PRELIMINARY ECOLOGICAL APPRAISAL

at

Land at Denby Lane
Grange Moor
West Yorkshire
WF12 0NR

Client:
Orion Homes

Client Address:
5 Benton Office Park
Bennet Avenue
Horbury
Wakefield
WF4 5RA

JCA Ref:
21986a/JF

Date of Report:
13/08/2024

JCA Limited
Arboricultural & Ecological Consultants

Quality Assurance

Version	**Desktop Survey Completed:**		**Site Surveyed:**		**Report Completed:**		**Reviewed:**	
	Date	Name	Date	Name	Date	Name	Date	Name
Planning	17/05/24	James Foster	14/05/24	James Foster	13/08/24	James Foster	13/08/24	Rick Westwood
							13/08/24	Adam West

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct.*

Risk Assessment Completed	Redacted
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

JCA Limited has been commissioned by **Orion Homes** to undertake a Preliminary Ecological Appraisal (PEA) of a site located at **Land at Denby Lane, Grange Moor**. The site is located at Ordnance Survey (OS) National Grid Reference **SE 22371 16247** with nearby postcode WF12 0NR.

A desk study and field survey were undertaken in order to assess the potential of the site to support protected habitats and species and species of conservation concern. Recommendations for further survey, avoidance, mitigation and enhancement – where appropriate - have been made and are summarised in Table 1 on the following page and are detailed in full in Chapter 6 of this report.

Table 1: summary of ecological receptors at the site and recommended mitigation.

Receptor	Potential Risk to Project if No Action Taken	Cause of Impact Description of Effect	Further Survey Required	Mitigation Required
Designated sites				
Statutorily protected	None	None	No	No
Non-statutorily protected	None	None	No	No
S41 habitat	None	None	No	No
Other habitats	None	None	No	No
Protected species				
Flora (WCA Sch 8, CHSR Sch 5)	None	None	No	No
Invertebrates	Moderate	Partial removal of the habitats, containing ragwort, present on site could adversely impact a range of invertebrates, as well as species which feed on invertebrates.	No	Native scrub and wildflower planting (including ragwort species) is recommended to mitigate for the loss of habitat and floral variety. Which should be included in a **Biodiversity Enhancement Plan** (**BEP**).
White-clawed crayfish	None	None	No	No
Fish	None	None	No	No
Great crested newt	None	None	No	No
Reptiles	None	None	No	No
Birds	Low	The removal of any potentially suitable nesting areas onsite or development works taking place in close proximity to nesting birds has the potential to cause disturbance to breeding	Dependent on timing of works.	A preconstruction site walkover is required if vegetation removal or works in close proximity to bird nests is to take place during bird breeding period (1st February until 31st August). If removal occurs outside of the

		birds, resulting in a breach of legislation.		breeding bird period and nesting birds are found, the removal must cease immediately, and a suitably competent ecologist contacted.
Bats	Low	the site holds low potential for commuting and foraging bat species. Any disturbance to bats would result in a breach of legislation.	No	For artificial lighting within the development, guidance from Institute of Lighting Professionals (08/2023) should be followed.
Otters	None	None	No	No
Water voles	None	None	No	No
Beaver	None	None	No	No
Other Species e.g. S41 species	Low	Potential to disturb foraging and commuting hedgehogs and commuting, foraging, sheltering and breeding brown hare which may be utilising the site.	No	A preconstruction site walkover is required if vegetation removal of the grassland occurs between February and September, to ensure no brown hares are sheltering in the grassland. Any excavation of the site should be covered overnight, or if not

				possible, a safe exit route provided for hedgehogs and hares to leave the site, such as an artificial ramp to aid their exit.
Invasive Species (WCA Sch 9) Injurious Weeds (Weeds Act, 1959)				
No invasive non-native species were found on the site.	None	None	No	No
Key: S41 habitat/species – habitats and species listed as priority for conservation importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. WCA Sch – Wildlife and Countryside Act 1981 (as amended) Schedule CHSR – Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019				

Contents

1. Introduction

1.1 Background

1.1.1 In May 2024, JCA Limited was instructed by **Orion Homes** to undertake a Preliminary Ecological Appraisal (PEA) of a site located at **Land at Denby Lane**, hereafter referred to as 'the site'. The purpose of the survey is to establish a baseline of ecological information and assess whether the proposed works, hereafter referred to as 'the scheme', have the potential to adversely affect any protected or notable habitats or species.

1.2 Scheme Description and Location

1.2.1 The site is located at Ordnance Survey (OS) National Grid Reference **SE 22371 16247**, with nearby postcode WF12 0NR. The site is bordered to the north by hardstanding, defunct farm buildings and a small woodland. To the east by a small strip of woodland, scrub and Briestfield beck (which runs through a culvert) with arable grassland further afield. To the west by grassland, scattered trees and residential properties. To the south by residential properties with industrial units further afield.

1.2.2 The scheme is the construction of 21 semi-detached, detached and terraced residential properties with associated soft landscaping and access.

1.3 Aims and Objectives

1.3.1 The purpose of the survey is to establish a baseline of ecological information and assess whether the proposed development activities have the potential to adversely affect any protected or notable habitats or species. The following tasks have been undertaken:

- Desktop study – a review of environmental records for the surrounding area to obtain existing information on statutory and non-statutory designated sites of nature conservation interest, and the presence of protected and notable habitats and species within the site and its environs, including the results of any recent ecological surveys on the site.
- Field surveys – a UKHab Habitat survey involving a site visit to record habitat types and dominant vegetation, including any invasive species. During this survey evidence of protected or notable fauna and habitats

or habitat capable of supporting protected or notable fauna was recorded.

- Ecological report – an assessment of the potential ecological constraints to the proposed works at the site and recommendations for further survey, avoidance, mitigation, and enhancement where appropriate. Locations of any features constituting ecological constraints or of other ecological interest and vegetation recorded on and around the development are included in an accompanying UKHab Habitat Map (**Appendix 1**). This report and the maps are supported by photographs (**Appendix 3**) and information regarding current legislation (**Appendix 7**).

2. Methodology

2.1 Desktop Study

2.1.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites and European Protected Species (EPS) licensing applications within a 2km radius of the site. The baseline conditions are based on a review of existing available information including:

- MAGIC (Multi-Agency Geographical Information for the Countryside) website (to identify statutory designated sites and EPS licences).
- Ordnance Survey mapping (to identify potentially notable habitats including ponds).
- Aerial photography (to identify potentially notable habitats).
- Data search for records of protected/notable species on and within 2km of the site within the last ten years (exempting bat roosts, of which all records are included) obtained from West Yorkshire Ecology Services (WYES), the local environmental records centre for West Yorkshire, along with information for non-statutory wildlife sites.

2.1.2 The records were checked against species listed as priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and the West Yorkshire Biodiversity Action Plan (WYBAP) and Kirklees Biodiversity Action Plan (KBAP) (2007) to assess national and regional habitat and species status.

2.2 Field Survey

2.2.1 A UKHab survey of the site was conducted on 14/05/2024. All areas of the site were investigated and areas around the site where access permitted.

2.2.2 The vegetation and habitat types within the site were noted during the survey in accordance with the categories specified for a Vegetation and Habitat Survey (The UK Habitat Classification, Habitat Definitions Version 2.01, UKHAB, 2023). Dominant and abundant plant species were recorded for each habitat present.

2.2.3 The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, the Wildlife & Countryside Act (WCA) 1981 (as amended), including those given a higher level of legal protection under the NERC Act 2006 and Countryside & Rights of Way (CRoW) Act 2000, and those listed on the Local Biodiversity Action Plan. The following species were considered:

- Invertebrates (including white-clawed crayfish *Austropotamobius pallipes*).
- Reptile habitat within the site.
- Nesting and foraging habitat for birds within the site.
- Bat roost potential and foraging habitat within the site.
- Otters *Lutra lutra* and suitable habitat within 30m of the site, where accessible.
- Water vole *Arvicola amphibius* habitat within 20m of the site, where accessible.
- Eurasian beaver *Castor fiber* habitat within 30m of the site, where accessible.
- Other notable species.
- Invasive species.

2.3 Survey Constraints

2.3.1 To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, the survey undertaken focused on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2018), especially those given protection under UK wildlife legislation.

2.3.2 The optimum time of year for completing the survey is between April and September, as many plant species have a seasonal expression in spring and summer only. The survey was undertaken on 14/05/2024.

2.3.3 The weather on the day of the survey was wet, mild, with a calm breeze and scattered showers (some heavy). The days leading up to the survey were similar. This could potentially be perceived as a constraint as the heavy rain could potentially wash away field signs such as hair, tracks and droppings.

2.3.4 The details of this report will remain valid for a period of 18 months. If works have not commenced within this period or land use on site changes, it is recommended that a new review of the ecological conditions is undertaken.

3. Desk Study Results

3.1 Statutory Designated Sites

3.1.1 The MAGIC website revealed no internationally or nationally designated sites within 2km of the site. However, the site is within the Special Site of Scientific Interest (SSSI) Impact Risk Zone of Denby Grange Colliery Ponds SSSI.

3.2 Non-statutory Designated Sites

3.2.1 Records received from WYES revealed three non-statutory designated sites within 2km of the site, detailed in Table 2 below.

Table 2: Non-statutory designated sites within 2km of the site, returned from WYES.

Site Name	Distance (m) from Site	Reasons for Designation
Howroyd Beck Fields, Lower Whitley LWS	1370m North	Unmanaged acid grassland, lowland mixed deciduous woodland and running water habitats supporting a range of invertebrate species, including small heath butterfly which is a NERC S41 designated species.
Liley Wood LWS	1840m Northwest	Mixed deciduous replanted ancient woodland supporting abundant English bluebells.
Whitley Wood LWS	1900m Northwest	Replanted ancient mixed woodland that supports English bluebells.
Key: LWS – Local Wildlife Site		

3.2.2 The site is not included or adjacent to the West Yorkshire Wildlife Habitat Network or the Bat Alert Zone (**see Appendix 4**).

3.3 Section 41 of the NERC Act 2006 Priority Habitat Inventory

3.3.1 The MAGIC website revealed no priority habitats within or adjacent to the site.

3.4 Protected and Notable Species

3.4.1 <u>European Protected Species (EPS) Licence Applications</u>

The MAGIC website revealed one EPS licence application within 2km of the site. A licence granted on 31/12/2015 and ending on 01/01/2022 to allow for the destruction of a resting place used by common pipistrelle. Licence reference: 2015-17650-EPS-MIT.

3.4.2 Records of Protected and Notable Species

3.4.3 Flora

One record of English bluebell *Hyacinthoides non-scripta,* a Schedule 8 WCA (protected from sale and trade under **Section 13(2)** only), and KBAP designated species, within 2km of the site was returned by WYES. The record was from 2019 and located 1933m from the site.

3.4.4 Invertebrates (including white-clawed crayfish)

No records of protected or notable invertebrates, within 2km of the site were returned by WYES.

3.4.5 Fish

No records of protected or notable fish, within 2km of the site were returned by WYES.

3.4.6 Amphibians

No records of amphibians, within 2km of the site were returned by WYES.

3.4.7 Reptiles

No records of reptiles, within 2km of the site were returned by WYES.

3.4.8 Birds

The following records were received from WYES:

Table 3: Bird Records Received from WYES.

Scientific name	Common name	Designation	Latest Date	Number of records	Distance from site (m)
Hirundo rustica	Swallow	WYBAP KBAP	2018	1	399

Key:
WCA: Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)

WYBAP: West Yorkshire Biodiversity Action Plan
KBAP: Kirklees Biodiversity Action Plan

3.4.9 Bats

The following records were received from WYES:

Table 4: Bat Records Received from WYES.

Scientific Name	Common Name	Designation	Latest Date	Number of records	Distance from Site
Myotis sp.	Unidentified *Myotis* bat	EPS WCA	2022	1	585
Nyctalus noctula	Noctule	EPS WCA S41 WYBAP KBAP	2017	2	1756
Pipistrellus pipistrellus	Common pipistrelle	EPS WCA	2017	4	1725
Pipistrellus pygmaeus	Soprano pipistrelle	EPS WCA S41 WYBAP KBAP	2014	1	1756

Key:
EPS: European Protected Species: Species listed under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
WCA: Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)
S41: Section 41 of the NERC Act 2006
WYBAP: West Yorkshire Biodiversity Action Plan
KBAP: Kirklees Biodiversity Action Plan

3.4.10 Bat Roosts

The following records were received from WYES:

Table 5: Bat Records Received from WYES.

Scientific Name	Common Name	Roost type	Date	Distance from Site (m)
Myotis mystacinus	Whiskered Bat	Unspecified	2017	1752
Pipistrellus pipistrellus	Common pipistrelle	Single adult	2022	585

Pipistrellus pipistrellus	Common pipistrelle	Unspecified	2011	1907
Pipistrellus pipistrellus	Common pipistrelle	Unspecified	2014	1405
Pipistrellus pipistrellus	Common pipistrelle	Unspecified	2013	1441
Pipistrellus pipistrellus	Common pipistrelle	Unspecified	2013	1441
Pipistrellus pipistrellus	Common pipistrelle	Unspecified	2017	1752
Plecotus auritus	Brown long-eared bat	Single adult	2022	585
Plecotus auritus	Brown long-eared bat	Unspecified	2017	1752
Plecotus auritus	Brown long-eared bat	Unspecified	2017	1752
Plecotus auritus	Brown long-eared bat	Possible	2006	1886
Plecotus auritus	Brown long-eared bat	Unspecified	2014	1889
Vespertilionidae	Unidentified bat	Unspecified	1995	1494
Vespertilionidae	Unidentified bat	Unspecified	2016	1628
Vespertilionidae	Unidentified bat	Unspecified	2003	1910

3.4.12 Otters

No records of otter, within 2km of the site were returned by WYES.

3.4.13 Water Voles

No records of water vole, within 2km of the site were returned by WYES.

3.4.14 Beaver

No records of beavers, within 2km of the site were returned by WYES.

3.4.15 Other Notable Species

One record of brown hare *Lepus europaeus*, a NERC S41, WYBAP and KBAP designated species, within 2km were returned by WYES.

3.4.16 Invasive Species

The following records were received from WYES:

Table 6: Invasive Non-native Species Received from WYES.

Scientific name	Common name	Latest Date	Number of records	Distance from site (m)
Impatiens glandulifera	Himalayan Balsam	2019	2	1696
Rhododendron ponticum	Rhododendron ponticum	2019	1	1795

4. Field Survey Results

4.1 Habitats

4.1.1 g4 – Modified grassland: 10 – Scattered scrub, 14 – Scattered rushes, 81 – Ruderal or ephemeral, 106 – Mown, 114 – Drystone wall, 510 – Bare ground.

The site is composed of modified grassland in its entirety with a drystone retaining wall on the southwestern boundary and is mown most likely for hay and silage. It contains areas of bare ground from agricultural access, areas of tall ruderal species, scattered rushes, abundant perennial ryegrass and areas of scattered scrub, which is encroaching on the site from the adjacent habitat to the east (**see Appendix 1 and Appendix 3, photo 1-3**). Species identified here include meadow foxtail *Alopecurus pratensis*, cow parsley *Anthriscus sylvestris*, lesser burdock *Arctium minus,* soft brome *Bromus hordeaceus,* hairy bittercress *Cardamine hirsute,* creeping thistle *Cirsium arvense,* cock's-foot *Dactylus glomerata,* foxglove *Digitalis purpurea,* fringed willowherb *Epilobium ciliatum,* hairy willowherb *Epilobium hirsutum,* common hogweed *Heracleum sphondylium,* Yorkshire fog *Holcus lanatus,* soft rush *Juncus effusus,* white dead nettle *Lamium album,* perennial ryegrass *Lolium perenne,* blackthorn *Prunus spinosa,* bracken *Pteridium aquilinum,* meadow buttercup *Ranunculus acris,* creeping buttercup *Ranunculus repens,* bramble *Rubus fruticosus,* broad-leaved dock *Rumex obtusifolius,* ragwort *Senecio jacobaea,* common sowthistle *Sonchus oleraceus,* dandelion *Taraxacum officinale,* stinging nettle *Urtica dioica* and common vetch *Vicia sativa.*

4.2 Protected and Notable Species

4.2.1 Flora

One record of English bluebell was returned by WYES. No notable or protected flora species were identified on the site. Therefore, flora will not be mentioned further in this report.

4.2.2 Invertebrates (including white-clawed crayfish)

No records of protected or notable invertebrates, within 2km of the site were returned by WYES. There is potentially suitable habitat to support protected or notable invertebrate species on the site. The grassland on

site offers foraging opportunities for a range of invertebrates. Ragwort was identified on site, which is the sole food plant for the cinnabar moth.

There is no potentially suitable habitat on or adjacent to the site to support white-clawed crayfish. Therefore, white-clawed crayfish will not be mentioned further in this report.

4.2.3 Fish

No records of protected or notable fish were returned by WYES. There is no potentially suitable habitat on or adjacent to the site to support notable or protected fish species. Therefore, fish will not be mentioned further in this report.

4.2.4 Amphibians

No records of amphibians were returned by WYES. No amphibians were identified on the site. However, there is potentially suitable habitat on and adjacent to the site that could support amphibian species. The drystone wall on the west of the site could potentially support hibernating amphibian species and a pond located roughly 380m south of the site (**see Appendix 4**) could potentially support breeding amphibians.

4.2.5 Reptiles

No records of reptiles were returned by WYES. No reptiles were identified on the site. However, there is potentially suitable habitat on the site that could support reptile species. The drystone wall on the west of the site could potentially support hibernating reptile species.

4.2.6 Birds

Two records of two bird species, including one record of a Schedule 1 WCA (as amended) designated species were returned by WYES. No protected or notable bird species or bird nests were identified on the site. There is however potentially suitable habitat on and adjacent to the site to support nesting bird species. The grassland on the site and the woodland and scrub to the east of the site have the potential to support nesting birds.

4.2.7 Bats

Three field records of three confirmed species of bat and 15 records of three confirmed species of bat roost were returned by WYES. There is potentially suitable habitat to support commuting and foraging bat

species on and adjacent to the site. The grassland on the site and the woodland and scrub to the east of the site have the potential to support commuting and foraging bat species.

4.2.9 Otters

No records of otter were returned by WYES. No field signs of otters or otter holts were identified on the site. There is no potentially suitable habitat on or adjacent to the site to support otter. Therefore, otters will not be mentioned further in this report.

4.2.10 Water Voles

No records of water vole were returned by WYES. No field signs of water vole were identified on the site. There is no potentially suitable habitat on or adjacent to the site to support water vole. Therefore, water vole will not be mentioned further in this report.

4.2.11 Beaver

No records of beaver were returned by WYES. No field signs of beaver were identified on or adjacent to the site and there is no potentially suitable habitat on or adjacent to the site to support beaver. Therefore, beavers will not be mentioned further in this report.

4.2.12 Other Notable Species

One record of brown hare was returned by WYES. There is potentially suitable habitat on and adjacent to the site to support commuting, foraging and hibernating hedgehogs and commuting, foraging, sheltering and breeding brown hare. The grassland on site offers commuting and foraging opportunities for hedgehogs and the woodland and scrub to the east of the site has hibernating opportunities. The grassland on site has

the potential to support commuting, foraging, sheltering and breeding brown hare.

4.2.13 Invasive Species

Three records of two invasive non-native plants species were returned by WYES. No invasive non-native species were identified on or adjacent to the site. Therefore, invasive species won't be mentioned further in this report.

5. Assessment

5.1 Designated Sites

5.1.1 Statutory designated sites

The MAGIC website revealed no internationally or nationally designated sites within 2km of the site. The site is within the Special Site of Scientific Interest (SSSI) Impact Risk Zone of Denby Grange Colliery Ponds SSSI. However, due to the nature of the development any adverse effects to the SSSI are not anticipated. Consultation with Natural England is not required.

5.1.2 Non-statutory designated sites

Records received from WYES revealed three non-statutory designated sites within 2km of the site. The closest is Howroyd Beck Fields, Lower Whitley Local Wildlife Site (LWS). Due to the distance from the site and the nature of the development any adverse effects to the LWS are not anticipated. Consultation with Kirklees Council is not required.

5.2 Habitats

5.2.1 The most valuable habitats for biodiversity within the development site boundary are the grassland and drystone wall. The proposed works will impact the grassland by removal to facilitate the development.

5.2.2 The other habitats described in Chapter 4, Section 4.1 have lower biodiversity and provide less opportunity to support protected or notable species. The flora recorded in these habitats is considered to be locally common and widespread and they do not fall into any of the NERC S41 or Local BAP Priority Habitat descriptions.

5.3 Protected and Notable Species

5.3.1 Invertebrates

No records of protected or notable invertebrates were returned by WYES. The grassland on site offers foraging opportunities for a range of invertebrates. The proposed development does involve the removal of the habitat in which ragwort was identified. Further recommendations are therefore provided in **Section 6.1.1 and section 6.2.1**.

5.3.2 Amphibians

No records of amphibians were returned by WYES. The drystone wall on the west of the site could potentially support hibernating amphibian species and a pond located roughly 380m south of the site could potentially support breeding amphibians with good habitat connectivity between the site and the waterbody. Under the current development plans, the majority of the existing habitats on site are to be removed (excluding the drystone wall). The habitats to be removed are considered to have limited to no potentially suitability to support great crested newts and other amphibians. Therefore, amphibians will not be mentioned further in this report.

5.3.3 Reptiles

No records of reptiles were returned by WYES. The drystone wall on the west of the site could potentially support hibernating reptile species. Under the current development plans, the majority of the existing habitats are to be removed (excluding the drystone wall). The habitats to be removed are considered to have limited to no potentially suitability to support reptile species. Therefore, reptiles will not be mentioned further in this report.

5.3.4 Birds

Two records of two bird species, including one record of a Schedule 1 WCA (as amended) designated species were returned by WYES. The grassland on the site has the potential for ground nesting birds and the woodland and scrub to the east of the site have the potential to support a wider range of nesting birds. Under the current development plans, the majority of the existing habitats are to be removed which could negatively impact nesting birds and reduce nesting opportunities for the local populations of bird species. Further recommendations are therefore provided in **Section 6.1.1 and 6.2.2.**

5.3.5 Bats

Three field records of three confirmed species of bat and 15 records of three confirmed species of bat roost were returned by WYES. The grassland on the site and the woodland and scrub to the east of the site have been identified to have low potential to support commuting and foraging bat species. The current development plans involve the removal of the majority of existing habitats on site, and therefore reducing the

opportunities for foraging and commuting bats. Furthermore, the scheme will likely result in increased levels of lighting. All bat species are light adverse, and therefore, this will impact the availability of 'dark corridors' which are used by bats as navigation tools. Therefore, without the appropriate mitigation measures, the development has the potential to disturb the local bat population, including foraging and commuting bats. Further recommendations are therefore provided in **Section 6.1.1. and Section 6.2.3.**

5.3.7 Other Notable Species

One record of brown hare was returned by WYES. The grassland on site offers commuting and foraging opportunities for hedgehogs and the woodland and scrub to the east of the site has hibernating opportunities. The grassland on site also has the potential to support commuting, foraging, sheltering and breeding brown hare. Under the current development plans, the majority of the existing habitats are to be removed which could negatively impact local hedgehog and hare populations through fragmentation and destruction of suitable habitat, and the potential killing of individuals. Further recommendations are therefore provided in **Section 6.1.1. and 6.2.5.**

6. Recommendations

6.1 Habitats

6.1.1 The proposed works provide an opportunity to institute enhancement for biodiversity through native species planting and the addition of faunal boxes. A landscaping plan should be devised which incorporates, as far as practicable, native species with known benefits to wildlife common in the area. A **Biodiversity Enhancement Plan (BEP)** should be designed pre-construction to be implemented post construction during the landscaping phase of the development. The biodiversity enhancement plan will provide opportunities for local wildlife and aim to retain or enhance Local Biodiversity Action Plan priority habitats, to ensure the development does not have a significant detrimental impact on local or national wildlife populations.

6.2 Protected and Notable Species

6.2.1 Invertebrates (including white-clawed crayfish)

Native scrub and wildflower planting (including ragwort species) is recommended to mitigate for the loss of habitat and floral variety which will affect many generalist invertebrate species on site and species which may forage on invertebrates such as bats and birds. Which should be included in a **Biodiversity Enhancement Plan**.

6.2.2 Birds

The vegetation onsite provides high nesting potential for breeding bird species. In the UK, the key breeding period for birds is from **1st February until 31st August** (depending on species and behaviour). **A preconstruction site walkover** no more than 24 hours prior to any vegetation removal is required, and if removal occurs outside of the breeding bird period and birds are found, the removal must cease immediately, and a suitably competent ecologist contacted.

6.2.3 Bats

All lighting must consider wildlife and be in accordance with the ILP Guidance GN08 (2023). A key point is the avoidance of internal and external light spill. Where possible, lighting should be timed, or on sensors and avoid the hours between sunset and sunrise, when bats are out foraging.

Lighting Scheme: The development will likely increase lighting levels. All lighting must consider wildlife and be in accordance with ILP Guidance. A key point is the avoidance of internal and external light spill. Where possible, lighting should be timed, or on sensors and avoid the hours between sunset and sunrise, when bats are out foraging.

Artificial light is known to deter bats from entering lit areas. The development must incorporate a wildlife sensitive lighting scheme. In particular, obtrusive light is to be prevented from reaching potential foraging and commuting routes, both from new exterior and interior lights. Guidance published by the Institution of Lighting Professionals (2023) is to be followed when designing the lighting scheme for the development.

It is Important to avoid:

- Uniform levels of luminance across the site.
- Metal halide and florescent lighting.
- Upward tilting lighting that increases skyline luminance.
- Instead, the following should be installed:
- Dark buffer zones.
- Screening in the form of vegetation, fences, and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements.
- LED luminaries with a sharp cut-off, low intensity, and good rendition.
- A warm white spectrum (<2700 kelvin) to reduce blue light.
- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%.
- Lower light columns to limit light spill.
- Recessed internal light fixtures.
- Window glazing treatments or automated blind systems.

6.2.5 Other Notable Species

The vegetation onsite provides high potential for breeding brown hare. The breeding period for brown hare is between February and September. **A preconstruction site walkover** no more than 24 hours prior to any vegetation removal is recommended and if removal occurs outside of the breeding brown hare period and leverets or hares are found, the removal must cease immediately, and a suitably competent ecologist contacted.

To permit hedgehog and hare migration and safe passage of hedgehogs and hare through the site, any excavations created during the development stage must be covered or appropriate escape routes implemented. Planks are to be placed at a 45-degree angle for hedgehogs and hares to escape safely. Any open pipes must be capped.

7. References

Guidelines for surveys and report writing:

British Standards Institute (BSI), (2013) *BS 42020:2013, Biodiversity - Code of practice for planning and development*. London.

Chartered Institute of Ecology and Environmental Management (CIEEM), (2015) *Guidelines for Ecological Report Writing*. Winchester.

The UK Habitat Classification System. UKHAB (2023) Available at: http:// https://ukhab.org/

Websites:

Advice on protected species is consolidated at:
Environmental management: Wildlife and habitat conservation - GOV.UK (2016) *Gov.uk*. Available at: https://www.gov.uk/topic/environmental-management/wildlife-habitat-conservation

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Within this detailed guidance on surveys and mitigation information is available on the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

Wildlife licences: when you need to apply - Detailed guidance (2014) *Gov.uk*. Available at: https://www.gov.uk/guidance/wildlife-licences

Within this detailed guidance on licensing information is available on licences for the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

As well as:

- Non-native Bumblebee species
- Deer
- Freshwater fish
- Invertebrates
- Mink, coypu, muskrat and gr squirrel
- Plants

Species Specific Information:

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Appendices

Appendix 1: UKHab Habitat Map

Site name & address

Land at Denby Lane, Grange Moor, West Yorkshire, WF12 0NR

Key

- Red Line Boundary

Habitats

- g4 – Modified grassland
- 10 – Scattered scrub
- 14 – Scattered rushes
- 81 – Ruderal or ephemeral
- 106 – Mown
- 114 – Drystone wall
- 510 – Bare ground

---- Drystone wall

Scale

0 10 20 m

Site Land at Denby Lane	Client Orion Homes
Project Preliminary Ecological Appraisal Report	Author JF
Plan ref 21986a/JF	Revision 0

Appendix 2: Proposed Development Plan

Denby Lane, Grange Moor

Denby Lane, Grange Moor
Orion Homes

Housetype	number	Beds	Storeys	sqft	total	% mix
Preston	2	3	2	1002	2004	9.52
Bamburgh	6	3	2	1002	6012	28.57
Falmouth	1	3	2	1153	1153	4.76
Gosford	1	3	2	1161	1161	4.76
Wentworth	4	4	2.5	1184	4736	19.05
Tewkesbury	1	4	2	1241	1241	4.76
Cheltenham	2	4	2	1303	2606	9.52
Private total	**17**				**18913**	**80.95**
Edinburgh	4	3	2	858	3432	19.05
Affordable total	**4**				**3432**	**19.05**
Site total	**21**				**22345**	**100.00**

Site Area - Gross	1.5 acres	/ 0.6117Hectares
Density	34.33dph	
coverage	14,896 sqft per acre	

Path (um)

Path (um)

215.8m

Revision notes:		
Rev:	Date:	Notes:
E	28.02.24	.. 2024 Redrawn - CD
F	29.02.24	Plots 6 and 7 & 15 to 18 amended, 3m easement to eastern boundary added - CD
G	02.03.24	Plots 1 & 2 moved back to allow for the existing FW manhole/sewer - CD
H	15.05.24	Amended to suit Sandersons comments - CD
I	31.05.24	Plots 1 to 6 moved forward to make gap between plots 6 & 7 wider to accommodate drainage easement - CD

Revision notes:		
Rev:	Date:	Notes:
J	06.06.24	Plots 1 & 2 parking spaces amended and VP amended - CD

Revision notes:		
Rev:	Date:	Notes:
..	..	..

Date: Feb 24

Scale @ A3: 1:500

Drawn By: CD

Project: Denby Lane, Grange Moor

Drawing Number: Site layout

Revision: J

OrionHomes
SO GOOD TO COME HOME TO
Unit 5, Benton Office Park, Bennett Avenue,
Horbury, Wakefield, WF4 5RA, Tel: 01924 831030

Appendix 3: Photographic Evidence

Photo 1: Modified grassland and bare ground on the centre of the site, viewed from the southeast.

Photo 2: Woodland and scrub on the eastern boundary of the site, viewed from the south.

Photo 3: Drystone wall on the west of the site, viewed from the north.

Photo 4: Woodland and scrub on the eastern boundary of the site, viewed from the south

Appendix 4: Pond within 500m, Wildlife Habitat Network and Bat Alert Zone

Site name & address

Land at Denby Lane, Grange Moor, West Yorkshire, WF12 0NR

Key

- Red Line Boundary
- Pond
- West Yorkshire Wildlife Habitat Network
- Bat Alert Zone

Scale 0 100 200 m

Site	Client
Land at Denby Lane	Orion Homes
Project Preliminary Ecological Appraisal Report	**Author** JF
Plan ref 21986a/JF	**Revision** 0

Appendix 5: Bat Survey Guidelines

Figure 1: Guidelines used for assessing the bat roosting suitability of a site (taken from Collins, 2023, Tables 4.1, 4.2, 6.2)

Roosting Suitability	Potential Roosting Features (PRFs) Present
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels). Trees: Either no PRFs in the tree or highly unlikely to be any.
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitats, to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats). Trees: PRF-I (Individual) – PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
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 of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).
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. These structures have the potential to support high conservation status roosts, e.g., maternity or classic cool/stable hibernation site. Trees: PRF-M (Multiple) – PRF is suitable for multiple bats may therefore be used by a maternity colony.

Figure 2: Recommended minimum number of survey visits for presence/likely absence surveys (taken from Collins, 2023, Tables 7.1 and 7.2).

Negligible roost suitability	Low roost suitability or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
No futher survey required	One survey visit. One dusk emergence survey, May to August (structures). No further surveys required (trees).	Two separate dusk emergence survey visits. May to September, with at least one survey between May and August.	Three separate dusk emergence survey visits. May to September, with at least two surveys between May and August
September surveys are both weather- and location-dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.			

September surveys are likely to miss maternity roosts due to dispersal before this time but may pick up mating roosts.

Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced out at **least three weeks apart**, preferably more. Survey timings **should consider the prevailing conditions in the year of survey, which will vary geographically**. In years with a cold spring, the surveys should not be started in early May, or all completed in May. The surveys should maximise the possibility of detecting maternity roosts, which can switch roosts between pregnancy and lactation, and the **optimum coverage includes the pre-parturition, post-parturition, and mating periods**.

Structures that have been categorised as low potential can be problematic, and the number of surveys required should be judged on a case-by-case basis. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

Figure 3: Survey timings calendar (taken from BCT: Bat Surveys for Professional Ecologists: Good Practice Guidelines; 4th Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Daytime Bat Walkover (DBW)												
PRA – structures[a]												
Emergence survey for maternity or summer roosts[b]												
Emergence survey for transitional/ occasional roosts[b]												
Re-entry surveys[c]												
Emergence survey for mating roosts[b]												
Hibernation survey – structures[a]												
GLTA[d]												
PRF inspection survey – trees												
Ground-level bat activity survey – night-time walkover surveys and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey[e]												
Back-tracking survey												
Trapping and radio-tagging survey[f]												

= optimal period = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October emergence surveys are not acceptable in Scotland.

= it is not acceptable to trap bats when they are heavily pregnant and have dependent pups. Mothers need to optimise foraging due to the physiological demands of pregnancy and lactation, and pups need to be regularly fed. Interrupting these activities could potentially have an impact on breeding success in the year in question. The timing of birth can vary between years – it may be as early as the end of May or as late as the start of August, therefore caution should be exercised and local information gained on birth dates before trapping activities are carried out during the summer months. Any information gained and decisions made should be kept as a record.

Appendix 6: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

Appendix 7: Protected Species Information

The following species are fully protected in UK law, under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019:

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.

In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981 (as amended):

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

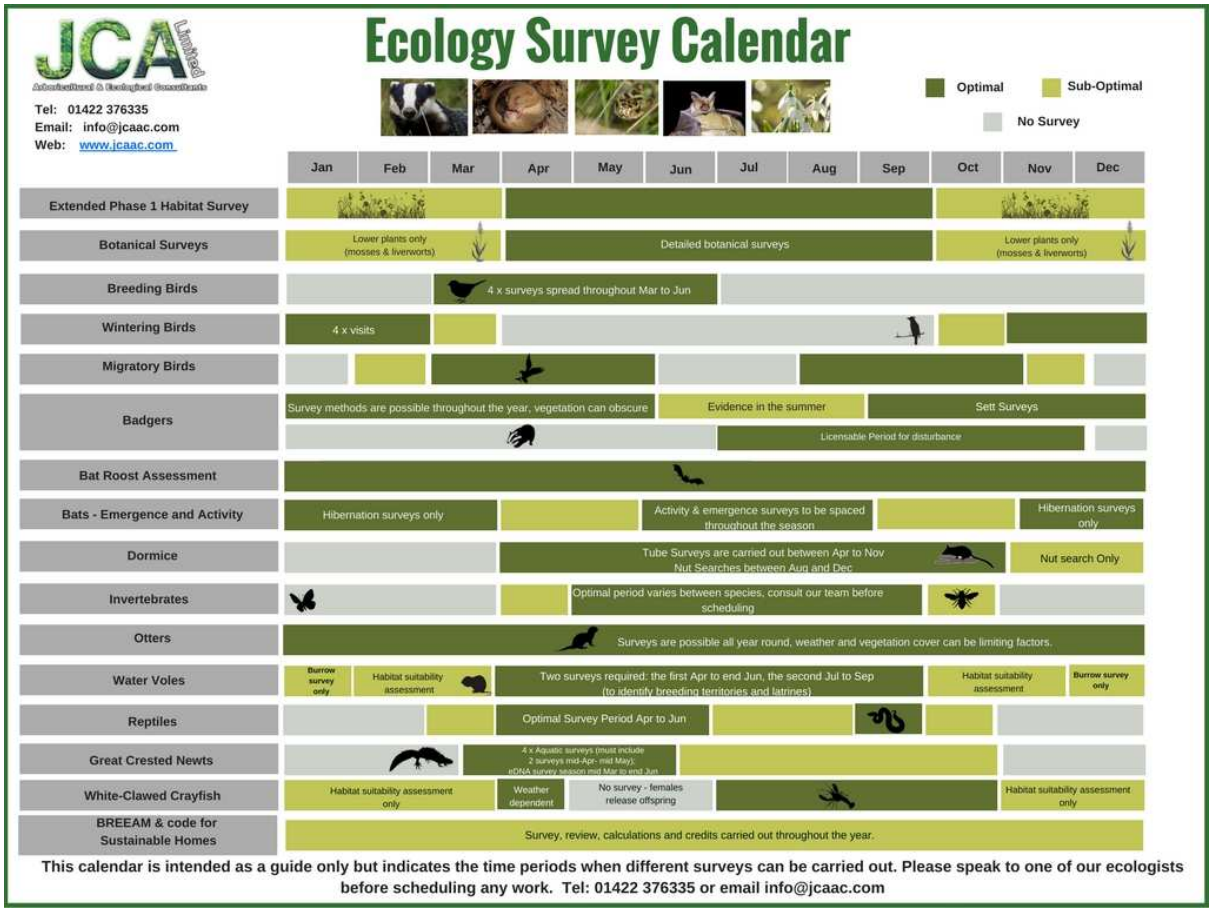
Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders

Appendix 8: Survey Calendar

Figure 4: Survey calendar for protected species and habitat surveys.



Appendix 9: Author Qualifications

Adam West, Principal Ecologist

BSc (Hons) Animal and Wildlife Management, ACIEEM.

Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Batchelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence and a Natural England Level 2 bat survey class licence.

James Foster, Assistant Ecologist

BSc (Hons) Biology.

James gained his undergraduate degree in biology in 2012 from University of Leeds. James has plenty of experience in ecology, having worked countless projects of different scales all over the north and midlands. James has 11 years of experience surveying anything from reptiles to hedgerows and holds a Great crested newt licence level 1 and is working towards his bat licence and barn owl licence.

Rick Westwood, Graduate Ecologist

BA (Hons) History and Politics

Rick gained his undergraduate degree in History and Politics in 2001 from Leeds Metropolitan University before going on to complete a PGCE in History at the University of Leeds in 2003. After 18 years in secondary education and the NHS, Rick began assisting on bat emergence surveys in 2023, after which, he gained employment as a Graduate Ecologist at JCA Ltd.

The Information and advice which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed

.....

James Foster *BSc (Hons)*

13/08/2024

Reviewed by

.....

Rick Westwood *BA (Hons)*

13/08/2024

Approved by

.....

Adam West *BSc (Hons) Animal and Wildlife Management, ACIEEM*

13/08/2024

For and on behalf of ***JCA Ltd***

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ECOLOGICAL SERVICES

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- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

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- Arboricultural Method Statements (AMS)

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- Heave Assessment
- Tree Root Identification

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- Specialist Decay Detection
- Landscape and Orchard Design

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- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

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