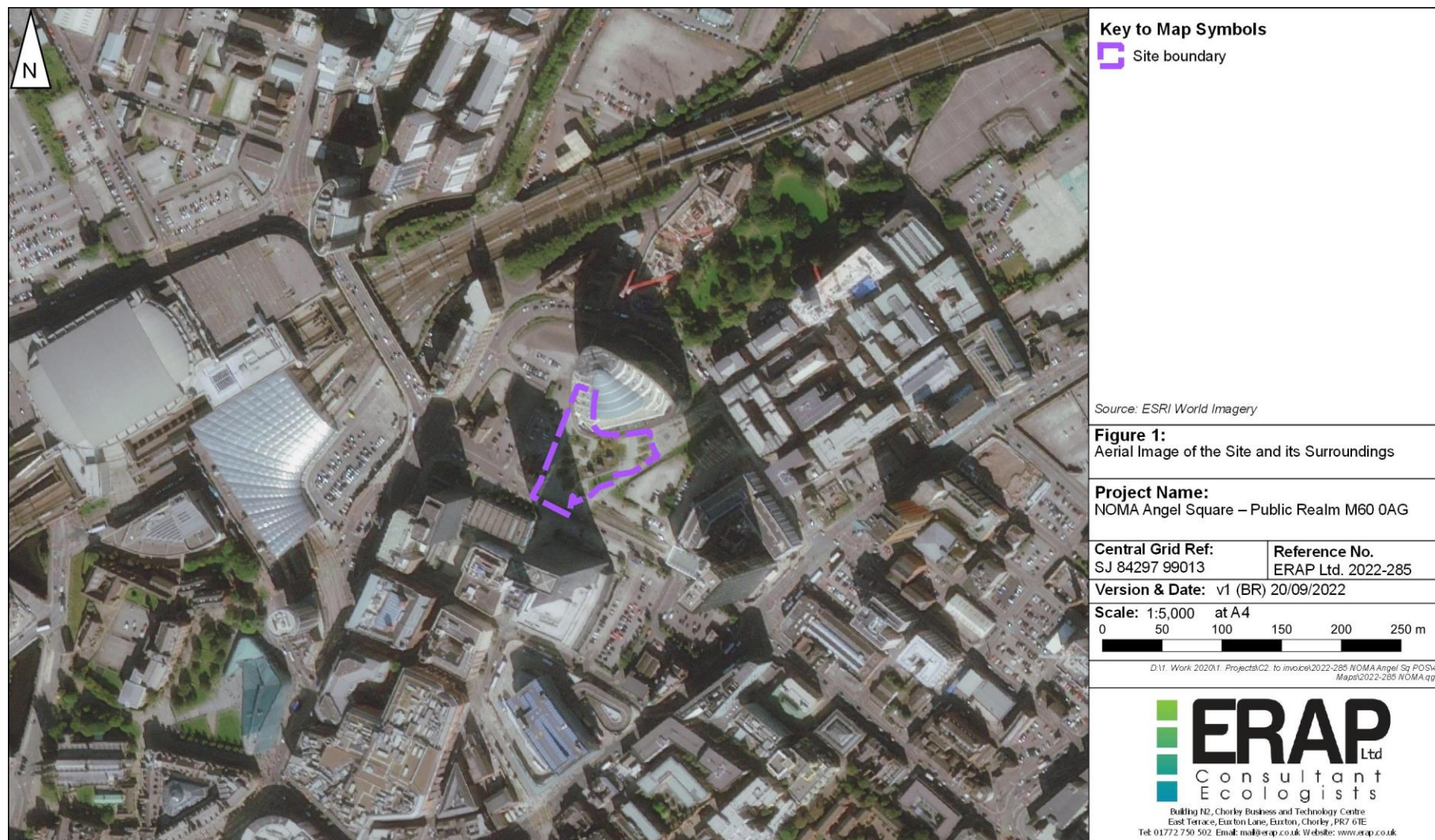


Figure 2: Phase 1 Habitat and Vegetation Map

