

Cefn Isaf Flats
Cefn Coed y Cymmer
Merthyr Tydfil
CF48 2RH

A Preliminary Ecological
Appraisal (REV 1) By:



On Behalf Of:



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Contents

	Page No.
1 Executive Summary	1
2 Introduction	1
3 Surveyor Experience	1
4 Survey Methodology	1 – 2
5 Site Description	2
6 Desktop Study	2 – 3
7 Survey Constraints	3
8 Survey Results	3 – 4
9 Discussion and Conclusions	4 – 5
10 Recommendations	5 – 7
11 Bibliography	8
Appendix I: Site Location Plan	10
Appendix II: Site Photographs	11 – 12
Appendix III: Phase 1 Habitat Map	13
Appendix IV: List of Recorded Species	14
Appendix V: Relevant Legislation	15

List of Tables

Table	Description of Contents	Page No.
Table 1	Summary of Survey Activity and Weather Conditions	3
Table 2	Summary of Phase 1 Habitat Notes	3
Table 3	Guidance for removal of grassland vegetation	6
Table 4	Recommended Native Tree and Shrub Species	7
Table 5	List of Recorded Species	14

List of Figures

Figure	Description of Contents	Page No.
Figure 1	Site location plan	10
Figure 2	Phase 1 Habitat Map	13

List of Plates

Plate	Description of Contents	Page No.
Plate 1	Central section between flats, looking west	11
Plate 2	North-east boundary of site	11
Plate 3	Paved area at the centre of the site, looking west	11
Plate 4	Northern site boundary, looking west	11
Plate 5	North-west corner of the site	11
Plate 6	Western side of site, looking north-east	11
Plate 7	South-west end of site, looking west	12
Plate 8	Southern end of site, looking east	12
Plate 9	Southern carpark area, looking south	12
Plate 10	At southern end of site, looking north-east	12
Plate 11	Cleared area at eastern end of site	12
Plate 12	Looking east towards eastern site boundary	12

1 Executive Summary

- 1.1 Cefn Isaf Flats are proposed for demolition. They are currently in a poor condition and in need of replacement. Plans include the redevelopment of the site, to build new flats for local housing needs. To support the proposals, a Preliminary Ecological Appraisal was conducted in October 2023, by an ecologist.
- 1.2 Assessment for protected species, focusing on bats and birds has already been undertaken at the site by Just Mammals Limited in 2021 and 2022. Most recent assessment involved a Preliminary Ecological Appraisal of the area surrounding the flats, which includes discrete grassland and scrub areas, with some bare ground and hardstanding. Currently the flats are bounded by Heras security fencing, in an attempt to reduce anti-social behaviour.
- 1.3 Protected species and their potential presence on site were considered as part of the assessment, no further survey effort is recommended for the site at this time. A Construction Environmental Management Plan will likely be required to outline procedures to minimise risk of pollution and degradation of nearby protected sites.
- 1.4 Breeding birds are likely to be present on site, due to the suitability of the habitat. Breeding birds and all results of their breeding activities are protected under the Wildlife and Countryside Act 1981 (as amended). Any removal of vegetation must be timed to occur during winter, outside the breeding season. Effectively, vegetation clearance must be conducted between September and February, inclusive.
- 1.5 Cotoneaster is present on site. Non-native cotoneaster is listed on Schedule 9 of the UK Wildlife & Countryside Act as an invasive species, which makes it illegal to distribute or allow the spread of cotoneaster into the wild. The plant must be removed from the site, recommendations are made within this report.
- 1.6 Other recommendations are made in this report relating to enhancing the biodiversity of the site post-development, and the creation of a sensitive lighting scheme to consider the likely presence of nocturnal fauna on site.

2 Introduction

- 2.1 Cefn Isaf Flats are situated in the community of Cefn Coed y Cymmer, on the northern edge of Merthyr Tydfil. The flats are divided into two sections, the Upper north, and the Lower south, both of which are connected via external raised walkways, which extend between the sections. The flats are sited on land that slopes to the south, the area of which forms the site subject to assessment. The site is centred on National Grid Reference SO 03259 07698, and it stands at an altitude of *circa* 210m Above Ordnance Datum.
- 2.2 Proposals include the demolition of the existing flats, in order to redevelop the site for new housing. To support the plans Just Mammals Limited were commissioned to carry out a Preliminary Ecological Appraisal of the site, which was undertaken in October 2023. The buildings are excluded from this assessment, since a previous suite of surveys have been undertaken by Just Mammals Limited in 2021 and 2022, the reports for these surveys must be read in conjunction with this report.
- 2.3 This report makes recommendations concerning the ecological value of the site, as well as the need for further survey work as appropriate. The different types of habitat were assessed, and the potential presence of protected species, such as badger (*Meles meles*), otter (*Lutra lutra*), dormouse (*Muscardinus avellanarius*), reptiles and amphibians, as well as bats and nesting birds were considered.

3 Surveyor Experience

- 3.1 Undertaking the assessment and author of this report is Phoebe Williams. A Geography graduate from the University of Exeter, and a former trainee at Gwent Wildlife Trust she has completed a Natural Talent trainee programme, studying Hemiptera at the National Museum of Wales. Practical experience includes survey work for dormice, botany, newts, reptiles, and invertebrates. Phoebe has undertaken an MSc in Wildlife and Conservation Management at the University of South Wales. She is an ecologist with Just Mammals Limited. Phoebe holds a Great crested newt (NRW) S092295/1 (Expiry 26th February 2025), and is an accredited agent on NRW bat licence S091842/2 (expiry 10th November 2024).

4 Survey Methodology

- 4.1 A Preliminary Ecological Appraisal (PEA) was conducted on the 24th of October 2023. Details of the survey and weather conditions are provided in Table 1. Prior to the site visit, a desktop study was undertaken, which involved a standard search area of a 2km radius from the site (using a central grid reference), using the MAGIC website. Details of statutory sites designated for nature conservation were obtained. A record search was also commissioned from South East Wales Biodiversity Records Centre.
- 4.2 The assessment comprised a survey employing the Phase 1 habitat survey methodology. This is a standardised technique for classifying and mapping British habitats. All areas within the site were inspected and assessed for indicators of ecological value, including the presence and/or field signs of any protected or rare habitats and species. The site was walked over, recording all plant species and features onto a custom-made recording sheet. Habitats and notes were drawn onto a map of the survey site and photographs were taken. A coloured Phase 1 habitat map was produced (Appendix III).
- 4.3 Assessment for the presence or potential absence of other protected species, including hazel dormouse, badger, reptiles and amphibians, was undertaken by considering the features of the site. Such features include grassland and dense vegetation. The potential suitability of the site for nesting birds was also considered.

5 Site Description

- 5.1 Cefn Isaf Flats are situated in the community of Cefn Coed y Cymmer, on the north-west edge of Merthyr Tydfil, some 1.9km from the town centre. The flats are surrounded by residential properties to the north, east and west, with an area of woodland to the south. Roads stretch immediately adjacent to the site, along the north, west, and southern boundaries. The Afon Taf Fawr runs through the woodland, some 120m to the south, and beyond this is the A470 trunk road.
- 5.2 Situated on ground which slopes to the south, the flats are divided into two sections, the Upper section to the north, and the Lower section to the south, both of which are connected via external raised concrete walkways. Beneath these walkways, at the centre of the complex, a grassy corridor stretches from east to west. The flats and central section of the site is secured by Heras fencing and a locked gate at the north-east end. At the eastern end, a timber fence cuts the site off from the neighbouring property.

6 Desktop Study

- 6.1 By consulting Magic Map, it was determined that no part of the site contains, or is within, any statutory sites of nature conservation interest, such as an Sites of Special Scientific Interest (SSSI), Special Areas of Concern (SAC), National Nature Reserve (NNR) or Local Nature Reserves (LNR) etc. There are three sites of conservation interest within 2km of the site; Cwm Taf Fechan Woodland SSSI, approximately 320m north-east of the site, Cwm Glo a Glyndyrys SSSI, some 1.8km south of the site, and Penmoelallt SSSI, roughly 2km to the north-west.
- 6.2 A record search was commissioned from South East Wales Biological Records Centre (SEWBRc) (unique reference 0234-530) to ascertain whether protected species have been recorded at or close to the site.
- 6.3 The data set revealed protected species records within 1km of the site. Eleven records were returned for the site itself, these include bats recorded by Just Mammals Limited during previous observation surveys at the site. Bat records for the site include two pipistrelle (*Pipistrellus sp.*) bat roosts, and commuting lesser horseshoe (*Rhinolophus hipposideros*), Daubenton's bat (*Myotis daubentonii*), and soprano pipistrelle (*Pipistrellus pygmaeus*). No other records were returned for the site, the remainder of the record search is summarised below:
 - Birds accounted for 477 species records, species include; bullfinch (*Pyrrhula pyrrhula*) recorded 104m from the site, barn owl (*Tyto alba*) recorded 215m from the site, kite (*Milvus milvus*) recorded 283m from the site, raven (*Corvus corax*), lesser black backed gull (*Larus fuscus*), dipper (*Cinclus cinclus*), mallard (*Anas platyrhynchos*), house sparrow (*Passer domesticus*), and dunnoek (*Prunella modularis*) over 300m from the site;
 - Reptiles and amphibians accounted for 41 records, species include; slow worm (*Anguis fragilis*) over 270m from the site, common lizard (*Zootoca vivipara*) 740m from the site,

common toad (*Bufo bufo*) over 330m from the site, common frog (*Rana temporaria*) over 400m from the site, and great crested newt (*Triturus cristatus*) over 790m from the site, and palmate newt (*Lissotriton helveticus*) over 900m from the site;

- Terrestrial mammals accounted for 380 species records, species include; hedgehog (*Erinaceus europaeus*) over 219m from the site, otter (*Lutra lutra*) over 300m from the site, and badger (*Meles meles*) over 360m from the site. Bats include those recorded at the site itself as mentioned above, and other bat species over 200m from the site which include soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), and natterers bat (*Myotis nattereri*). A lesser horseshoe bat roost has been recorded approximately 300m from the site;
- Invertebrate records include a single record of a centipede (*Lithobius (Lithobius) pilicornis*) approximately 400m from the site, and four records of signal crayfish (*Pacifastacus leniusculus*) over 490m from the site;
- Vascular plants accounted for 330 records, species include; Japanese knotweed (*Fallopia japonica*) 90m from the site, snowberry (*Symphoricarpos albus*) approximately 120m from the site, intermediate Lady's mantle (*Alchemilla xanthochlora*), bird cherry (*Prunus padus*), green field speedwell (*Veronica agrestis*), montbretia (*Crocsmia pottsii x aurea*), buddleia (*Buddleja davidii*), large-flowered sticky eyebright (*Euphrasia officinalis subsp. Pratensis*), and cotoneaster, all over 200m from the site.

6.4 The record search also revealed 10 locally designated sites within 1km of Cefn Isaf Flats. These are:

- Cwm Taf Fechan Woodlands, LNR and SSSI, approximately 325m from the site;
- Nant Ffrwyd Regionally Important Geodiversity Site, approximately 280m from the site;
- Cyfarthfa Park, wildlife Site, approximately 770m from the site;
- Cilsanws Common South, Wildlife Site, 788m from the site;
- Cwm Taf Fechan, Wildlife Site, 314m from the site;
- Y Graig, Wildlife Site, 455m from the site;
- Cwm Ffrwd, Wildlife Site, 255m from the site;
- Cwm Taf Fawr, Wildlife Site, 107m from the site;
- Cwm Taf Fields and Cefn Coed Tip, Wildlife Site, 157m from the site; and
- Gellideg North Fields, Wildlife site, 284m from the site.

6.5 The site does not form part of any of the above designated sites. The designated site closest to the development is Cwm Taf Fawr. Cwm Taf Fawr is a major river tributary of the Afon Taf, and includes relatively undisturbed woodlands, and limestone gorge woodland with a rich ground flora.

7 Survey Constraints

7.1 Survey was carried out in October, which is outside the optimum survey time for vegetation assessments. At this time of year some plant species are difficult to identify, especially grasses. This was not considered a major limitation, as general habitat types were identified with confidence.

7.2 A small section of the site was not accessible. At the eastern end of the site, a small area has been sectioned off with a high timber fence. This prevented access into this area, however, the area could be view from the south-east corner of the site, from afar.

8 Survey Results

8.1 Details of the conditions under which survey was conducted is given in Table 1. Wind speeds given employ the Beaufort scale.

Table 1: Summary of Survey Activity and Weather Conditions

Survey Type and Location	Dates	Timing	Weather Conditions
Day time visual inspection, botanical survey and habitat assessment, including protected species assessment	24/10/2023	09.50 – 10.45 hours British Summer Time	Air temperature: 9°C Cloud cover: 8/8 oktas Wind speed: F1, light air Conditions: Dry
Surveyor	Phoebe Williams		

8.2 The site was divided into four different types of habitat for recording purposes. Table 2 below provides details of the various habitats and the dominant species for each of them.

Table 2: Summary of Phase 1 Habitat Notes

Habitat	Phase 1 Classification	Description of Area and Typical Species
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Type 1	A2.1 Scrub	Discrete areas of this habitat are present at the edges of the site, including a small, south sloping bank to the east. A section of this habitat is shaded by the overhead walkway. Species include dogwood (<i>Cornus sanguinea</i>), willow (<i>Salix sp.</i>), fireweed (<i>Chamaenerion angustifolium</i>), bramble (<i>Rubus fruticosus</i>), and sycamore (<i>Acer pseudoplatanus</i>). Target note 1: Cotoneaster
Type 2	J5 Hardstanding	A series of concrete walkways and paved areas surround the flats. A hardstanding parking area is present at the southern end of the site. Species grow amongst the cracks in this habitat, including; wild strawberry (<i>Fragaria vesca</i>), cocksfoot (<i>Dactylis glomerata</i>), daisy (<i>Bellis perennis</i>), greater plantain (<i>Plantago major</i>) and cleavers (<i>Galium aparine</i>).
Type 3	J3.6 Buildings	This comprises a large portion of the site, made up of the northern block or flats, and southern block of flats. Ivy (<i>Hedera helix</i>) was noted climbing up the guttering at the northern end of the site.
Type 4	B2.2 Neutral semi-improved grassland	This habitat type runs along the centre of the site, between the northern and southern block of flats. The area is shaded by the adjacent buildings and walkways. Sward length is approximately 10-15cm. Discrete areas of this habitat are also present at the edge of the building to the south-west, and as a standalone verge at the southern end of the site. The verge is a sloped bank that is approximately 1m high. Species include false oat grass (<i>Arrhenatherum elatius</i>), oxeye daisy (<i>Leucanthemum vulgare</i>), creeping cinquefoil (<i>Potentilla reptans</i>), Yorkshire fog (<i>Holcus lanatus</i>), red clover (<i>Trifolium pratense</i>), and meadow vetchling (<i>Lathyrus pratensis</i>). Target note 2: Small area of bare ground

- 8.3 A coloured Phase 1 habitat map was produced (see Appendix III). A total of 42 species of plants were recorded during the survey, these are listed in Appendix IV.
- 8.4 Ecological assessment included identification of the potential for protected species to be present on site. Reptiles make use of open, rank habitats which provide a mixture of open areas and cover. No reptiles were noted during the survey effort. Habitat on site includes scrub and grassland, both of which offer cover. The grassland and scrub areas are discrete in size, fragmented, and isolated from the wider landscape. Both scrub and grassland areas are likely heavily shaded due to the adjacent buildings, and overhead walkways. The closest reptile record to the site is a slow worm, approximately 270m away. Common Lizard has been recorded over 730m from the site. No other reptiles were returned from the record search for the area.
- 8.5 During the terrestrial part of their lifecycle, amphibians have similar habitat requirements to reptiles, with both species' groups favouring unmanaged, rank grassland, scrubby vegetation and variation in vegetative architecture. No amphibians were noted during the survey. No ponds are present, ruling out the possibility for them to breeding on site, and review of aerial maps show no ponds within 500m of the site.
- 8.6 Bats use trees as well as buildings for roosting, where they will exploit gaps, cracks and crevices in the bark. No trees are present on site.
- 8.7 Invertebrate records for the area are limited to just two different species within the surrounding area. No niche habitat or uncommon plants were recorded at the site, to suggest presence of uncommon invertebrates.
- 8.8 Hazel dormice are associated with well-defined, connected hedgerows that link to further suitable habitats elsewhere in the landscape. No evidence of dormice was recorded during the survey. There are no hedgerows, or dense areas of connected scrub on site. No dormice records were returned from the record search.
- 8.9 No evidence of badger was noted during the survey, such as setts, footprints, hairs, latrines or other indicators of their presence. Badgers are highly mobile and can range great distances, favouring sloping ground in wooded areas where they can dig their setts and forage away from disturbance. Such habitats are absent from the site.

- 8.10 No nesting or breeding activity was noted during the survey, as it was carried out outside of the breeding bird season. Habitats on site, namely areas of scrub and the buildings, are suitable for nesting birds.
- 8.11 Species such as otter, white-clawed crayfish and water vole are highly reliant on water bodies. No water bodies are present on, or immediately adjacent to the site.
- 8.12 Assessment included the recording of any non-native, invasive species present on site. Non-native invasive species cotoneaster was noted at the western end of the site, amongst the scrub habitat (Target Note 1).

9 Discussion and Conclusions

- 9.1 Cefn Isaf Flats are proposed for demolition. They are currently in a poor condition, and in need of replacement. Plans include the redevelopment of the site, to build new flats for local housing needs. Assessment for protected species, focusing on bats and birds has already been undertaken at the site (Just Mammals Limited Cefn Isaf Flats Report dated 2022). Most recent assessment involved a Preliminary Ecological Appraisal of the area surrounding the flats, which includes discrete grassland and scrub areas, with some bare ground and hardstanding. Currently the flats are bounded by Heras security fencing, in an attempt to reduce anti-social behaviour.
- 9.2 The grassland on site, in areas, is dense enough to provide cover for reptiles and amphibians, however, these areas are discrete and isolated. The grassland areas receive limited solar gain, due to adjacent tall buildings and overhead walkways. The site itself is isolated from areas of more suitable habitat in the surrounding landscape due to the presence of roads, and timber panel fencing. No reptiles or amphibians were recorded at the site itself, and the closest record is over 270m from the site. In terms of amphibians, there are no ponds within the surrounding areas or on site. It is therefore considered unlikely that reptiles and amphibians are using the site at this time. However, since all British reptile species are protected under the provisions of Section 9(1) of the Wildlife and Countryside Act 1981 (as amended), where they are protected from intentional killing and injury, Reasonable Avoidance Measures (RAMs) are required to ensure adequate protection is afforded and negative impacts for reptiles are avoided, in the unlikely event they are present on site.
- 9.3 No trees suitable for roosting bats are present at the site. Previous assessment of the buildings for roosting bats has been undertaken, and separate reports have been produced (Just Mammals Limited Cefn Isaf Flats Report dated 2022 and 2021). They must be read in conjunction with this report.
- 9.4 A sensitive lighting scheme must be devised to safeguard against animal's aversion to light. Appropriate recommendations are made below.
- 9.5 No live badgers were recorded during the survey. It is considered unlikely that badgers will pass through the site, due to the lack of connectivity to suitable habitat in the wider landscape. Appropriate precautionary measures must be taken during construction to ensure other mammals species, such as Hedgehog, are protected during construction works.
- 9.6 No nesting or breeding activity by birds was noted during the survey. However, the scrub and buildings present on site are considered suitable habitat for birds to nest. All nesting birds, their chicks, eggs and nests whilst in use are protected under the Wildlife and Countryside Act 1981 (as amended). Recommendations for best practices regarding nesting birds are made below.
- 9.7 Non-native invasive species cotoneaster is listed on Schedule 9 of the UK Wildlife & Countryside Act as an invasive species, which makes it illegal to distribute or allow the spread of cotoneaster into the wild. The plant must be removed from the site, recommendations are made below.
- 9.8 Cwm Taf Fawr is located approximately 107m away from the site. It is a major river tributary of the Afon Taf, and includes relatively undisturbed woodlands, and limestone gorge woodland with a rich ground flora. The development will not directly impact this site, however, indirect impacts such as pollution may occur if works are not undertaken in a sensitive manner. Recommendations are made below.

10 Recommendations

- 10.1 No further survey effort is required at the site at this time. Any vegetation to be cut down must be removed outside of the bird nesting season, which runs between March and August, inclusive. A demolition timetable of the buildings is recommended avoiding the winter period as this will minimise the risk of disturbing or harming bats which may be using the cavity walls for hibernation. Consequently, it is likely that the buildings will be removed during the active nesting season for birds. As a result, a nesting bird check must be carried out by a suitably qualified ecologist prior to the demolition of the buildings. The check must be carried out within 24 hours prior to the demolition occurring. If nesting birds are noted, all works must stop and the disturbance buffer and mitigation measures will be determined with regard to the bird species found, by a suitably qualified and experienced ecologist. In the event of a Schedule 1 bird (named on Schedule 1 of the Wildlife and Countryside Act 1981 [as amended]) then appropriate survey will be recommended and an appropriate licence sought.
- 10.2 A careful process must be followed when grassland at the site is removed to ensure no harm to reptiles in the unlikely event they are using the site. Reasonable Avoidance Measures are provided below in Table 3.

Table 3: Guidance for removal of grassland vegetation

Operation	RAMs
Removal of grassland	Toolbox talk before work commences from suitably qualified experienced ecologist explaining what to look for and how to approach the works
	Grassland clearance/disturbance works to be undertaken during the active season for reptiles between April to early October, to avoid hibernating reptiles
	Requires careful checks from suitably qualified ecologist for the presence of reptiles prior to clearance/disturbance
	Initially only hand tools (brushcutter/trimmer) to be used until there is good visibility to ground level in dense vegetation
	Any arisings to be gathered into a suitable container as the work progresses and removed at the end of each day. Arisings must not be left in situ where they could provide shelter and result in harm to reptiles when removed later
	The grassland areas must remain short throughout the works to ensure it remains unsuitable for reptiles

- 10.3 A Construction Environmental Management Plan (CEMP) will likely be required to outline procedures to minimise risk of pollution and degradation of nearby protected sites.
- 10.4 Cotoneaster must be removed to ensure the plant is eradicated and does not disperse more widely. Advice for preventing the spread of cotoneaster includes treating the exposed stumps with appropriate herbicide, and taking of the cut material (including all berries) to a disposal centre that deals with non-native invasive species.
- 10.5 To protect any mammals, such as hedgehog that may pass through the site, any trenches dug forming part of the groundworks must be covered overnight, or left with a 45° sloping side to prevent any animal from becoming trapped. Similarly, any unconnected pipes must be capped overnight to prevent any animal from becoming stuck.
- 10.6 It is important that any on-site lighting scheme does not deter bats from roosting, dispersing across the site and using the surrounding habitat for foraging purposes. It is therefore recommended that any artificial lighting is avoided where possible, unless considered critical for maintaining health and safety standards. If it is considered necessary, then it is recommended that any security lighting is kept to a minimum with luminaires motion-triggered and on a short timer of 15-20 seconds. The Institution of Lighting Professionals and Bat Conservation Trust have published 'Bats and Artificial Lighting in the UK: Guidance Note 08/23' (Anon, 2023). This document presents many options for bat sensitive lighting and may be used to inform lighting considerations. Lighting must not be directed at natural features such as the woodland to the south, and lighting must not be directed at any mitigation features. Dark corridors across the site must be maintained, providing access to the nearby woodland. It is also desirable that internal lighting is sunk into ceilings, rather than pendant lights, as this appears to reduce external lighting impacts if curtains or blinds are not used.
- 10.7 Development of an area gives the opportunity to carry out enhancements to benefit wildlife, especially during the landscaping process. The elements for enhancement are limited by the small scale of the site. Enhancement features include:
- One woodcrete bird box, with a small 32mm diameter hole (WoodStone Seville 32mm Oval Hole Nest or similar);
 - One open fronted woodcrete bird box (Vivara Pro Barcelona WoodStone Open Nest Box or similar);

- Four swift bricks incorporated into the exterior of the buildings; and
 - Four bee bricks on the southern elevations of the new buildings, placed at least 1 meter from the ground.
- 10.8 Suitable locations for nest boxes must be identified within the re-development, which avoid predatory cats and full sunlight. Bird boxes can be attached to the new buildings or poles. Boxes must be situated approximately 3m from the ground and angled to face horizontally or angled slightly downwards to ensure rainwater does not accumulate in the boxes. Boxes must be positioned between a northern and eastern axis, avoiding strong sunlight and prevailing wind/rain. Boxes must not be positioned too close together. Swift bricks must be positioned at least 5 meters above ground, and out of constant sunlight. These should not be places near windows.
- 10.9 Proposals must also include the planting of a new hedgerow along the site boundaries. Species used must be native, with a mix of at least five different species. Native tree planting is also proposed for the site. Table 3 below includes a list of suitable native tree and hedgerow species, which can be planted as part of the landscaping proposals. It is essential that such plants are sourced locally in order to reduce likelihood of importing diseases .

Table 4: Recommended Native Tree and Shrub Species

Common Name	Scientific Name
Aspen	<i>Populus tremula</i>
Beech	<i>Fagus sylvatica</i>
Bird cherry	<i>Prunus padus</i>
Blackthorn	<i>Prunus spinosa</i>
Common barberry	<i>Berberis vulgaris</i>
Crab apple	<i>Malus sylvestris</i>
Dogwood	<i>Cornus sanguinea</i>
Eared willow	<i>Salix aurita</i>
Elder	<i>Sambucus nigra</i>
Field maple	<i>Acer campestre</i>
Goat willow	<i>Salix caprea</i>
Grey willow	<i>Salix cinerea</i>
Guelder rose	<i>Viburnum opulus</i>
Common hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Holly	<i>Ilex aquifolium</i>
Pedunculate oak	<i>Quercus robur</i>
Purging buckthorn	<i>Rhamnus cathartica</i>
Rowan	<i>Sorbus aucuparia</i>
Sessile oak	<i>Quercus petraea</i>
Silver birch	<i>Betula pendula</i>
Spindle	<i>Euonymus europaeus</i>
Wild cherry	<i>Prunus avium</i>
Wild privet	<i>Ligustrum vulgare</i>
Yew	<i>Taxus baccata</i>

- 10.10 Most developments include areas of grassland. Wildflower areas must be created at the site, for which Emorsgate EM2 Standard General Purpose is proposed. In areas that will be subject to regular mowing the following seed mixes (or equivalent) must be used:
- <https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitatmixtures/flowering-lawn-mixture/>
 - <https://www.johnchamberswildflowers.co.uk/wildflower-seeds-mixes/100-wildflower-mixes/heritage-flowering-lawn-100-wildflower-seed-mix>
 - <https://wildflowerlawnsandmeadows.com/product/wild-flower-lawn-seedmix/>
- 10.11 A green roof is proposed as part of the redevelopment of the site, which will enhance the existing ecological value of the site by providing food sources and habitat for invertebrates, which in turn will benefit other wildlife including bats and birds. The green roof must comprise native species including common bird's-foot trefoil (*Lotus corniculatus*), thyme (*Thymus polytrichus*), wild marjoram (*Origanum vulgare*), selfheal (*Prunella vulgaris*), cowslip (*Primula veris*), and wild strawberry (*Fragia vesca*). The inclusion of sedum must comprise no more than 30% of the species composition of the green roof, with the remainder made up of wildflowers, as sedum-based systems are considered to be less diverse.
- 10.12 There may be opportunities to create areas of additional habitat within the green roof design for invertebrates, by providing some areas of spoil materials, and bare ground at the edges or amongst wildlife/sedum areas. These sparsely vegetated areas of crushed stone, brick, rocks or gravel will

warm up quickly and provide ideal conditions for basking invertebrates. Any spoil materials that are used on the roof must be appropriately screened and load implications considered. Unscreened materials can lead to problems with unwanted species (Gedge *et al.* 2019). A shallow trough of water is also proposed to be incorporated into the green roof design.

- 10.13 It is important to implement good horticultural practice in any landscaping scheme, including the use of peat-free composts, mulches and soil conditioners. The use of pesticides (i.e. herbicides, insecticides, fungicides and slug pellets etc) must be discouraged to prevent cumulative fatal effects to animals via the food chain, particularly invertebrates, birds and/or mammals. Any pesticides used must be non-residual.
- 10.14 Bat mitigation must also be incorporated into proposals for the site, details of which are in previous reports for the site by Just Mammals date 2021 and 2022.
- 10.15 Any fencing must have gaps beneath it to ensure wildlife can continue to move across the site.

11 Bibliography

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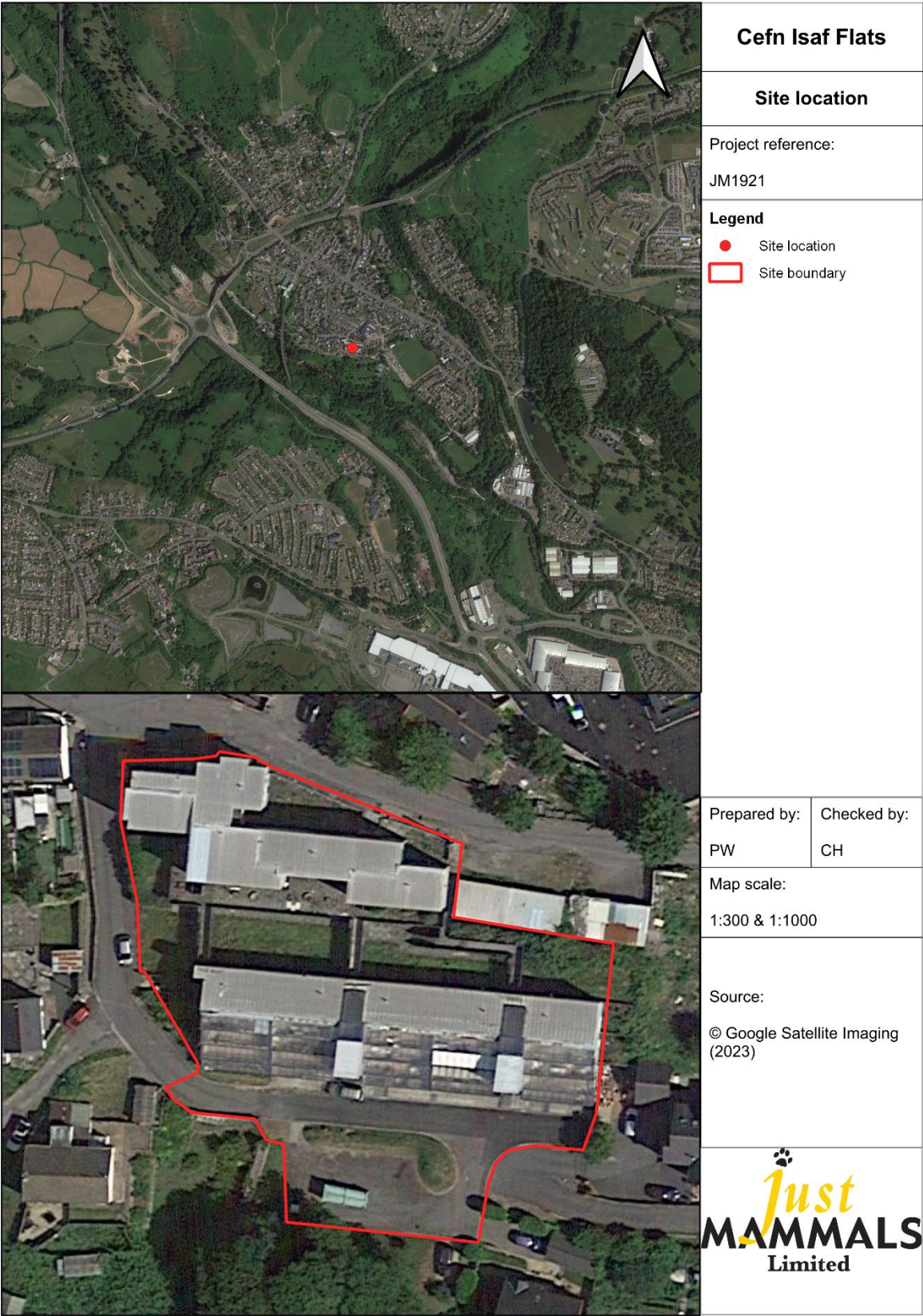
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Appendix I: Site Location Plan

Figure 1: Site location plan



Appendix II: Site Photographs

Plate 1: Central section between flats, looking west



Plate 2: North-east boundary of site



Plate 3: Paved area at the centre of the site, looking west



Plate 4: Northern site boundary, looking west



Plate 5: North-west corner of site



Plate 6: Western side of site, looking north-east



Plate 7: south-western end of site, looking west



Plate 8: southern end of site, looking east



Plate 8: Southern carpark area, looking south



Plate 9: At southern end of site, looking north-east



Plate 10: At southern end of site looking north-east



Plate 11: cleared area at eastern end of site



Plate 12: Looking east towards eastern site boundary



Appendix III: Phase 1 Vegetation Map

Figure 2: Phase 1 habitat survey map



Appendix IV: List of Recorded Species

Table 5: List of Recorded Species

Plant Species		JNCC Broad Habitat Types			
Common Name	Scientific Name	A2.1	J5	J3.6	B2.2
Bindweed, Hedge	<i>Calystegia sepium</i>	x			
Bramble	<i>Rubus fruticosus</i>	x			
Buddleia	<i>Buddleja davidii</i>	x			
Buttercup, creeping	<i>Ranunculus repens</i>				
Cats-ear, common	<i>Hypochaeris radicata</i>				x
Cinquefoil, Creeping	<i>Potentilla reptans</i>				x
Cleavers	<i>Galium aparine</i>	x	x		
Clover, Red	<i>Trifolium pratense</i>				x
Cocksfoot	<i>Dactylis glomerata</i>				x
Cotoneaster, A	<i>Cotoneaster sp.</i>	x			
Cress, A	<i>Cardamine sp.</i>				
Daisy	<i>Bellis perennis</i>		x		
Daisy, oxeye	<i>Leucanthemum vulgare</i>				x
Dandelion	<i>Taraxacum officinale</i>				
Dogwood	<i>Cornus sanguinea</i>	x			
Elder	<i>Sambucus nigra</i>	x			
Fireweed	<i>Chamaenerion angustifolium</i>	x			
Geranium, A	<i>Geranium sp.</i>		x		
Groundsel	<i>Senecio vulgaris</i>		x		
Hawthorn	<i>Crataegus monogyna</i>	x			
Hazel	<i>Corylus avellana</i>	x			
Herb Robert	<i>Geranium robertianum</i>				
Ivy	<i>Hedera helix</i>	x			
Lady's mantle, Garden	<i>Alchemilla mollis</i>				
Meadow grass, Annual	<i>Poa annua</i>		x		
Mouse ear, Common	<i>Cerastium fontanum</i>		x		
Nettle	<i>Urtica dioica</i>	x			
Oat grass, False	<i>Arrhenatherum elatius</i>				
Plantain, Greater	<i>Plantago major</i>		x		
Plantain, Ribwort	<i>Plantago lanceolata</i>				
Ragwort	<i>Jacobaea vulgaris</i>	x			
Rose, Dog	<i>Rosa canina</i>	x			
Rye grass, Perennial	<i>Lolium perenne</i>				x
Selfheal	<i>Prunella vulgaris</i>				x
Snowberry	<i>Symphoricarpos albus</i>	x			
Speedwell, Germander	<i>Veronica chamaedrys</i>				
Spurge, Petty	<i>Euphorbia peplus</i>		x		
Sycamore	<i>Acer pseudoplatanus</i>	x			
Vetchling, Meadow	<i>Lathyrus pratensis</i>				x
Willow, A	<i>Salix sp.</i>	x			
Wood Avens	<i>Geum urbanum</i>				
Yorkshire fog	<i>Holcus lanatus</i>				x

Appendix V: Relevant Legislation

Wild birds

All wild birds, their eggs and nests are protected by The Wildlife and Countryside Act 1981 (as amended). It is an offence, with certain exceptions, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- sell wild birds or put them on display for sale;
- use traps or similar items to kill, injure or take wild birds; and
- intentionally, or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Penalties that can be imposed for criminal offences in respect of a single bird, nest or egg contrary to the Wildlife and Countryside Act 1981 (as amended) is an unlimited fine, up to six months imprisonment or both. In exceptional cases NRW and Natural England issues licences for specific purposes, so that legitimate work may be undertaken without breaking the law.

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