

# Kenilworth Road, Champion Road, Lillington Avenue and Binswood Avenue/ Preliminary Ecological Appraisal

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	Name	CIEEM grade	Date of action
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Author of the Report	David Higgins (Ecological Project Assistant) Joanne Harper MSc (Ecological Project Officer)	-	26/07/2023
Peer Reviewer	Joscelin Moran BSc (Hons) (Principal Consultant)	-	09/08/2023

## 1. Introduction and Brief

In April 2023 Severn Trent Water commissioned Middlemarch to undertake a Preliminary Ecological Appraisal of a route through sections of Kenilworth Road, Champion Road, Lillington Avenue and Binswood Avenue, and through Milverton School playing fields in Royal Leamington Spa, Warwickshire. The proposals are for the installation of a new below ground storage tank within the school playing field with associated pipework installed within the carriageway of the nearby roads.

To assess the existing ecological interest of the site an ecological desk study was carried out, and a walkover survey was undertaken on 26<sup>th</sup> April 2023. The walkover survey did not experience any constraints or limitations.

The survey area is located within Leamington Spa and comprises sections of Kenilworth Road, Champion Road, Lillington Avenue and Binswood Avenue, as well as a playing field belonging to Warwickshire County Council and used by Milverton Primary School, which is centred at National Grid Reference SP 31537 66689. The survey area was predominantly flat, with a slight incline from south-west to north-east along Lillington Avenue. The survey area primarily consisted of hardstanding roads and pavements with grass verges, as well as lines of trees and adjacent residential gardens. Additionally, the area of school playing field consisted of amenity grassland with trees, an area of scrub and a defunct hedgerow. The surrounding landscape is dominated by residential houses, with associated roads and gardens.

## 2. Recommendations Summary

### Criteria used in the table below- Needs to be actioned:

**Before the work can proceed** – *(further survey/assessment work is required which means that the project can only proceed once complete)*

**ECOW input** during the project to ensure compliance, or prior to the works to check for changes, or may require additional advice during the works

**Best practice guidance** in delivery of the work

Ecological Feature	Timing of action	Section	Risk
1. <b>Northumberland Road and Woodcote Road, Leamington Spa Ecosite and Midland Oak Open Space LWS:</b> The Severn Trent Ecology Team	Before works proceed	Designated sites	

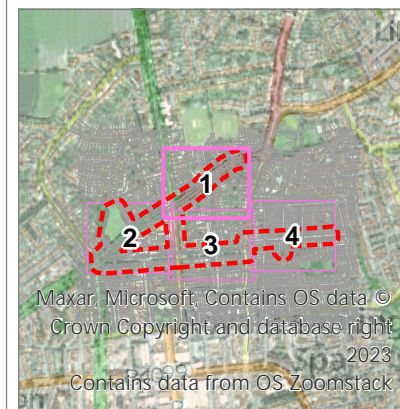
<p>should be contacted in the first instance: <a href="mailto:ecologymatters@severntrent.co.uk">ecologymatters@severntrent.co.uk</a> who will then consult with the Local Planning Authority Ecologist (as required) to determine how works may proceed without adversely impacting these sites.</p>	
<p>2. <b>Ecological Surveys:</b> A Preliminary Bat Roost Assessment should be undertaken if any mature or semi-mature trees are to be removed.</p>	<p>Before works proceed Protected species</p>
<p>3. <b>Scheme Design:</b> The proposed scheme should be designed in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF), and the National Planning Practice Guidance (NPPG). The principals of the mitigation hierarchy are described in Chapter 5.</p>	<p>Before works proceed Designated sites, habitats, and protected species</p>
<p>4. <b>Biodiversity Enhancement Scheme:</b> Once the proposals are finalised, a Biodiversity Enhancement Strategy, including Biodiversity Metric Assessment, should be compiled for the project to demonstrate how the aim of biodiversity net gain could be achieved.</p>	<p>Before works proceed Habitats and protected species</p>
<p>5. <b>Construction Ecological Management Plan (CEcMP):</b> A Construction Ecological Management Plan should be produced for the site setting out the safeguards and appropriate working practices that will be employed to minimise adverse effects on biodiversity and ensure compliance with UK Wildlife Legislation. This should include specific measures to protect the adjacent designated sites and minimise risk to badgers, hedgehogs and birds.</p>	<p>Prior to/throughout works Protected species</p>

### 3. Maps

#### Phase 1 Habitat Map

**Legend**

- - - Survey area
- X Scattered scrub
- Scattered tree
- HHH Fence
- Line of trees
- - - Species-poor defunct hedgerow
- Wall
- A Amenity grassland
- Bare ground
- X Dense scrub
- Hardstanding
- Introduced shrub
- Other habitat: sand pit
- Target note (habitat)



Project		Surface Water Separation Area 2	
Drawing		Phase 1 Habitat Map - Page 1 of 4	
Client		Severn Trent Water	
Drawing Number	C160349-04-01	Revision	00
Scale @ A3	1:1,000	Date	July 2023
Approved By	JH	Drawn By	VO



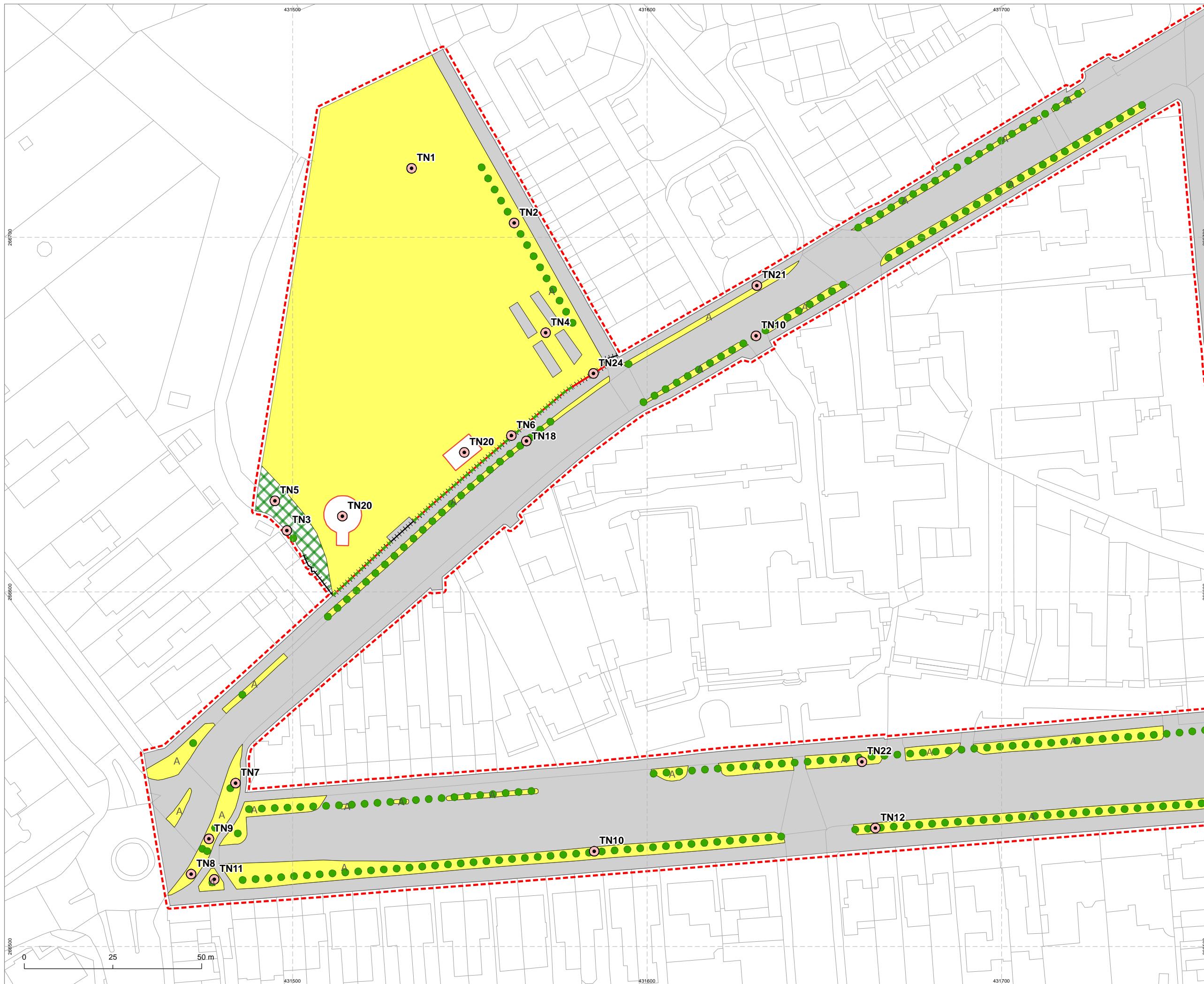
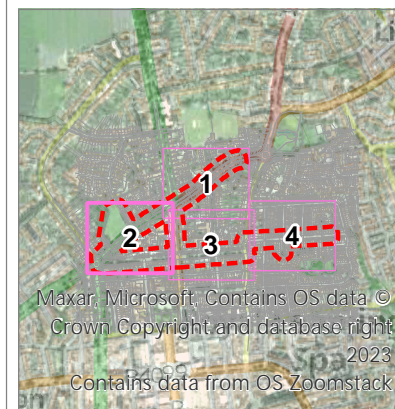
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Client	Severn Trent Water		
Drawing Number	C160349-04-01	Revision	00
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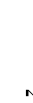
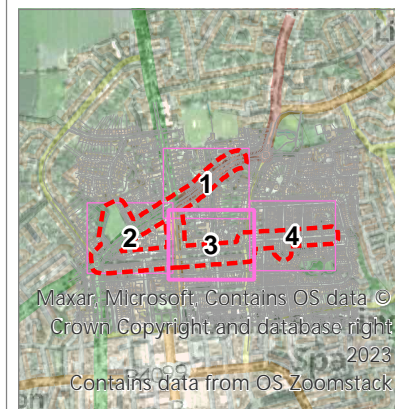


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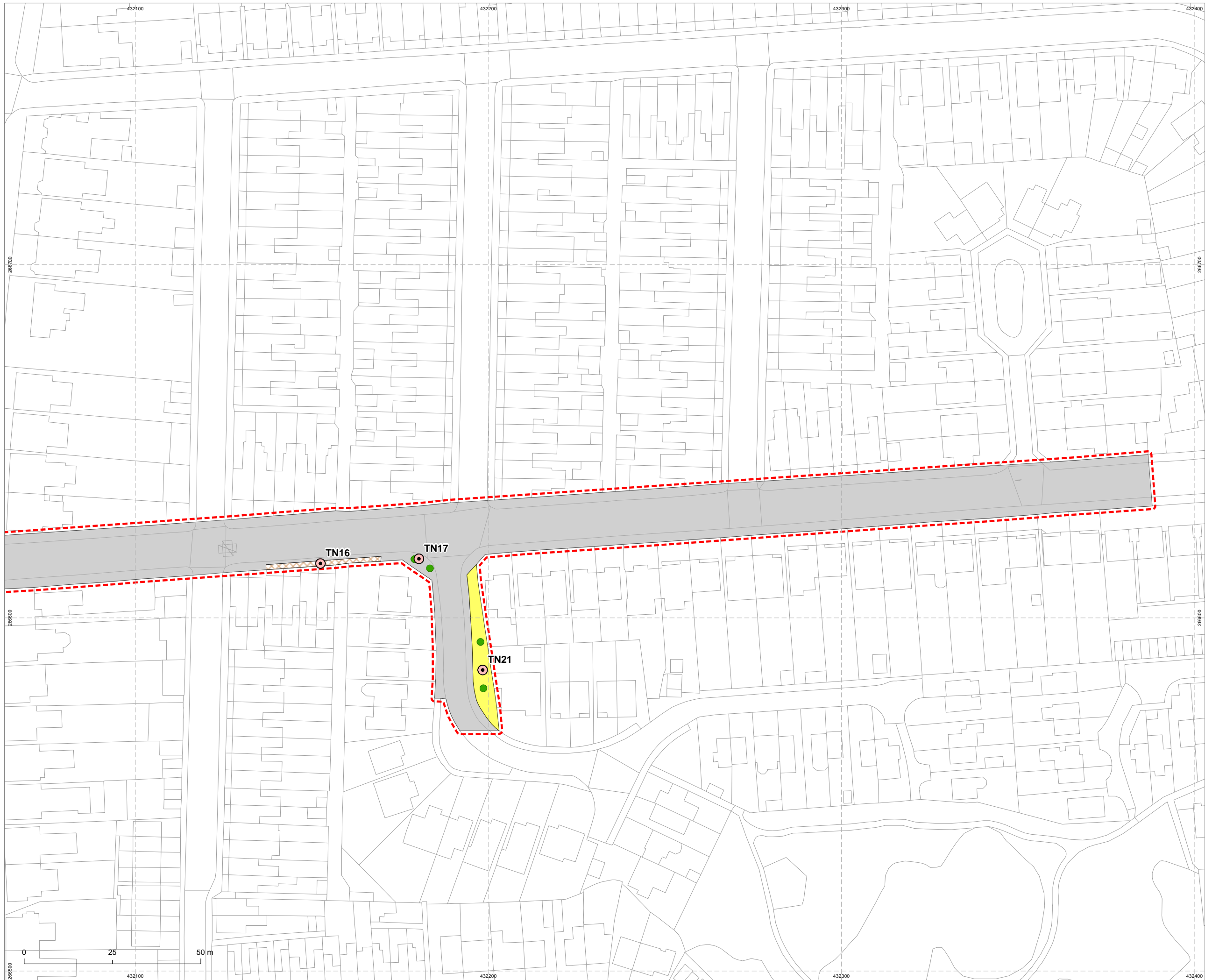


Project		Surface Water Separation Area 2	
Drawing		Phase 1 Habitat Map - Page 3 of 4	
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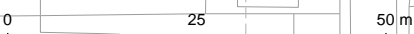
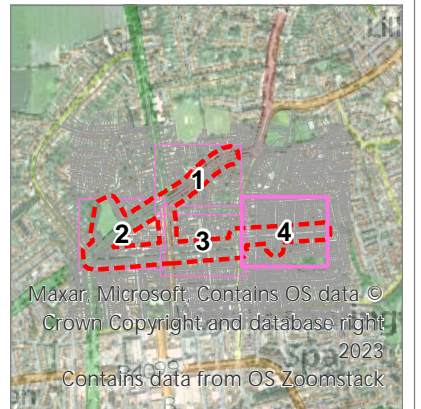
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## Habitat Descriptions and Condition Assessment

The following tables include full habitat descriptions and summarise the condition assessment for habitats and hedgerows criteria published by Natural England (2023)<sup>1</sup>.

Area Habitat				Condition Sheet Criteria Score														Total Score	Condition Assessment
Target Note	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
TN1	Amenity grassland	Modified grassland	The school field primarily consisted of amenity grassland. Species present included perennial rye-grass <i>Lolium perenne</i> , daisy <i>Bellis perennis</i> , dandelion <i>Taraxacum officinale</i> agg., white clover <i>Trifolium repens</i> , annual meadow-grass <i>Poa annua</i> , common chickweed <i>Stellaria media</i> , geranium <i>Geranium</i> sp., red dead nettle <i>Lamium purpureum</i> , groundsel <i>Senecio vulgaris</i> , yarrow <i>Achillea millefolium</i> , broad-leaved plantain <i>Plantago major</i> and wall speedwell <i>Veronica arvensis</i> .	Grassland, low	F	F	P	F	F	P	P	-	-	-	-	-	-	3	Poor
TN2	Line of trees	Line of trees	Line of four mature red maple <i>Acer</i> sp. trees.	Line of trees	F	F	P	F	P	P	-	-	-	-	-	-	-	3	Moderate
TN3	Individual trees	Urban trees	Mature English oak <i>Quercus robur</i> .	Individual Trees	P	P	P	P	P	P	-	-	-	-	-	-	-	6	Good
TN4	Hardstanding	Developed land; sealed surface	Four flat concrete rectangular structures within the playing field.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN5	Dense scrub	Mixed scrub	Area of dense, mixed scrub, including bramble <i>Rubus fruticosus</i> agg., snowberry <i>Symphoricarpos</i> sp., cleavers <i>Galium aparine</i> , ground elder <i>Aegopodium podagraria</i> , chervil <i>Anthriscus</i> sp., creeping buttercup <i>Ranunculus repens</i> and butterfly bush <i>Buddleja davidii</i>	Scrub	F	F	P	P	F	-	-	-	-	-	-	-	-	2	Poor
TN7	Individual trees	Urban trees	Cherry <i>Prunus</i> sp. sapling.	Individual Trees	P	P	F	P	F	F	-	-	-	-	-	-	-	3	Moderate
TN8	Amenity grassland	Modified grassland	Small section of seeded grass within area of amenity grassland TN22.	Grassland, low	F	F	P	P	F	P	P	-	-	-	-	-	-	4	Poor
TN9	Individual trees	Urban trees	Mature maple species and two sycamore <i>Acer pseudoplatanus</i> trees.	Individual Trees	F	P	P	F	F	P	-	-	-	-	-	-	-	3	Moderate
TN10	Line of trees	Line of trees	Lines of mature common lime <i>Tilia x europaea</i> trees, regularly interspersed in grass verges or within hardstanding pavements. Regularly pollarded trees, but less recently, provide predominantly continuous canopy. Removed trees have generally been replaced with sapling of same species, unless otherwise specified.	Line of trees	P	P	P	F	P	P	-	-	-	-	-	-	-	5	Good
TN11	Individual trees	Urban trees	Mature pine <i>Pinus</i> sp.	Individual Trees	F	P	P	F	P	P	-	-	-	-	-	-	-	4	Moderate
TN12	Individual trees	Urban trees	Common lime and maple sapling.	N/A (<7.5cm diameter)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN13	Amenity grassland	Modified grassland	Area of amenity grassland with similar species to TN22 but with areas left to grow wild with cow parsley <i>Anthriscus sylvestris</i> , introduced wild garlic <i>Allium ursinum</i> and grape hyacinth <i>Muscari armeniacum</i> .	Grassland, low	P	F	P	P	F	P	P	-	-	-	-	-	-	5	Moderate
TN14	Individual trees	Urban trees	Mature English oak.	Individual Trees	P	P	P	P	P	P	-	-	-	-	-	-	-	6	Good
TN15	Individual trees	Urban trees	Mature maple.	Individual Trees	F	P	P	P	P	P	-	-	-	-	-	-	-	5	Good

<sup>1</sup> Natural England (2023) *The Biodiversity Metric 4.0 – User Guide: Technical Annex 1 Condition Sheets and Methodology*. Natural England Joint Publication JP039. Available <http://publications.naturalengland.org.uk/publication/6049804846366720>

Area Habitat				Condition Sheet Criteria Score														Total Score	Condition Assessment	
Target Note	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13			
TN16	Introduced shrub	Introduced shrub	Area of introduced shrub forming type of hedge along the pavement. Species included ivy, rose <i>Rosa</i> sp., Japanese barberry <i>Berberis thunbergii</i> , bramble and pyracantha <i>Pyracantha</i> sp.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN17	Individual trees	Urban trees	Semi-mature silver birch <i>Betula pendula</i> .	Individual Trees	P	P	F	P	P	P	-	-	-	-	-	-	-	-	5	Good
TN18	Line of trees	Line of trees	Regularly and recently pollarded limes with no continuous canopy.	Line of trees	P	F	P	F	P	P	-	-	-	-	-	-	-	-	4	Moderate
TN19	Amenity grassland	Modified grassland	Crimson clover <i>Trifolium incarnatum</i> and cuckoo flower <i>Cardamine pratensis</i> present in small section of amenity grassland TN23.	Grassland, low	P	P	P	P	P	P	P	-	-	-	-	-	-	-	7	Good
TN20	Other: sand pits	Artificial unvegetated, unsealed surface	Two sand pits used for athletics within the playing field.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN21	Amenity grassland	Modified grassland	Grass verges alongside residential/commuter routes, regularly managed. Species present included perennial ryegrass, daisy, dandelion, white clover, annual meadow grass, common chickweed, mouse-ear chickweed <i>Cerastium fontanum</i> , cow parsley <i>Anthriscus sylvestris</i> , shepherd's purse <i>Capsella bursa-pastoris</i> , ribwort plantain <i>Plantago lanceolata</i> , dock <i>Rumex</i> sp., creeping buttercup <i>Ranunculus repens</i> , broadleaf plantain <i>Plantago major</i> , cock's foot <i>Dactylis glomerata</i> , meadow buttercup <i>Ranunculus acris</i> , wall barley <i>Hordeum murinum</i> , wood avens <i>Geum urbanum</i> , meadow foxtail <i>Alopecurus pratensis</i> , bulbous buttercup <i>Ranunculus bulbosus</i> , dead nettle <i>Lamium</i> sp., perforated St. John's Wort <i>Hypericum perforatum</i> , black medic <i>Medicago lupulina</i> , yarrow, groundsel and dove's-foot crane's-bill <i>Geranium molle</i> .	Grassland, low	P	F	P	F	P	P	P	-	-	-	-	-	-	-	5	Moderate
TN22	Amenity grassland	Modified grassland	Grass verges alongside residential/commuter routes. Regularly managed. Species present included perennial ryegrass, daisy, dandelion, white clover, annual meadow grass, common chickweed, groundsel, shepherd's purse, ribwort plantain, creeping buttercup, meadow buttercup, ragwort <i>Jacobaea vulgaris</i> , spear thistle <i>Cirsium vulgare</i> , dove's-foot crane's-bill, common primrose <i>Primula vulgaris</i> , lesser celandine <i>Ficaria verna</i> , fescue <i>Festuca</i> sp., cow parsley, green alkanet <i>Pentaglottis sempervirens</i> and planted bluebells <i>Hyacinthoides</i> sp. Two scattered scrub of common lime on the edge of road verges.	Grassland, low	P	F	P	P	F	P	P	-	-	-	-	-	-	-	5	Moderate
TN23	Amenity grassland	Modified grassland	Grass verges alongside residential/commuter routes. Less intensively managed during survey period. This grassland had a typical sward height of 30 cm, with some areas reaching 70 cm. Species present included cock's-foot, shepherd's purse, wall barley, perennial ryegrass, annual meadow grass, sow thistle <i>Sonchus</i> sp., white clover, wood avens, dandelion, meadow foxtail, bulbous buttercup, crane's-bill <i>Geranium</i> sp., red	Grassland, low	P	P	P	P	P	P	P	-	-	-	-	-	-	-	7	Good

Area Habitat				Condition Sheet Criteria Score															
Target Note	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Total Score	Condition Assessment
			dead nettle, perforated St. John's Wort, ribwort plantain, black medick, mouse-ear, daisy, meadow buttercup, yarrow, planted bluebells, burdock <i>Actium</i> sp., ragwort and spear thistle.																
TN24	Wall and fence	Built linear features	Brick wall and metal mesh fence along the southern boundary of the playing field.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A

Key:  
P – Criteria passed  
F – Criteria failed

Table 3.1: Habitat Descriptions and Condition Assessments

Hedgerows				Condition Sheet Criteria Score											
Target Note	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*	Condition Assessment	
TN6	Hedgerow	Native hedgerow	Defunct hedge, sparse with large gaps. Species included bramble, willow <i>Salix</i> sp., maple, butterfly bush, pheasant berry <i>Leycesteria formosa</i> , holly <i>Ilex aquifolium</i> , ivy <i>Hedera helix</i> and clematis <i>Clematis</i> sp.	F	F	F	F	P	P	P	F	-	-	Poor	

Key:  
\*Applicable to hedgerow with trees only

Table 3.2: Hedgerow Descriptions and Condition Assessments

## 4. Evaluation of the combined field survey findings & desk-based research, with project specific advice

### Habitats

Habitat	Area (Ha) / Length (Km)
Amenity grassland	1.323
Dense scrub	0.023
Hardstanding	3.496
Introduced shrub	0.006
Sand pit	0.015
Fence	0.122
Wall	0.092
Line of trees	1.791
Species-poor defunct hedge	0.081
Scattered scrub	No. 2
Scattered tree	No. 20

**Table 4.1: Summary of habitats and areas/lengths**

An evaluation of the importance of each habitat recorded on site is detailed below as well as a summary of the potential impacts that are likely to occur on each habitat feature as a result of the proposed works.

#### **Amenity Grassland**

Amenity grassland is a common, widespread habitat with low ecological value. The works will take place within the school playing field and as such this habitat will be impacted, including direct loss of this habitat. However, as it has low biodiversity value and can be easily replaced following the works it is not a notable consideration.

#### **Other habitat: Sand Pit, Fence, Wall and Hardstanding**

These habitats are of negligible biodiversity value and therefore are not a notable consideration for the proposed works.

#### **Dense Scrub**

An area of dense scrub is located on the western edge of the school playing field. Dense scrub is not considered a priority habitat, however it contributes to the habitat structure and diversity within the survey area and has some ecological value. The scrub habitat is not likely to be impacted by the proposed works and therefore is not a notable consideration. Nevertheless, care should be taken to avoid loss of this habitat where feasible.

#### **Hedgerow**

Hedgerow is defined as any boundary line of trees or shrubs measuring over 20 m in length and less than 5 m wide, and where any gaps between the trees or shrub species are less than 20 m wide (Bickmore, 2002). All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are listed as a Habitat of Principal Importance in England. The hedgerow on site does not meet this criterion and is therefore not a Habitat of Principal Importance; however, it does contribute to the overall habitat structure and diversity of the site. The proposed

works are likely to impact directly on the hedgerow and therefore it is a notable consideration in relation to the proposed works.

### **Introduced Shrub**

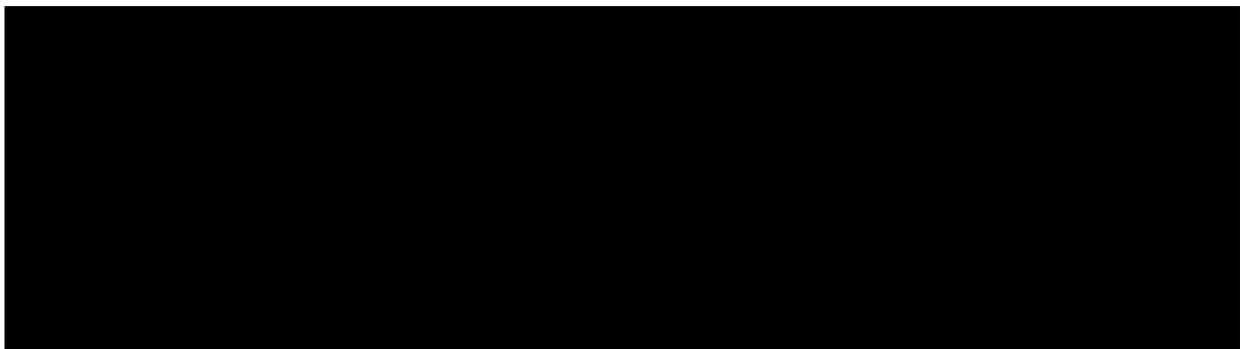
Introduced shrub is a common, widespread habitat with low ecological value. The works are not expected to take place within this habitat and as such impacts on the areas of introduced shrub are unlikely.

### **Scattered Trees/Line of Trees**

The mature and semi-mature trees are valuable for biodiversity and are likely to be used as wildlife corridors through the landscape. Given their maturity, they cannot be easily replaced if lost during the works. Trees could be impacted if any need to be removed to facilitate the works, or through damage, for example from damage to the limbs or through root compaction.

## **Protected and Notable Species**

An evaluation of the potential presence of protected and notable species on site is provided below as well as a summary of the potential impacts on species/ species groups that are likely to occur as a result of the proposed works.



### **Otter, Water Vole and White-clawed Crayfish**

The desk study returned no recent records of water vole or white-clawed crayfish and nine records of otters from within a 1 km radius of the survey area. However, there is no suitable habitat for otter, water vole or white-clawed crayfish either within or adjacent to the survey area.

### **Bats**

The desk study returned records of at least seven bat species within a 1 km radius of the survey area. Some of the trees within the survey area may be suitable for bats to use for roosting, and bats are likely to use the lines of trees and scattered trees for foraging and commuting through the landscape. Additionally, the school playing field may be used by bats for foraging. Bats could be impacted by the proposed works through disruption of foraging and commuting routes, for example from light spill from any temporary lighting installed, or if any trees are removed to facilitate the works, there is potential for destruction or disruption of a bat roost.

### **Other Mammals**

The desk study returned twenty-eight records of hedgehogs, including records from within the survey area. Hedgehogs may use the scrub within the playing field for refuge and could use the grassland for foraging. They may also commute through the survey area between other suitable

habitats, such as the neighbouring residential gardens. The proposed works could potentially result in the accidental killing or injury of hedgehogs, for example through entrapment in open excavations and pipework.

### **Birds**

The desk study returned records of three bird species included on Schedule 1 of Wildlife and Countryside Act 1981 (as amended), as well as six bird species listed as Species of Principal Importance. The trees, dense scrub, and introduced shrubs may be used by birds for nesting. If any vegetation or trees are removed as part of the works, there is potential for the destruction of a nest or disturbance to breeding birds.

### **Amphibians**

The desk study returned records of four amphibian species within a 1 km radius of the site. This included records of great crested newt, smooth newt, common toad and common frog. There is no suitable habitat for amphibians to use for breeding either on site or within 250 m radius of the site. Furthermore the works are contained within hardstanding and amenity grassland, habitats which are considered suboptimal for amphibians, and as such impacts on amphibians as a result of the proposed works are considered unlikely.

### **Reptiles**

The desk study returned records of three reptile species within a 1 km radius of the site. However, the works are contained within hardstanding and amenity grassland, habitats which are considered suboptimal for reptiles and as such no impacts on reptiles from the proposed works are anticipated.

### **Notable and Invasive Non-Native Species/Plants**

The field survey did not record any notable or protected plant species within the survey area. There were also no plant species included on Schedule 9 of Wildlife and Countryside Act 1981 (as amended) recorded.

## Designated Sites

There are two LNRs located within a 2 km radius of the survey area, Leam Valley and Welches Meadow. Both of these are separated from the site by urban development which results in poor connectivity for biodiversity. Given the small scale and temporary nature of the proposed works, adverse impacts on these LNRs are not anticipated.

There are ten non-statutory sites located within a 1 km radius of the survey area. Northumberland Road and Woodcote Road, Leamington Spa Ecosite is located adjacent to the survey area, and Midland Oak Open Space LWS is located 90 m east. Both sites may therefore be impacted by the proposed works, for example from polluted run-off, which can be controlled via a Construction Ecological Management Plan. The remaining eight sites are all located over 250 m from the survey and are separated from the site by urban development, therefore adverse impacts on these remaining eight non-statutory sites are not anticipated.

## 5. Recommendations for Designated Sites, Habitats and Protected/Notable Species

All recommendations provided in this section are based on Middlemarch's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

- R1 Northumberland Road and Woodcote Road, Leamington Spa Ecosite and Midland Oak Open Space LWS:** The proposed works could potentially directly or indirectly impact upon Northumberland Road and Woodcote Road, Leamington Spa Ecosite and Midland Oak Open Space LWS. The Severn Trent Ecology Team should be contacted in the first instance: [ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk) who will then consult with the Local Planning Authority Ecologist (as required) to determine how works may proceed without adversely impacting these sites. Specific measures to minimise impacts to these sites can be included within a Construction Ecological Management Plan (see R5).
- R2 Ecological Surveys:** A Preliminary Bat Roost Assessment should be undertaken if any mature or semi-mature trees are to be removed to facilitate the proposed works.
- R3 Scheme Design:** The proposed scheme should be designed in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF), and the National Planning Practice Guidance (NPPG). The ecological mitigation hierarchy requires all development schemes to apply to following principles:
- Avoidance and Mitigation* – the proposed scheme should seek to avoid/minimise losses of semi-natural habitats such as the existing areas of hedgerow, mature and semi-mature trees and the dense scrub, in the first instance and incorporate these features in the landscaping layout of the scheme accordingly. This will help to further avoid and minimise impacts to protected and notable species.
  - Compensation* – where unavoidable losses occur and mitigation cannot be provided, compensation for significant residual harm will be required as a last resort or planning permission could be refused. Compensation should include the remediation of lost habitats and/or connectivity, the creation of new habitats of ecological value and providing novel compensation solutions to minimise effects on protected or notable species to ensure compliance with UK wildlife legislation.
- R4 Biodiversity Enhancement Strategy:** Once the proposals are finalised, a Biodiversity Enhancement Strategy, including Biodiversity Metric Assessment, should be compiled for the project to demonstrate how the aim of biodiversity net gain could be achieved.
- R5 Construction Ecological Management Plan (CEcMP):** A Construction Ecological Management Plan should be produced for the site setting out the safeguards and appropriate working practices that will be employed to minimise adverse effects on biodiversity and ensure compliance with UK Wildlife Legislation. The details of the CEcMP will be informed by the final site design and ongoing ecological survey works but should include as a minimum:
- Development standoffs and safeguards for all retained habitats,
  - Specific measures to protect the adjacent/nearby nature conservation sites,

Covering open excavations and pipework to prevent the accidental entrapment of mammals, such as badgers and hedgehogs,  
Construction timetables to avoid sensitive periods such as nesting bird season,  
Vegetation management measures to minimise the risk to protected or notable species,  
Compliance with any specific mitigation measures that will be required to acquire a Development Licence for works affecting protected species.

The CEcMP should be submitted to the Local Planning Authority for Approval and implemented in full thereafter.



## 6. References and Abbreviations

### References

- British Standards Institution (2013). *British Standard 42020: 2013. Biodiversity – Code of practice for planning and development*. British Standards Institution, London.
- British Standards Institution. (2012). *British Standard 5837:2012, Trees in relation to design, demolition and construction – recommendations*. British Standards Institution, London.
- CIEEM, 2017. *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management.
- Institute of Environmental Assessment. (1995). *Guidelines for Baseline Ecological Assessment, Institute of Environmental Assessment*. E&FN Spon, An Imprint of Chapman and Hall. London.
- Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.
- Ministry of Housing, Communities and Local Government (2021). *National Planning Policy Framework*. Available: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Natural England (2023) *The Biodiversity Metric 4.0 – User Guide: Technical Annex 1 Condition Sheets and Methodology*. Natural England Joint Publication JP039. Available <http://publications.naturalengland.org.uk/publication/6049804846366720>

### Abbreviations

PEA Preliminary Ecological Appraisal

## APPENDIX 1: Detailed Survey Methods Used

### Desk Study

An ecological desk study was undertaken to determine the presence of any designated nature conservation sites and protected species in proximity to the proposed pipeline route. This involved contacting appropriate statutory and non-statutory organisations which hold ecological data relating to the survey area. Middlemarch then assimilated and reviewed the desk study data provided by these organisations.

The consultees for the desk study were:

Natural England - MAGIC website for statutory conservation sites; and,  
Warwickshire Biological Records Centre.

The desk study included a search for:

European statutory nature conservation sites in the UK (now referred to as the 'National Site Network') within a 5 km radius of the proposed pipeline route (extended to 10 km for any statutory site designated for bats),  
UK statutory sites within a 2 km radius; and,  
Non-statutory sites and protected/notable habitats and species records within a 1 km radius.

The data collected from the consultees are discussed in Appendix 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

### Field Survey

A field survey was conducted following the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee<sup>2</sup> and the Institute of Environmental Assessment<sup>3</sup>. Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. During the survey, a Habitat Condition Assessment was carried out to determine the ecological status of each habitat recorded. The condition assessment was undertaken using criteria published by Natural England (2023)<sup>4</sup>.

During the survey, the presence or potential presence of protected species was noted where observed. This included a review of suitable habitat opportunities or field signs of notable species groups (amphibians, bats, birds, terrestrial and aquatic invertebrates, terrestrial and aquatic mammals, plants and reptiles).

The survey was carried out on 26<sup>th</sup> April 2023 by Charline Hue MSc (Senior Ecological Consultant) and Joanne Harper MSc (Ecological Project Officer). Table A1.1 details the weather conditions at the time of the survey.

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<sup>2</sup> Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.

<sup>3</sup> Institute of Environmental Assessment. (1995). *Guidelines for Baseline Ecological Assessment, Institute of Environmental Assessment*. E&FN Spon, An Imprint of Chapman and Hall. London.

<sup>4</sup> Natural England (2023) *The Biodiversity Metric 4.0 – User Guide: Technical Annex 1 Condition Sheets and Methodology*. Natural England Joint Publication JP039. Available <http://publications.naturalengland.org.uk/publication/6049804846366720>

Parameter	Condition
Temperature (°C)	11
Cloud (%)	60
Wind (Beaufort)	F1
Precipitation	Dry

**Table A1.1: Weather Conditions During Field Survey**

### **Preliminary Evaluation**

The Preliminary Evaluation is an initial review of the ecological data to determine which features are likely to be a material consideration for the proposed development at the site. A material consideration is an ecological feature that by virtue of its legal status, its inclusion in any national policy or plan, rarity or contribution to local ecological networks, is worthy of further consideration in the planning system. Typical material considerations include statutory or non-statutory nature conservation sites, species protected by law, Habitat and Species of Principal Importance in England as defined by the Natural Environment and Rural Communities (NERC) Act 2006 or other ecological corridors and biodiversity opportunities areas outlined in local policy.

## APPENDIX 2: Relevant Species Legislation

### Bats

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

Section 9(1) of the WCA makes it an offence to intentionally kill, injure or take any protected species.

Section 9(4)(a) of the WCA makes it an offence to intentionally or recklessly\* damage or destroy, or obstruct access to, any structure or place which a protected species uses for shelter or protection.

Section 9(4)(b) of the WCA makes it an offence to intentionally or recklessly\* disturb any protected species while it is occupying a structure or place which it uses for shelter or protection.

\*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The reader should refer to the original legislation for the definitive interpretation.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.

### **Badger**

Badgers and their setts are protected under the Protection of Badgers Act 1992. The Protection of Badgers Act 1992 is based primarily on the need to protect badgers from baiting and deliberate harm or injury, badgers are not protected for conservation reasons. The following are criminal offences:

To intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.

To wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so.

A badger sett is defined in the legislation as:

'Any structure or place that displays signs indicating current use by a badger'.

'Current use' is not synonymous with current occupation and a sett is defined as such (and thus protected) as long as signs of current usage are present. Therefore, a sett is protected until such a time as the field signs deteriorate to such an extent that they no longer indicate 'current usage'.

Badger sett interference can result from a multitude of operations including excavation and coring, even if there is no direct damage to the sett, such as through the disturbance of badgers whilst occupying the sett. Any intentional or reckless work that results in the interference of badger setts is illegal without a licence from Natural England. In England a licence must be obtained from Natural England before any interference with a badger sett occurs.

The reader should refer to the original legislation for the definitive interpretation.

### **Hedgehog**

Hedgehogs receive some protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended); this section of the Act lists animals which may not be killed or taken by certain methods, namely traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others. Humane trapping for research purposes requires a licence.

Hedgehogs are a Species of Principal Importance for Nature Conservation in England and are thus capable of being material considerations in the planning process.

**Nesting Birds**

The Conservation of Habitats and Species Regulations 2017, (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019) places a duty on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds.

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended).

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;

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

- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

Some species (listed in Schedule 1 of the WCA) are protected by special penalties. Subject to the provisions of the act, if any person intentionally or recklessly:

- 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

- disturbs dependent young of such a bird, he shall be guilty of an offence.

Several bird species are Species of Principal Importance for Nature Conservation in England, making them capable of being material considerations in the planning process.

## APPENDIX 3: Desk Study Data

### Nature Conservation Sites

Statutory and non-statutory nature conservation sites located in proximity to the survey area are summarised in Table A3.1.

Site Name	Designation	Proximity to the Survey Area	Description
<b>UK Statutory Sites</b>			
Leam Valley	LNR / LWS	765 m south-east	This LNR includes flood meadows, marsh, woodland, and dry grassland in the Leam Valley. There are various butterfly, dragonfly, and bird species supported here, including kingfisher <i>Alcedo atthis</i> and barn owl <i>Tyto alba</i> .
Welches Meadow	LNR / LWS	870 m south-east	This area of semi-improved grassland regularly floods and supports birds, dragonflies, and butterflies. There is a diverse flora in the grassland, which is dominated by reed canary grass <i>Phalaris arundinacea</i> .
<b>Non-statutory Sites</b>			
Northumberland Road and Woodcote Road, Leamington Spa	Ecosite	Adjacent to site	A semi-improved grassland verge, with records of pignut <i>Conopodium majus</i> .
Midland Oak Open Space	LWS	90 m east	This park is formed of grassland, a central reedbed, planted trees, scattered scrub, and amenity grassland with a play area. An area of rough semi-improved grassland is left unmown in the summer.
Greshaw Road Hedge	Ecosite	260 m east	A hedgerow supporting a range of woody species, including hawthorn <i>Crataegus monogyna</i> , elm <i>Ulmus</i> sp., and field maple <i>Acer campestre</i> . Ground flora includes hedge garlic <i>Alliaria petiolate</i> and horse radish <i>Armoracia rusticana</i> .
Newbold Common, Champion Hills and Radford Road Allotments	Ecosite	360 m south-east	This site is predominantly a former golf course with amenity grassland and young plantation woodland. There are several ponds, areas of tall herb vegetation, hedgerow and a tree and scrub lined lane. There are records of great crested newts <i>Triturus cristatus</i> from the ponds.

**Table A3.1: Summary of Nature Conservation Sites (continues)**

Site Name	Designation	Proximity to the Survey Area	Description
Lillington Churchyard St. Mary Magdalene	LWS	410 m north-east	A churchyard with a species-rich grassland, which include notable species such as meadow saxifrage <i>Saxifraga granulata</i> and rough hawkbit <i>Leontodon hispidus</i> . Other habitats present are tall herbs, mature and young trees, scrub, and rough grassland.
Grassland to the rear of Northumberland Road	Ecosite	540 m north-west	A poor semi-improved meadow with abundant cock's-foot <i>Dactylis glomerata</i> and timothy <i>Phleum pratense</i> .
Jephson Gardens	Ecosite	760 m south	A public park with flowerbeds, lakes, and trees. There is a large pond with a reedbed surrounded by trees.
Victorian Underground Reservoir	Ecosite	855 m east	This underground reservoir is used by bats as a hibernaculum.
Lillington Free Church	Ecosite	875 m north-east	A relatively species-poor grassland, with hedgerows and trees.
Victoria Park	Ecosite	910 m south-west	A recreational park with planted broadleaved and coniferous trees, which support common bird species.
<b>Key:</b> LNR: Local Nature Reserve LWS: Local Wildlife Site Ecosite: Site of ecological value			

**Table A3.1 (continued): Summary of Nature Conservation Sites**

### Protected / Notable Species

Table A3.2 and the following text provide a summary of protected and notable species records within a 1 km radius of the study area. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
<b>Amphibians</b>					
Great crested newt <i>Triturus cristatus</i>	6	2014	490 m north-west		ECH 2, ECH 4, WCA 5
Smooth newt <i>Lissotriton vulgaris</i>	5	2016	490 m north-west	-	WCA 5 S9(5)
Common frog <i>Rana temporaria</i>	6	2018	530 m north-east	-	WCA 5 S9(5)

**Table A3.2: Summary of Protected/Notable Species Records (continues)**



Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
<b>Amphibians (continued)</b>					
Common toad <i>Bufo bufo</i>	5	2019	700 m south-east		WCA 5 S9(5)
<b>Birds</b>					
Red kite <i>Milvus milvus</i>	1	2017	450 m south	-	WCA1i
Redwing <i>Turdus iliacus</i>	3	2018	890 m south	-	WCA1i
Fieldfare <i>Turdus pilaris</i>	1	2018	*	-	WCA1i
<b>Invertebrates</b>					
White-letter hairstreak <i>Satyrrium w-album</i>	1	2008	840 m north-east		WCA 5 S9(5)
<b>Mammals – Bats</b>					
Pipistrelle <i>Pipistrellus</i> sp.	21	2021	+	#	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	19	2021	10 m south-east		ECH 4, WCA 5, WCA 6
Common pipistrelle <i>Pipistrellus pipistrellus</i>	31	2021	10 m south-east	-	ECH 4, WCA 5, WCA 6
Unidentified bat <i>Chiroptera</i> sp.	35	2020	20 m north	#	ECH 2 #, ECH 4, WCA 5, WCA 6
Noctule <i>Nyctalus noctula</i>	8	2020	180 m west		ECH 4, WCA 5, WCA 6
Brown long-eared bat <i>Plecotus auritus</i>	14	2020	310 m north-west		ECH 4, WCA 5, WCA 6
Unidentified myotis <i>Myotis</i> sp.	5	2020	310 m north-west	#	ECH 2 #, ECH 4, WCA 5, WCA 6
Unidentified nyctalus <i>Nyctalus</i> sp.	1	2014	350 m west	#	ECH 4, WCA 5, WCA 6
Brandt's bat <i>Myotis brandtii</i>	1	1995	830 m south-east	-	ECH 4, WCA 5, WCA 6
Serotine bat <i>Eptesicus serotinus</i>	1	2016	950 m south-east	-	ECH 4, WCA 5, WCA 6

Table A3.2 (continued): Summary of Protected/Notable Species Records (continues)

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
<b>Mammals – Bats (continued)</b>					
Whiskered bat <i>Myotis mystacinus</i>	1	1996	450 m south	-	ECH 4, WCA 5, WCA 6
<b>Mammals – Other</b>					
Hedgehog <i>Erinaceus europaeus</i>	28	2019	+		WCA 6
Otter <i>Lutra lutra</i>	9	2019	790 m south-west		ECH 2, ECH 4, WCA 5, WCA 6
<b>Reptiles</b>					
Common lizard <i>Zootoca vivipara</i>	2	2008	490 m west		WCA 5 S9(1), WCA 5 S9(5)
Grass snake <i>Natrix helvetica</i>	13	2015	540 m north-west		WCA 5 S9(1), WCA 5 S9(5)
Slow worm <i>Anguis fragilis</i>	1	2004	840 m south		WCA 5 S9(1), WCA 5 S9(5)
<p><b>Key:</b>  #: Dependent on species.  +: Potentially on site (grid reference provided was six figures and as such, the record may be located within 100 m of the study site).  *: Potentially within a 1 km radius (grid reference provided was four figures only).  ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.  ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection.  PBA: Protection of Badgers Act 1992.  WCA 1i: Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties at all times.  WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds).  WCA 5 S9(1): Schedule 5 Section 9(1) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to intentional killing, injury or taking.  WCA 5 S9(5): Schedule 5 Section 9(5) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to selling, offering for sale, processing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal.  WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.  Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.</p>					

**Table A3.2: Summary of Protected/Notable Species Records**

Birds

The desk study returned records of six bird species which are listed as Species of Principal Importance, including house sparrow *Passer domesticus*, starling *Sturnus vulgaris*, and dunnock *Prunella vulgaris*.

Invertebrates

The desk study returned records of 45 butterfly and moth species which are listed as Species of Principal Importance, including blood-vein moth *Timandra comae*, rustic moth *Hoplodrina blanda*, mouse moth *Amphipyra tragopoginis*, and white admiral butterfly *Limenitis camilla*.

Plants

The desk study returned records of upright goosefoot *Chenopodium urbicum*, which is a Species of Principal Importance. The desk study also returned records of Jersey cudweed *Gnaphalium luteo* and corn

Invas

Table It shows is ab

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Legislation/ Conservation Status
Thre <i>Alliu</i>				
Few <i>Alliu</i>				
Parr <i>Myr</i>				
Mon <i>Cro</i> <i>cro</i>				
Japa <i>Ros</i>				
New Zealand pigmyweed <i>Crassula helmsii</i>	1	2013	780 m north-east	WCA 9
Himalayan cotoneaster <i>Cotoneaster simonsii</i>	1	2011	*	WCA 9

**Key:**

\*: Potentially within a 1 km radius (grid reference provided was four figures only).

WCA9: Schedule 9 of Wildlife and Countryside Act 1981 (as amended). Invasive, non-native, plants and animals.

**Table A3.3: Summary of Invasive Species Records**