

Project Dublin Mountain Visitor Centre
Project No 23.144

Register of Ecological Clerk of Works Inspections

Date:	Location:	Issues Noted:
30/09/2025	Entire Site	Precommencement survey
08/01/2026	Masseys Woods	Trail 4 precommencement inspection
30/01/2026	Masseys Woods	Ongoing works inspection

Additional Mitigation Measures Required

Refer to memo

No additional measures needed, potential squirrel drey and potential bat roosts noted. Memo to be updated to include these.

No additional measures needed, no update needed

Memo

To	:	South Dublin County Council
C.C.	:	██████████
From	:	██████████
Date	:	6th February 2026
ROD Project Ref	:	23.144
Project	:	Dublin Mountains Visitor Centre
Subject	:	Pre-construction Ecological Survey Findings

Introduction

Roughan & O'Donovan was commissioned by South Dublin County Council to undertake a number of ecological surveys in advance of the construction of the Dublin Mountains Visitor Centre, which has been split into several projects for administrative purposes. Pre-construction surveys will be undertaken for each contract. The following ecological surveys were undertaken:

- Potential bat roost features (PRF's)
- Badger
- Red Squirrel
- Pine Marten
- Nesting Birds
- Invasive and Alien Plant Species
- Otter
- Bryophytes and Tufa Springs

This memo presents the results of the ecological surveys undertaken to date and presents the actions required in advance of the localised vegetation clearance to facilitate the construction and upgrading of trails. The pre-construction ecological surveys were undertaken by ecologists from ROD on the 30th of September and the 1st of October 2025, and adhered to best practice guidance (TII, 2009 and Collins (ed.), 2023). The surveys were undertaken in Massy's Wood and on Montpellier Hill.

Limitations

The surveys were undertaken on the 30th of September and the 1st of October 2025. October is considered to be a suboptimal time for surveying for Red Squirrel, with November to April being the optimal timing¹. Many of the trees in the survey area had not lost their leaves yet. This made it difficult for surveyors to identify potential bat roost features and squirrel dreys. The vast majority of tree on Montpellier Hill are conifers which do not obscure bat roost features or dreys any less in the wintertime. The trails will be micro-sited to avoid trees, especially large trees, thereby avoiding dreys. Supervision of vegetation clearance by an ecologist will further mitigate the risk.

¹ TII (2008) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. Transport Infrastructure Ireland.

Dense vegetation made some areas inaccessible. Supervision of vegetation clearance by an ecologist will be undertaken in these areas.

2025 Survey Results

The following section presents the results of the surveys undertaken in September and October 2025.

- **Otter**

The Glendoo Brook and its tributary, and a 150m buffer, were surveyed for Otter. No signs of Otter were found during the pre-construction 2025 surveys.

- **Bats**

On Montpellier Hill, four trees were identified as having bat roost potential, including a mature Sycamore just off of the existing trail leading from the main car park. In Massey's Wood, a number of trees were found to have bat roost potential throughout the woodland, most of which are in close proximity to the proposed trails. A list of trees with potential bat roost features are presented in Appendix A. The locations of the trees with bat roost potential are displayed in Appendix B. Any trees with bat roost potential identified during the pre-construction surveys have been added to this list. As these trees were recorded during the winter months, the surveyor was not able to identify the species of the tree in some instances. This does not affect the status of the potential roost features of the tree.

- **Badger**

In accordance with best practice, the location of badger setts has been redacted from the publicly available copy of this memo. An unredacted version has been provided to South Dublin County Council with this information.

- **Red Squirrel**

In the south of Massey's Wood, a drey was identified on a tree located on the other side of the river from the path. Observations of Red Squirrel in Massey's Wood were frequent during the 2025 surveys. The locations of the squirrel drey is displayed in Appendix D.

- **Pine Marten**

No breeding or resting places of Pine Marten were recorded during the survey.

- **Nesting Birds**

No signs of nesting birds recorded during the survey.

- **Invasive and Alien Plant Species**

The following invasive species were recorded during pre-construction surveys:

- Butterfly Bush (*Buddleja davidii*)
- Cherry Laurel (*Prunus laurocerasus*)
- Himalayan Honeysuckle (*Leycesteria formosa*)
- Japanese knotweed (*Reynoutria japonica*)
- Rhododendron (*Rhododendron ponticum*)
- Snowberry (*Symphoricarpos albus*)

In the Hellfire Club, only two invasive species were identified – Butterfly Bush and Himalayan Honeysuckle. Butterfly Bush is present in a small stand off the path leading from the existing car park, and in a small stand on Montpellier Hill. Himalayan Honeysuckle is present on Montpellier Hill in numerous single stands.

Other than Butterfly Bush, all of the invasive species listed above were recorded in Massey's Wood. Cherry Laurel was abundant in Massey's Wood. It is particularly dense at the entrance of Massey's Wood, west of the bend in the Killakee Road (R115), and along the Glendoo Brook. Snowberry is also present in significant amounts extending from the entrance along the path running southeast, and east of the entrance bordering some residential grounds. A small area of Japanese knotweed is present in the northeastern section of Massey's Wood. An area of Rhododendron is present to the west of the walled garden. Himalayan Honeysuckle is present in small stands throughout the woodland. Given the density of Cherry Laurel in Massey's Wood, there may be other areas of invasive species which were not accessible / visible to surveyors during the pre-construction survey, and as such, are not reported here.

A map of invasive alien plant species in the study area is provided in Appendix E.

- **Rare Bryophytes**

The locations of the rare bryophytes identified on the 14th of June 2023 by Denyer Ecology and were located again in November 2024. These bryophytes are pictured in Plate 1. A population of *Orthotrichum stramineum* was recorded on two Sycamore trees in Massey's Wood at approximately 53.250709, -6.3193347. This is approximately 30m from the nearest proposed trail. This species is tolerant of high light conditions.

A population of *Plagiothecium laetum* was recorded on decaying tree stumps in the conifer plantation at approximately 53.251786, -6.3217651. This is approximately 72m west of the Killakee Road. This species requires shade.

The locations of the rare bryophytes are presented in Appendix F.



Plate 1 *Orthotrichum stramineum* (left), *Plagiothecium laetum* (right).

- **Tufa Springs**

Tufa springs were found at five locations in Massey's Wood during 2019 surveys. Three tufa springs are located within proximity of one another north of the walled garden. These tufa springs are numbered 1-3. Two of the springs are upstream of the trail and will not be directly impacted. One spring is downstream close to the Glendoo Brook, and is outside the works area. A tufa spring (identified as tufa spring number 4) is located on the east riverbank within 10m west of the walled garden. This is outside the trail works area. The southernmost tufa spring (number 5) is in the south of Massey's wood. The Glendoo Brook lies between this and the proposed trail. Given the location of this two tufa spring in relation to the watercourse, it will not be impacted by any of the proposed works.

The locations of the tufa springs are presented in Appendix G.

- **Amphibians**

Two ponds are present on Montpellier Hill on either side of the path. These provide habitat for Common Frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*). The location of these ponds is provided in Appendix H.

Discussion

The mitigation measures described in the EIAR which are conditions of planning are still valid. As outlined in the EIAR for the proposed development, an ECoW has been appointed by SDCC prior to the commencement of works to supervise and provide recommendations on the execution of any and all works which have the potential to give rise to negative effects on biodiversity and the ecological integrity of the area.

Mapping of all of the rare and protected species and habitats in the study area is provided in Appendix I.

- **Otter**

No signs of Otter were found during the pre-construction surveys and no mitigation specifically for otter is required.

- **Bats**

Trees to be felled will be clearly marked and agreed with SDCC, to prevent the removal of vegetation outside the required area, and the loss of potential bat roosts. In the event that pruning or felling of the trees with PRF-I or PRF-M² features cannot be avoided the following procedure will be followed:

- For trees with PRF-I features, an ECoW will be present. Trees will be inspected at ground level. If bats are found, they will be taken into care and released on site at dusk.
- For trees with PRF-M features, the feature will be inspected at height using a ladder or climber by an ecologist or person with a licence to survey bats. If bats are found, the tree will not be felled until a licence is in place.
- Tree-felling will be conducted from October to January. Should any tree roosts be identified, a derogation licence from the National Parks & Wildlife Service will be required to fell or undertake works in close proximity these trees.

- **Badger**

In order to protect Badger during site clearance, the process outlined below should be followed:

- A buffer of 30m will be implemented around each of the five badger setts, including all of their entrances. Within this buffer, no works shall take place without consultation with the ECoW.
- The trail proposed through Sett 1 will be rerouted away from the sett or removed from the design.
- None of the works should be undertaken within 50m of active setts, nor blasting or pile driving within 150m of active setts, during the breeding season (December to June inclusive).
- Any vegetation clearance in the inaccessible areas of scrub on Montpellier Hill should be monitored by an ECoW.

² PRF-I are features that are suitable for individual or small numbers of bats. PRF-M are suitable for multiple bats/ significant roosts such as maternity roosts.

- **Red Squirrel**

In order to protect Red Squirrel, the process outlined below should be followed:

- Should any additional dreys be found during the works that could be impacted, the works will cease in that area, and the ECoW will seek direction from the NPWS.
- Site clearance is programmed to take place outside the breeding season for Red Squirrel, when pups would be at risk of disturbance from nearby felling operations.

- **Pine Marten**

A pre-construction survey will be undertaken 2-3 weeks prior to construction. The survey will cover the footprint of the proposed development and a 50m buffer. Should any protected species shelters (e.g. dreys.) setts) be found, the ECoW will seek direction from the NPWS.

- **Nesting Birds**

Site clearance including vegetation removal will take place from October to January inclusive. This has taken early nesting birds, such as Common Crossbill, as well as late nesting birds into account and will therefore avoid direct impacts on nesting birds. Nonetheless, a preclearance survey will be carried out for nesting birds prior to the felling of conifers.

- **Invasive Alien Species**

An invasive species management plan has been prepared by Cunnane Stratton Reynolds (CSR).

In the event that the invasive species other than those identified in this memo are found during the works, best practice guidance will be followed, as per the following documents:

- TII (2020a). The Management of Invasive Alien Plant Species on National Roads – Standard. Transport Infrastructure Ireland, Dublin.
- TII (2020b). The Management of Invasive Alien Plant Species on National Roads – Technical Guidance. Transport Infrastructure Ireland, Dublin.

- **Rare Bryophytes**

In order to protect rare bryophytes, the process outlined below should be followed:

- The populations of *Orthotrichum stramineum* will be marked by the ECoW and the populations will be protected from damage during construction.
- The location of *Plagiothecium laetum* will be marked by the ECoW. Vegetation clearance and pruning within 30m of *Plagiothecium laetum* will be avoided unless agreed with the ECoW. This species is sensitive to light and requires shade.
- The Bryophyte populations will be protected during the operational phase by fencing.

- **Tufa Springs**

Any works within 10m of the tufa springs will be reviewed by the ECoW. If there is potential for damage to the tufa springs, mitigation will be put in place to protect the springs, including the supply of ground water.

- **Amphibians**

In order to protect amphibians, a 25m buffer around each of the ponds will be established, within which no vegetation clearance will be undertaken. This will apply not apply to trimming back vegetation growing onto the existing forest roads or trails.

APPENDIX A

A LIST OF TREES WITH BAT ROOST POTENTIAL IN THE STUDY AREA

Tree ID3	Roosting Potential	Tree Species ⁴	Location	Notes
1	PRFM	Elm	Massey's Wood	Tear out / deep fissure on north face of main trunk
2	PRF I	Elm	Massey's Wood	Ivy covered elm
3	PRFM	Beech	Massey's Wood	Northeast facing fissures on main trunk
4	PRFM	Beech	Massey's Wood	Crevice where two main trunks join on northwest face of main trunk
5	PRFM	Beech	Massey's Wood	Tearaway and cavity
8	PRFM	Beech	Massey's Wood	Very large southeast and southwest facing fissures on main trunk
10	PRFI	Beech	Massey's Wood	South facing fissure and southeast facing knothole on main trunk
11	PRFI	Beech	Massey's Wood	Fissure and knothole facing north. Tree situated in tree line (second tree from north)
12	PRFM	Yew	Massey's Wood	Very mature. Large northeast facing fissure on main trunk
13	PRFI	Beech	Massey's Wood	Holes / fissures on the east face of the trunk
14	PRFI	Beech	Massey's Wood	Multiple small fissures on main trunk, particularly on southeast side
15	PRFM	Beech	Massey's Wood	Fissure on main trunk facing southwest
15	PRFM	Beech	Massey's Wood	Large fissure facing southwest on trunk
16	PRFM	Sycamore	Massey's Wood	Holes 4-5m from ground facing south, lots of ivy cover
17	PRFM	Beech	Massey's Wood	Multiple fissures on trunk, large hole facing path. Very mature
18	PRFI	Beech	Massey's Wood	Hole facing north on east most trunk
19	PRFI	Beech	Massey's Wood	Hole facing north
20	PRFM	Oak	Massey's Wood	Fissure / hole in tree passing path
21	PRFI	Beech	Massey's Wood	North facing fissure on main trunk
22	PRFM	Beech	Massey's Wood	Multiple fissures facing watercourse. Very mature
23	PRFI	Beech	Massey's Wood	Hole on west leading branch, facing south. Hole facing west on west leading branch
24	PRFM	Beech	Massey's Wood	West and south facing fissures on main trunk
25	PRFM	Beech	Massey's Wood	Large fissures on main trunk facing northeast
26	PRFI	Beech	Massey's Wood	Multiple holes facing south and west
27	PRFI	Beech	Massey's Wood	Holes facing south
28	PRFM	Oak	Massey's Wood	Crack 4m from ground
29	PRFM	Sycamore	Massey's Wood	Multiple broken and split branches
30	PRFM	Spruce	Hellfire Club	Monolith. Woodpecker hole southwest side 5.5m up
31	PRFM	Beech	Hellfire Club	Split of basal stem on west side 1m up
33	PRFM	Spruce	Hellfire Club	Monolith. Woodpecker hole 8m up facing s
95	PRFM	Beech	Massey's Wood	Split trunk, southwest facing
96	PRFI	Oak	Massey's Wood	Covered in ivy, also broken branches as possible PRFs
97	PRFM	Beech	Massey's Wood	Multiple fissures
99	PRFM	Beech	Massey's Wood	Beech with southwest facing fissure on main trunk
99	PRFM	Beech	Massey's Wood	East facing fissure on main trunk
100	PRFM	Beech	Massey's Wood	Mature beech with multiple fissures and some knot holes on main trunk, particularly on east face
101	PRFM	Sycamore	Hellfire Club	Potential roost features not visible from ground-level
2000	PRFI		Massey's Wood	North facing canker sore on NW leading branch
2001	PRFI	Beech	Massey's Wood	Canker wound facing south on main branch, tear out wound facing ne on main trunk, east facing fold main trunk
2002	PRFI	Beech	Massey's Wood	Fold fissure / merge on main trunk facing east
2003	PRFI		Massey's Wood	Two trunks, S trunk has north facing fissure
2004	PRFI		Massey's Wood	Multiple small fissures in main trunk, low down ones appear wet but those higher up may be suitable
2005	PRFI		Massey's Wood	N facing fissure on north- most trunk
2006	PRFM		Massey's Wood	Merging of west-most trunks
2007	FAR	Beech	Massey's Wood	Very mature, on riverbank. Multiple features visible on main trunk.
2008	FAR	Fir	Massey's Wood	Ivy covering tree may be obscuring roosts
2009	FAR	Fir	Massey's Wood	Ivy covering tree on riverbank. May be obscuring features

³ This number is an arbitrary number that was used to identify trees during the pre-construction survey. It does not correlate to any previous surveys or reports.

⁴ Species left blank if not determined, due to lack of foliage in winter months.

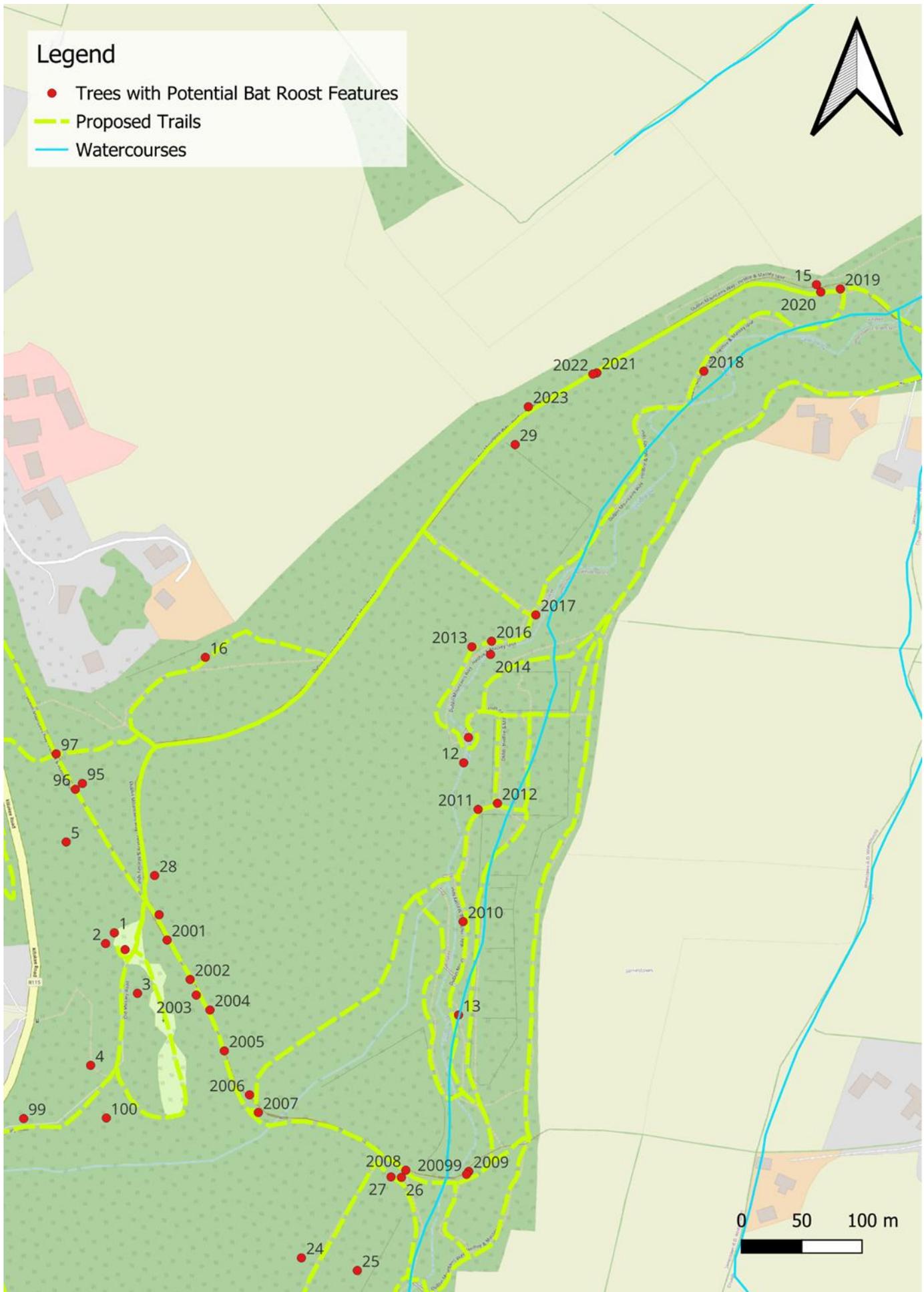
2010	PRFI		Massey's Wood	Very mature tree with bark tear out / wound facing river
2011	FAR	Fir	Massey's Wood	Very mature tree, multiple features on trunk + areas not visible due to size
2012	FAR		Massey's Wood	Ivy covering tree and potentially obscuring features
2013	FAR		Massey's Wood	Mature. Epicormic growth obscuring much of tree.
2014	FAR		Massey's Wood	Mature. Epicormic growth obscuring much of tree.
2016	FAR		Massey's Wood	Mature. Epicormic growth obscuring much of tree.
2017	FAR		Massey's Wood	Mature. Epicormic growth obscuring much of tree.
2018	PRFI	Yew	Massey's Wood	Very mature tree with multiple small holes on main trunk.
2019	PRFI		Massey's Wood	Knothole facing trail (south)
2020	FAR		Massey's Wood	Tree above trail on stone wall bank. Knothole facing trail (S). Ivy covering most of trunk
2021	PRFM	Beech	Massey's Wood	Merging of trunks may create cavity.
2022	FAR		Massey's Wood	Ivy obscuring much of trunk
2023	FAR	Sessile oak	Massey's Wood	Very mature tree. Due to size, many areas not visible.
3000	PRFI		Massey's Wood	Large monolith should be retained, has some features which may provide roosting habitat
20099	FAR	Fir	Massey's Wood	Ivy covering tree on riverbank. May be obscuring features
3001	FAR	Redwood	Massey's Wood	Very mature tree

APPENDIX B

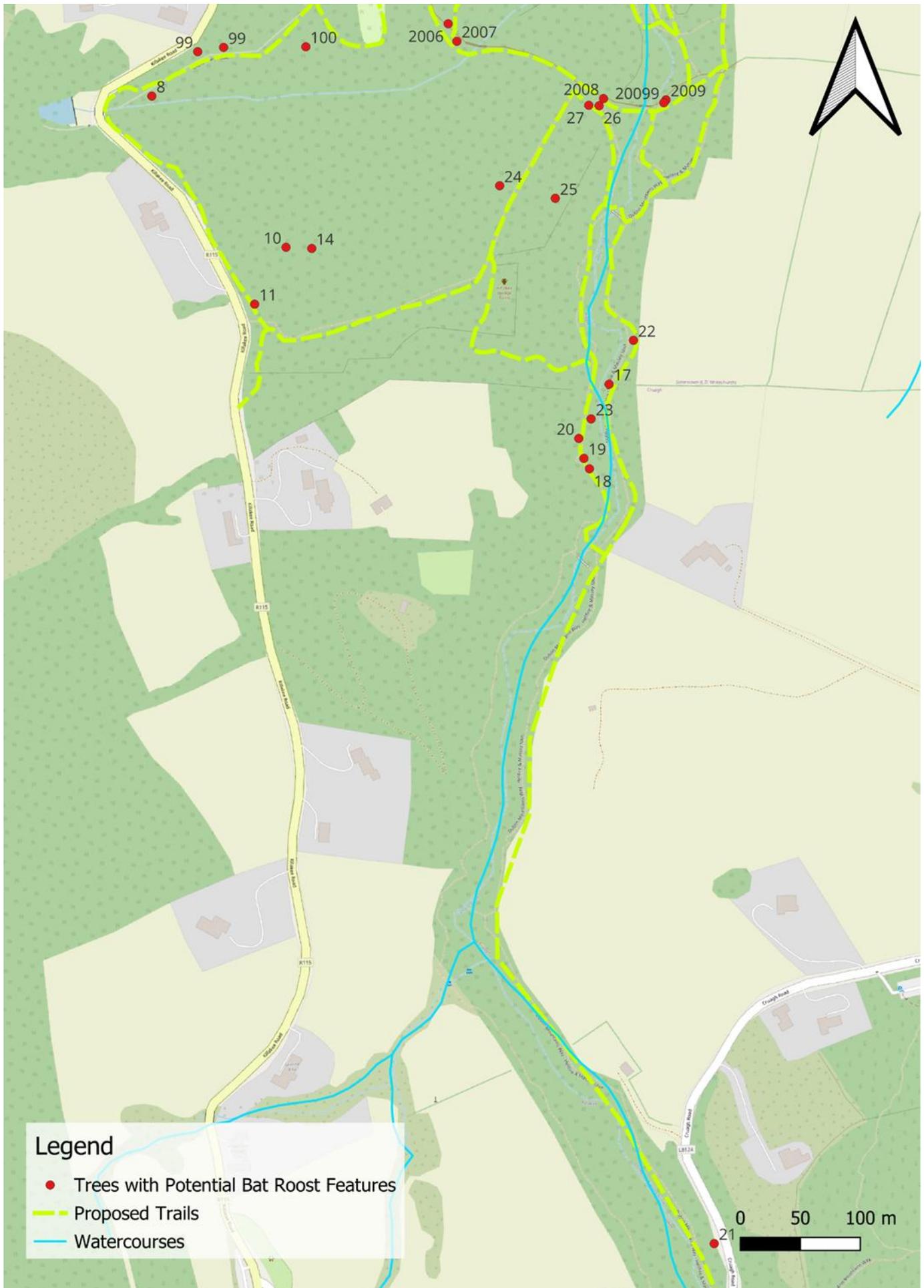
THE LOCATION OF TREES WITH BAT ROOST POTENTIAL IN THE STUDY AREA



Trees with potential bat roost features recorded on Montpellier Hill in 2025.



Trees with potential bat roost features recorded in the northern section of Massey's Wood in 2025.



Trees with potential bat roost features recorded in the southern section of Massey's Wood in 2025.

APPENDIX C

THE LOCATION OF BADGER SETTS IN THE STUDY AREA

In accordance with best practice, the location of badger setts has been redacted from the publicly available copy of this memo. An unredacted version has been provided to South Dublin County Council with this information.

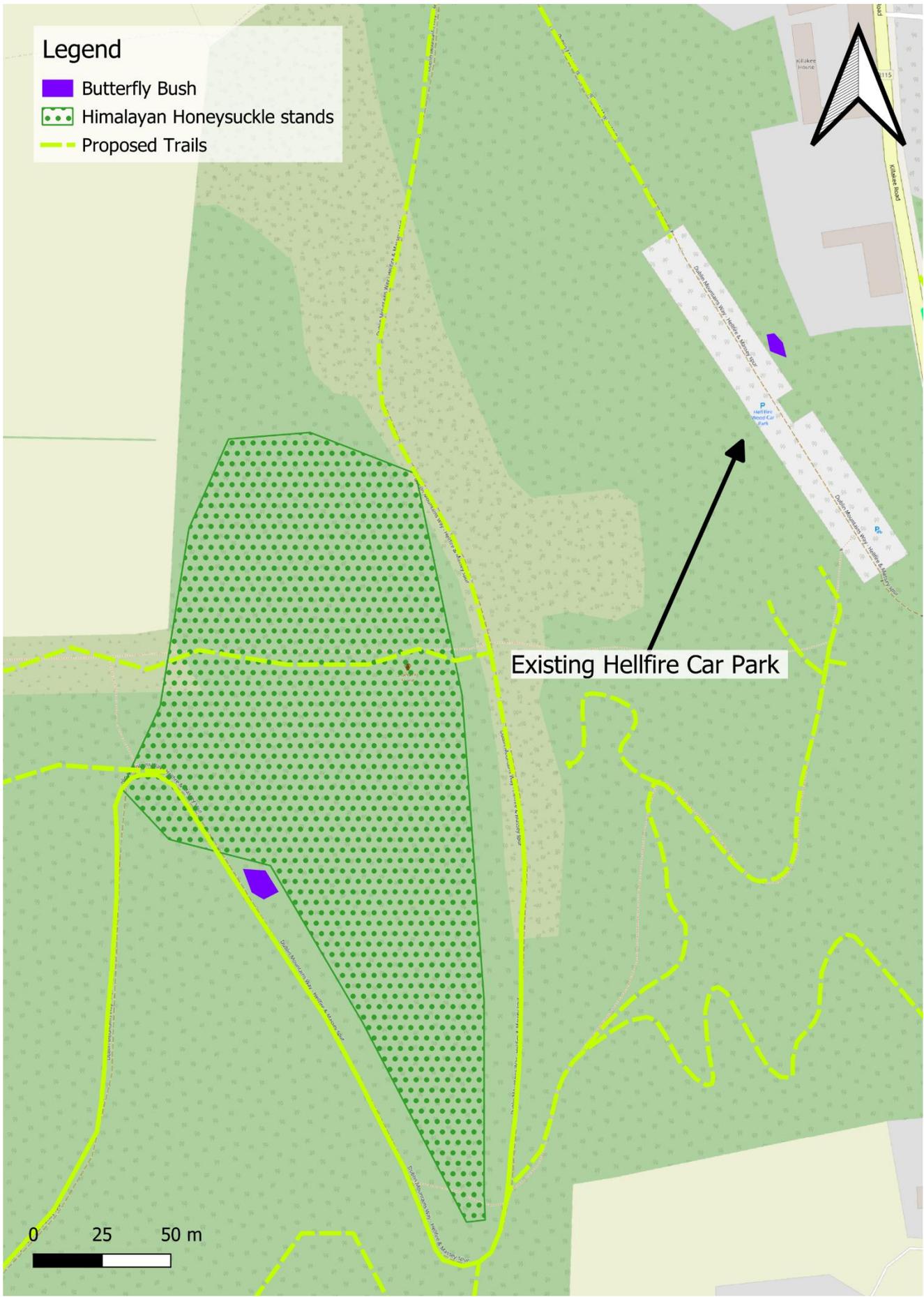
APPENDIX D

THE LOCATION OF RED SQUIRREL DREY IN THE STUDY AREA

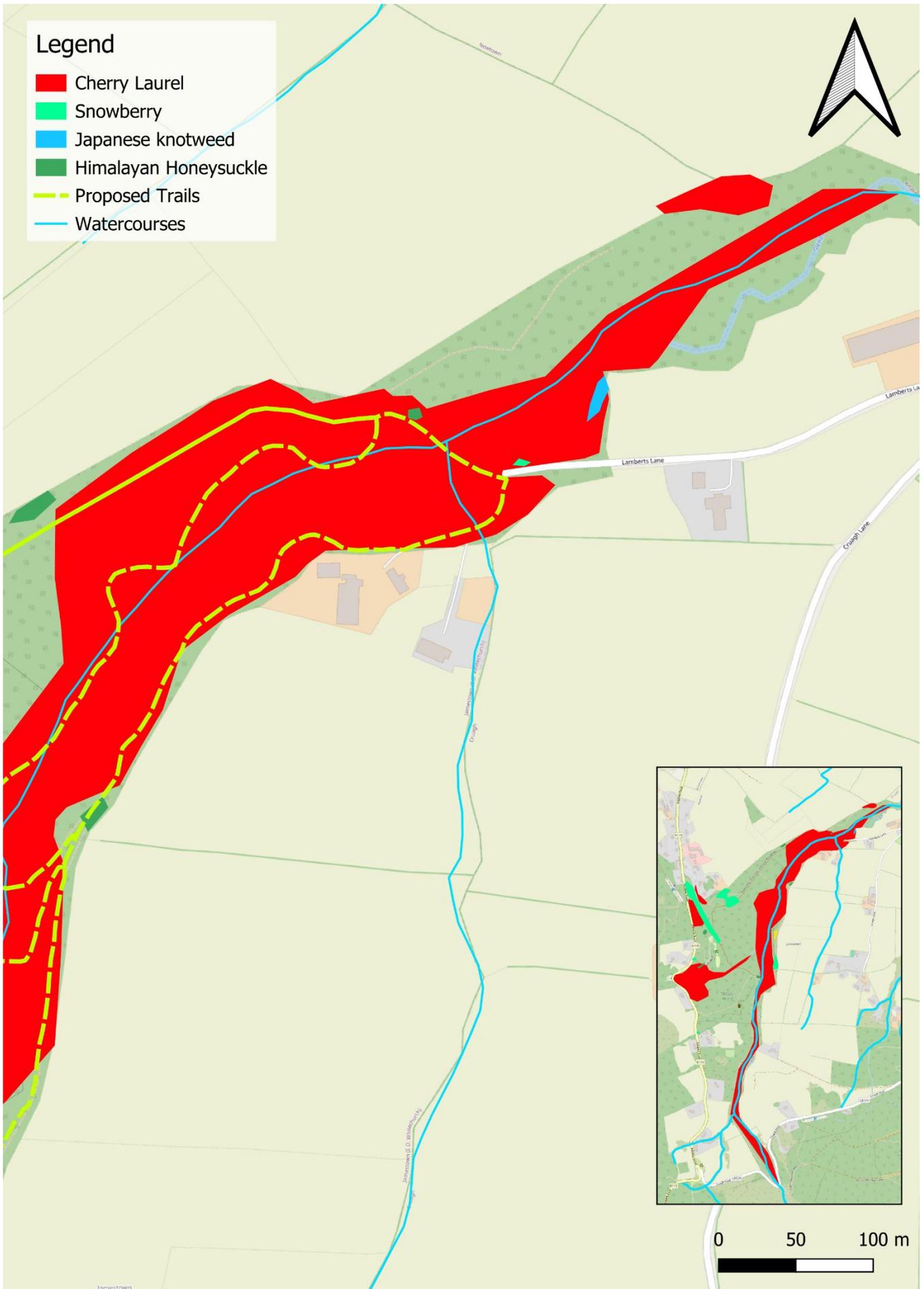


APPENDIX E

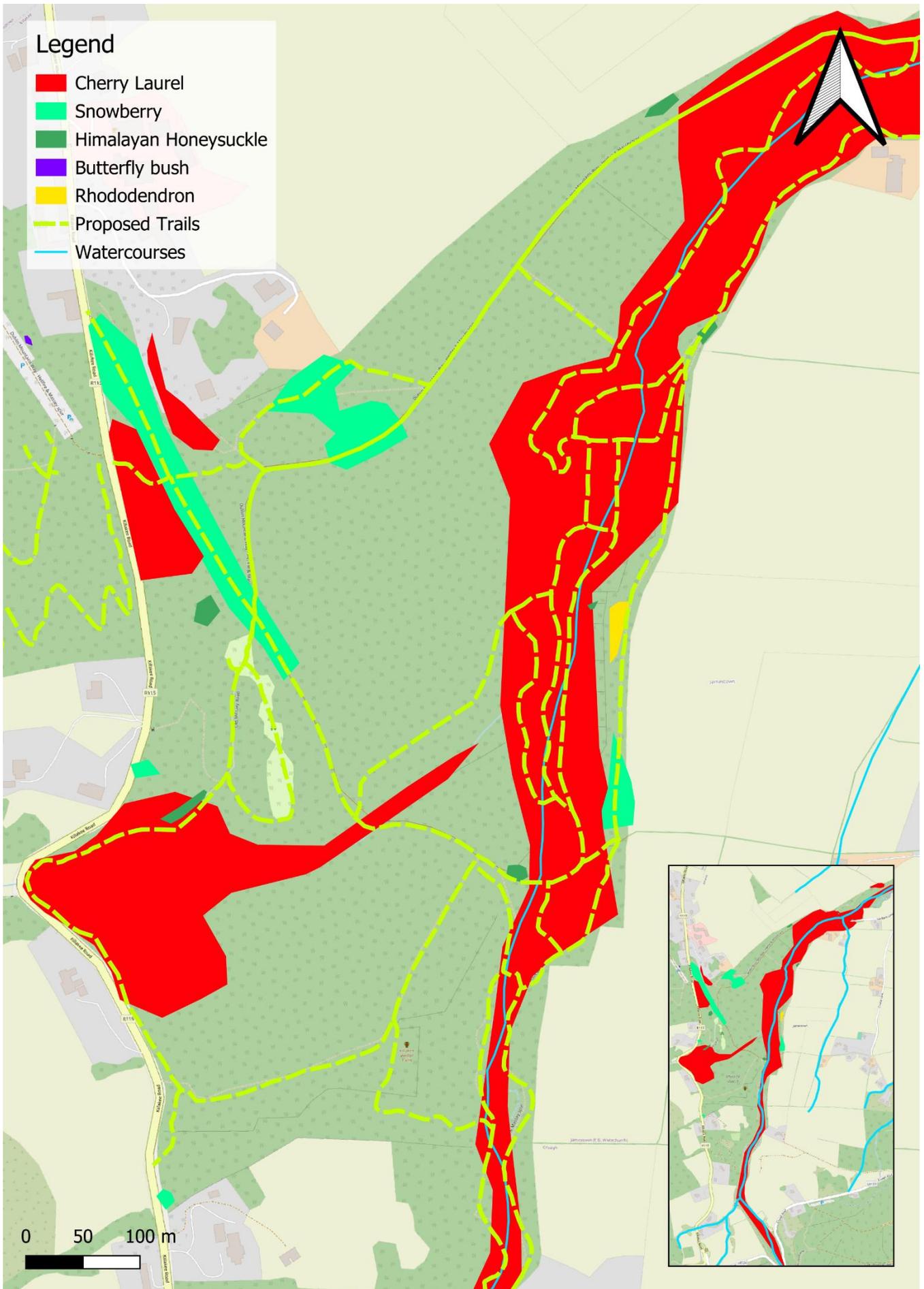
THE LOCATIONS OF INVASIVE SPECIES IN THE STUDY AREA



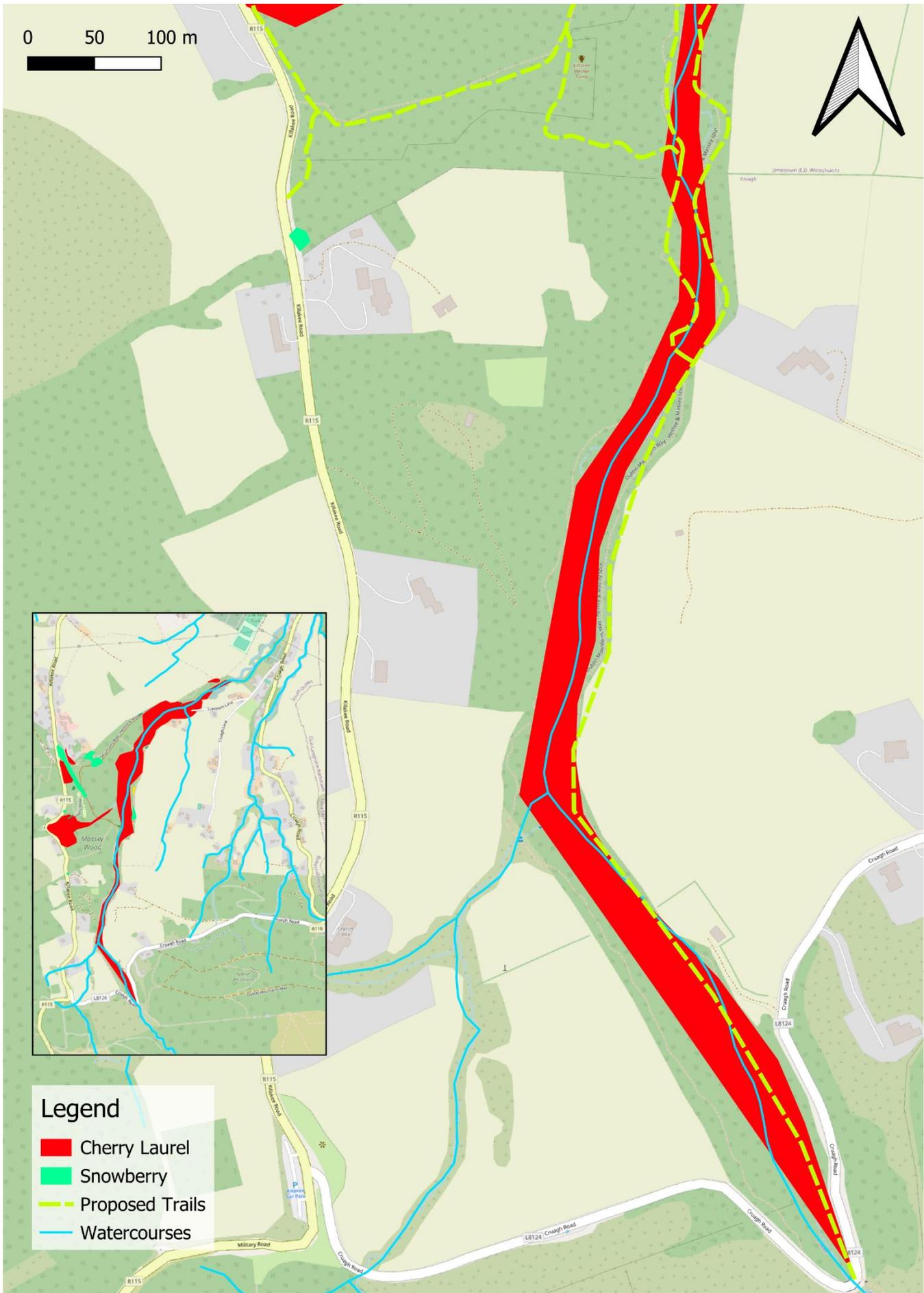
Invasive species recorded on Montpellier Hill in 2025.



Invasive species recorded in the northern section of Massey's Wood in 2025.



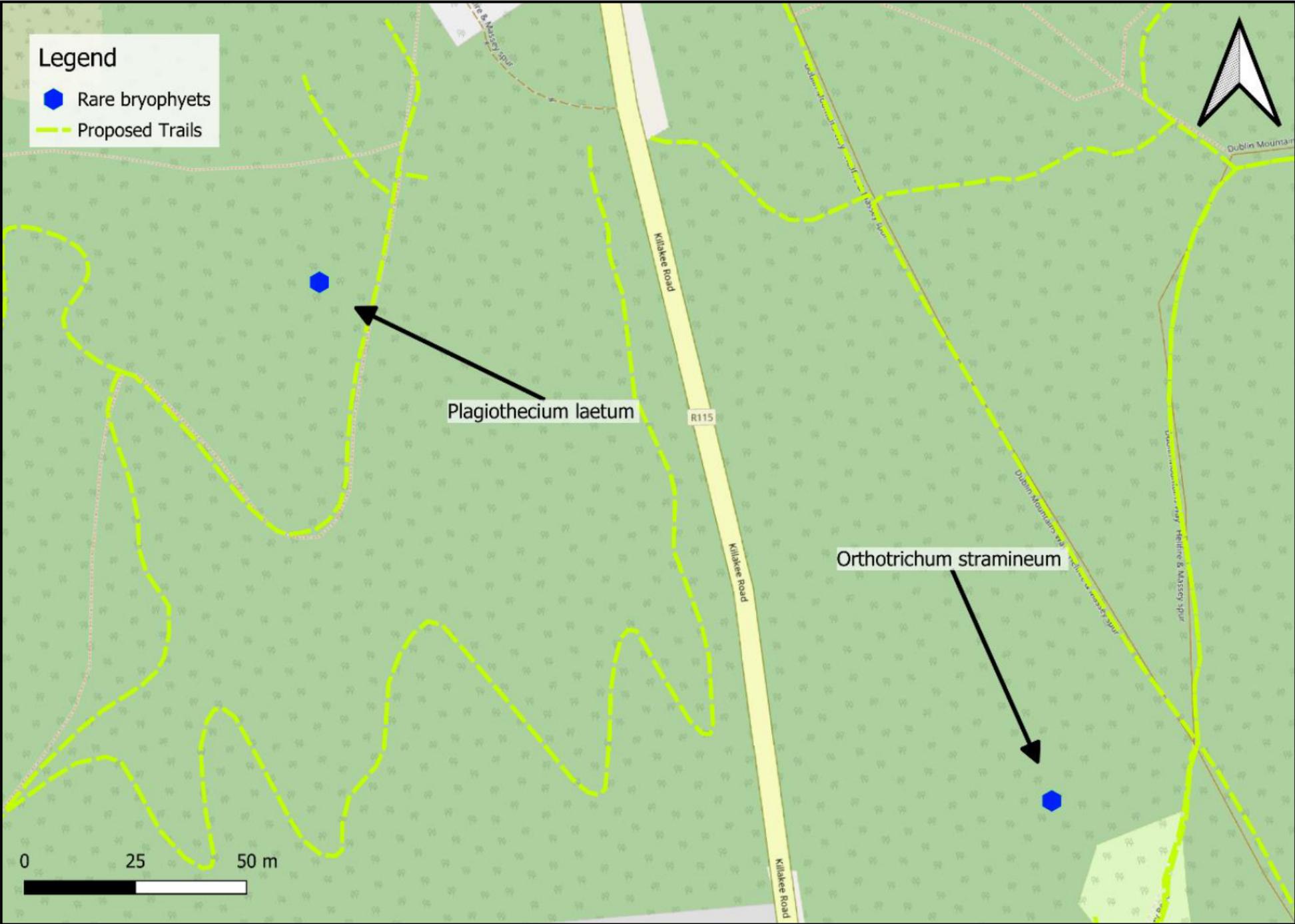
Invasive species recorded in the middle section of Massey's Wood in 2025.



Invasive species recorded in the southern section of Massey's Wood in 2025.

APPENDIX F

THE LOCATIONS OF RARE BRYOPHYTES IN THE STUDY AREA



APPENDIX G

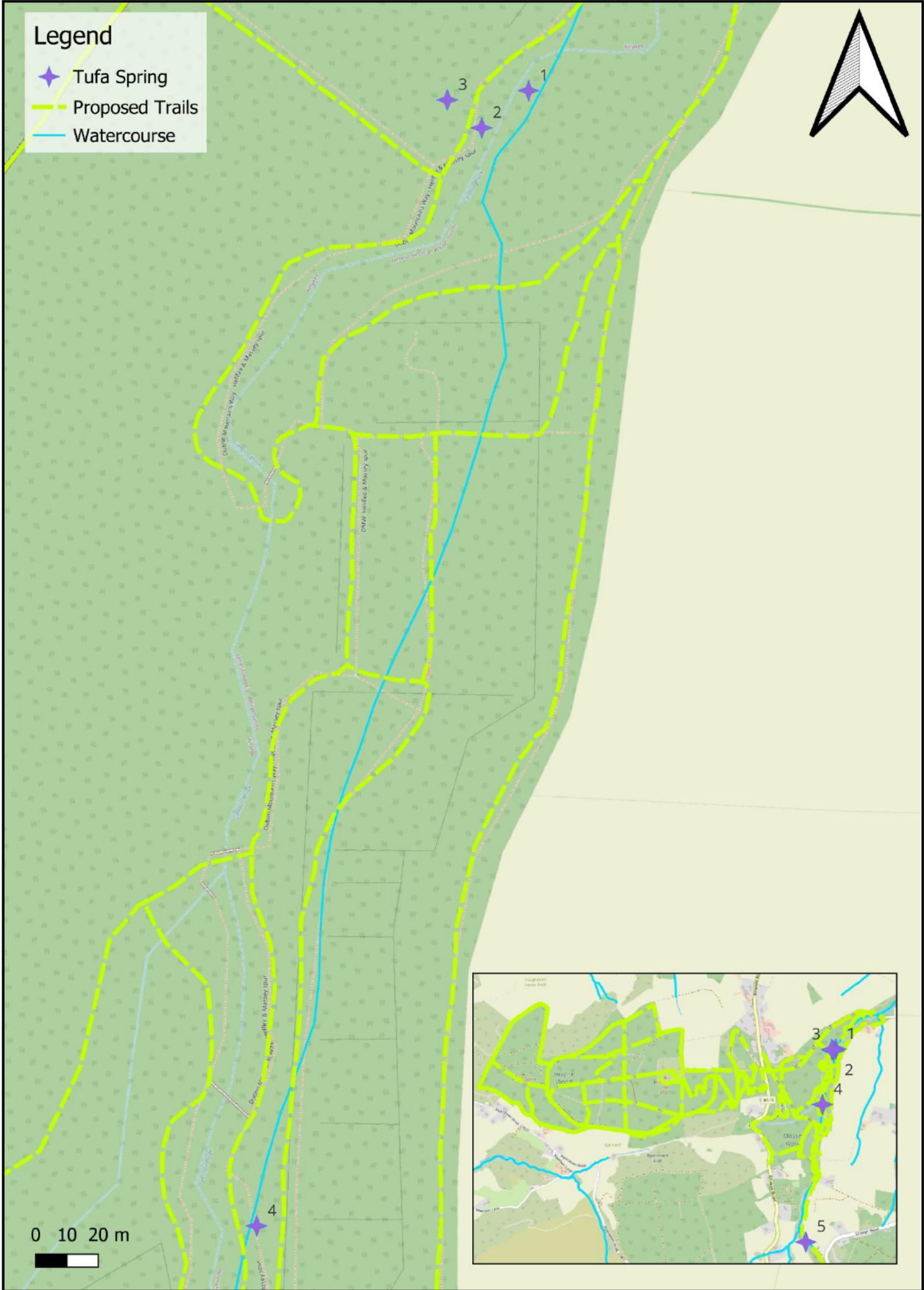
THE LOCATION OF TUFA SPRINGS IN THE STUDY AREA

Legend

- ★ Tufa Spring
- Proposed Trails
- Watercourse

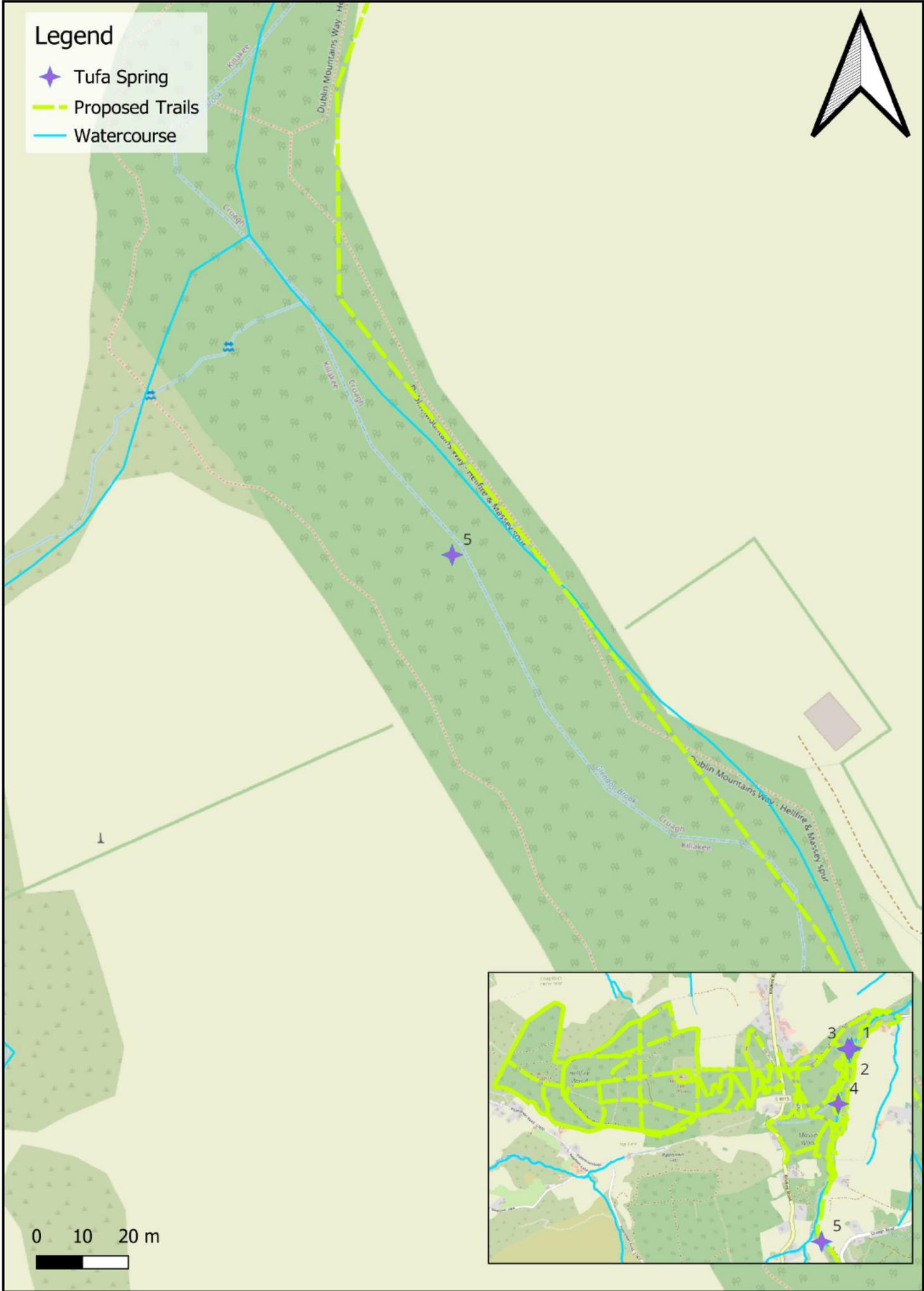


0 10 20 m



Legend

- ◆ Tufa Spring
- Proposed Trails
- Watercourse



0 10 20 m

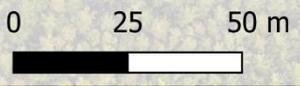
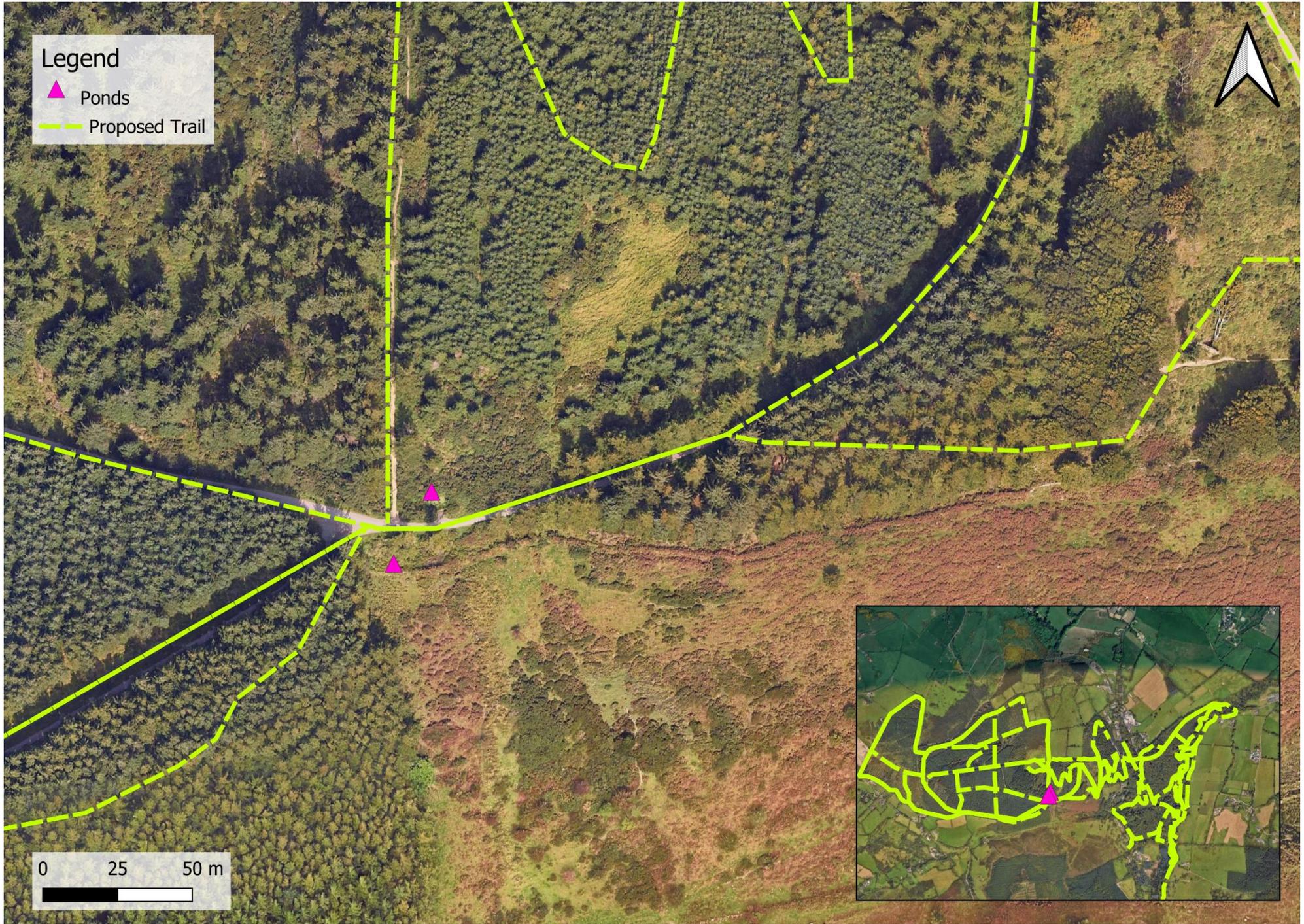


APPENDIX H

THE LOCATION OF PONDS IN THE STUDY AREA

Legend

- ▲ Ponds
- Proposed Trail

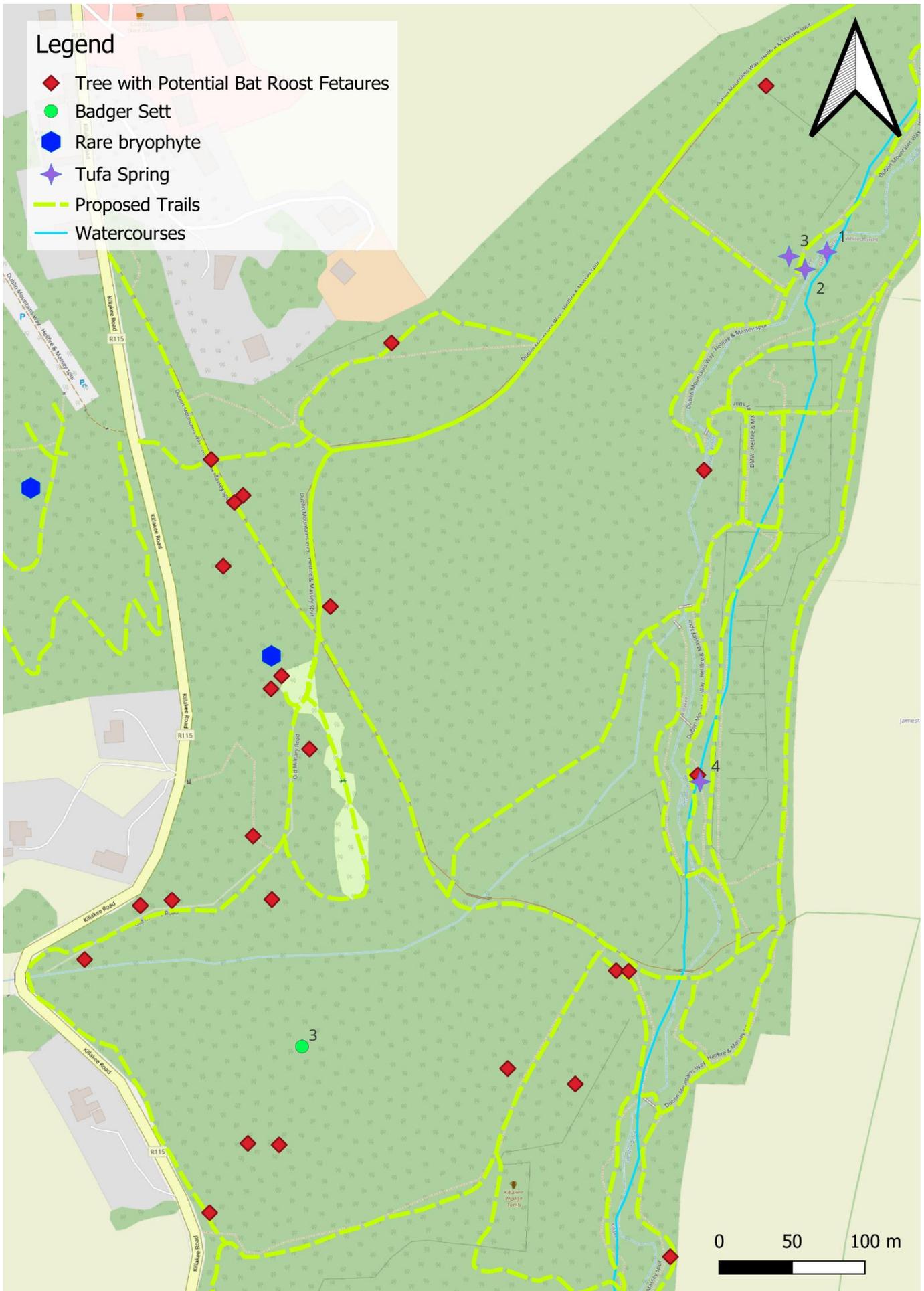


APPENDIX I

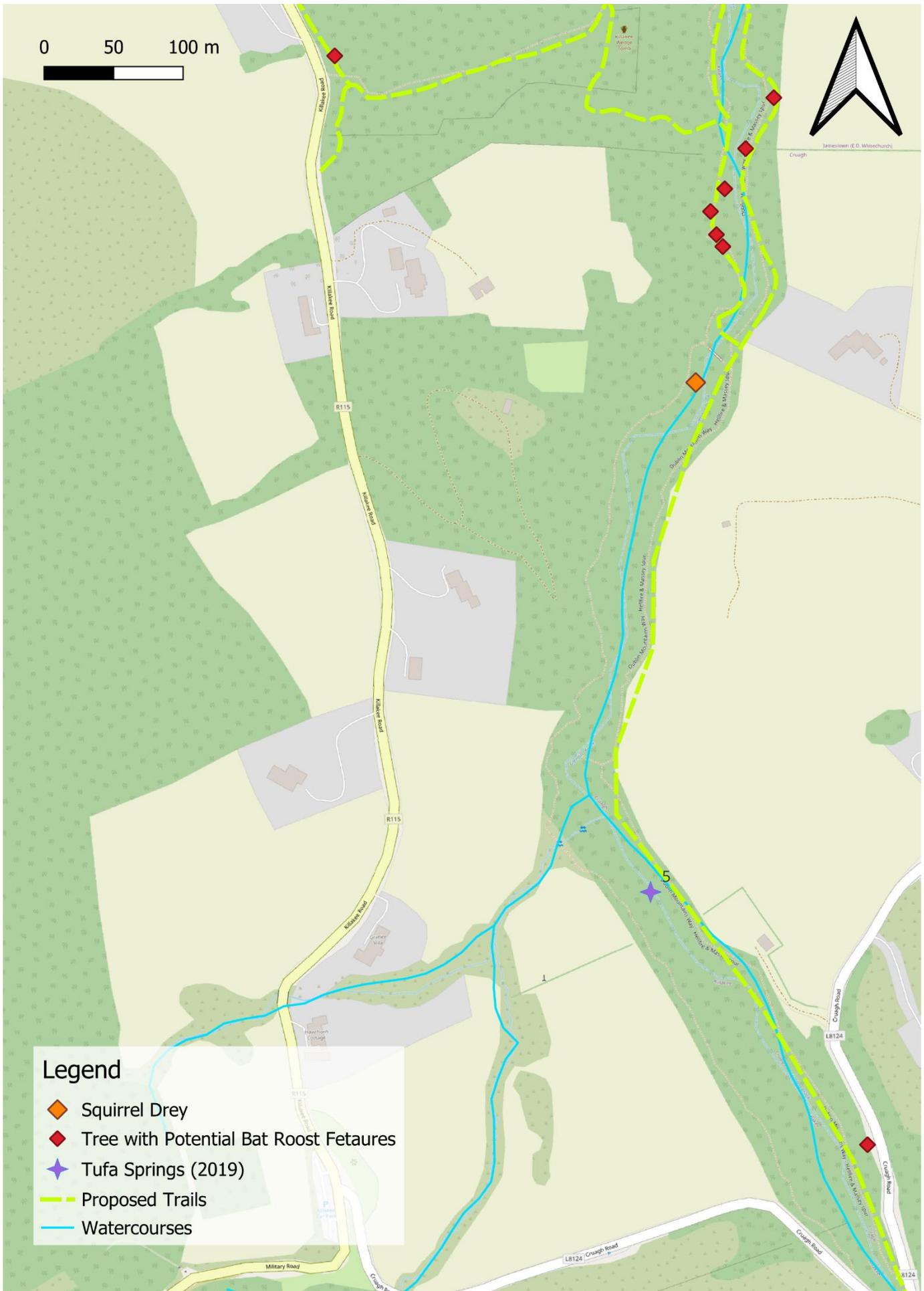
OVERVIEW OF PROTECTED SPECIES AND HABITATS IN THE STUDY AREA



Rare and protected species and habitats recorded in the northern section of Massey's Wood in 2025.



Rare and protected species and habitats recorded in the middle section of Massey's Wood in 2025.



Rare and protected species and habitats recorded in the southern section of Massey's Wood in 2025.

Topic	Phase	Operational Management	Ongoing Monitoring	Contracts Applicable	Timeline for Implementation
5- Population & Human Health					
	Construction				
	Construction and Traffic Management Plan	An outline Construction and Traffic Management Plan has been prepared by Roughan and O'Donovan, the project engineers, and provided under separate cover. This document provides the outline/framework for the establishment of detailed construction management practices to be agreed by the contractor, SDCC, Coillte and other stakeholders in the event of development approval.	Throughout works	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	Ongoing - based on Contract issue. Each Contract will require its own Construction and Traffic Management Plan for deliveries and work vehicles,
	Operational				
	Operational Management Plan	An Operational Management Plan has been prepared and submitted under separate cover. This document sets out the envisaged structure and responsibilities for management of the proposed development during operation. The measures include the establishment of a permanent management steering group comprised of SDCC, Coillte and the DMP with responsibility for: <ul style="list-style-type: none"> • Management and maintenance of the development overall, and specifically the facilities outside of the direct responsibility of the private operator; • management of the contract, lease or license of the private operator of the facilities; • liaison with neighbouring landowners, residents and stakeholders, facilitated through the consultation forum of the Dublin Mountains Partnership; • coordination of forest operations ongoing in the western part of the Hell Fire forest property (the area largely unaffected by the proposed development), and • monitoring and management programmes for: <ul style="list-style-type: none"> - the trails network; - archaeological and architectural heritage features, and - ecology (specifically the Key Ecological Receptors identified in the EIA process). The Operational Management Plan also identifies access and parking management measures including: - car park monitoring and variable message signs to prevent queuing and overspill parking; <ul style="list-style-type: none"> - the proposed shuttle bus from Tallaght; - the proposed park and ride facility at Tallaght Stadium 	Ongoing (post project completion)	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	An updated Operational Management Plan is currently being prepared and is to be finalised with Contract 5. It is noted that Contract 5 shall proceed in advance of Contracts 1, 2 or 6.
6- Biodiversity & NIS					
	Construction				
	Construction Method Statement	<ul style="list-style-type: none"> - Site Foreman shall read, sign and abide by the Construction Method Statement. A signed copy will be submitted to the District Conservation Officer of the National Parks and Wildlife Service. - Works Team will be inducted on the ecological considerations listed in the Construction Method Statement by the Site Foreman. 		Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	
	Construction and Traffic Management Plan	- A Construction and Traffic Management Plan (CTMP) shall be developed by the Contractor prior to the commencement of works. It shall be developed in accordance with the description of the Outline CTMP	Throughout works	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	Ongoing - based on Contract issue. Each Contract will require its own Construction and Traffic Management Plan for deliveries and work vehicles. Contract 4a CTMP Complete and is included in the Contractor's RAMS

Habitat Retention	<p>- Mature trees and scrub outside of the footprint of the proposed car park, visitor centre and canopy bridge will be retained. Fencing will be erected around trees which are to be retained and will include the Root Protection Area, as defined by a professionally qualified Arborist. It is recommended that an Arborist be retained as required by the principal contractor to monitor and advise on any works within the RPA of retained trees to ensure successful tree retention and planning compliance. All recommendations contained in the tree survey report will be followed.</p> <p>- Fallen trees, standing dead trees and stumps outside the footprint of the proposed car park, visitor centre and canopy bridge will be retained as habitat for invertebrates, bryophytes and fungi. Similarly, native trees that are felled to facilitate the proposed development will be moved to areas of the Hell Fire Club where they will provide dead wood habitat.</p>	During construction works	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway</p>	These requirements are being incorporated into the Works Requirements for each contract.
Ecological Clerk of Works	<p>- An Ecological Clerk of Works (ECoW) shall be appointed by SDCC prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of any and all works which have the potential to give rise to negative effects on biodiversity/ecological integrity. The ECoW will have similar professional experience of recreation based projects and be a member of the Chartered Institute for Ecology and Environmental Management (CIEEM).</p>	Ongoing	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal</p>	Complete. SDCC have included the appointment of the ECoW in the Design Team Appointment
	<p>- The exact route of the canopy bridge, new trail and surface water drainage in Massy's Estate will be agreed with the ECOW and a qualified arborist, and will be adapted to retain as many trees below the proposed visitor centre as possible and minimise damage to tree roots.</p>	Design Stage and Construction Stage	<p>Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway</p>	The exact route of the canopy bridge has been agreed with the ECOW and qualified arborist ensuring to retain as many trees as possible.
Site Environmental Manager	<p>- The Contractor will appoint a Site Environmental Manager (SEM) prior to the commencement of works. This person shall be responsible for carrying out environmental monitoring of the works and ensuring that the mitigation measures proposed in this EIAR (as well as the CTMP) are adhered to.</p>	Ongoing during construction stage	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal</p>	This requirement has been included in the CEMP.
Vegetation Clearance/ Invasive Species	<p>- A pre-construction survey will be undertaken 2-3 weeks prior to construction to ensure that protected species such as Red Squirrel and Badger have not taken up residence within the construction envelope. The survey will cover the footprint of the proposed development and a 50m buffer. Should any protected species shelters (e.g. dreys, setts) be found, the ECOW will seek direction from the NPWS.</p> <p>- Site clearance including vegetation removal will take place from October to January inclusive. This has taken early nesting birds, such as Common Crossbill, as well as late nesting birds into account and will therefore avoid direct impacts on nesting birds. Nonetheless, a pre-clearance survey will be carried out for nesting birds prior to the felling of conifers. No trees with features suitable for roosting bats will be felled as part of the proposed development.</p> <p>- Tree planting the Hell Fire Club will consist of at least 10% Scots Pine and shrub planting will include 20% hazel. In the context of the wider landscape and the South Dublin red squirrel population, which currently depends on monocultures of conifers that are subject to clear-felling, a permanent native woodland will be a positive impact.</p>	Ongoing during construction stage	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal</p>	<p>This work has already commenced. Prior to each contract, the ECOW and their team shall carry out an ecological survey in accordance with these requirements.</p> <p>Site clearance is planned for these periods and the ECOW will carry out a detailed survey prior to issue of tender documentation as well as prior to commencement of any clearance.</p> <p>A revised forest management plan has been agreed with NPWS.</p>
Ground Protection	<p>Appropriately sized machinery with low pressure tyres/ tracks will be used for the trail construction, landscaping and all works in Massy's Estate.</p>	Ongoing during construction stage	<p>Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 7: Invasive Species Removal</p>	These requirements have been included within the Works Requirements and contractors method statements are required to include them.
Boundary Treatment	<p>The construction envelope associated with the proposed development will be temporarily fenced off at the outset of the construction phase of the project and will avoid the potential for un-necessary loss of habitat outside of the construction footprint.</p>	Ongoing during construction stage	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 7: Invasive Species Removal</p>	These requirements have been included within the Works Requirements and contractors method statements are required to include them.

Lighting	The use of artificial lighting on site will be minimised in terms of the area required to be illuminated and the length of time for which any lighting is switched on. Light spillage will be prevented as far as reasonably practicable. Artificial lighting will be shut off at night when not in use or when works cease at the end of the day in order to minimise the effects of light pollution and disturbance to crepuscular and nocturnal species. Security lighting, if required, will be cowed, to prevent light spill outside the compound. The ECoW will ensure that light spill is reduced as much as possible.	Ongoing during construction stage	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have been included within the Works Requirements and contractors method statements are required to include them.
Excavations	Any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow badgers and other wildlife to escape.	Ongoing during construction stage	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have been included within the Works Requirements and contractors method statements are required to include them.
Red Squirrels	<ul style="list-style-type: none"> - Site clearance will take place between October and January which is outside the period when Red Squirrel will be nursing young. - Mature trees will be checked by the ECoW immediately prior to felling to ensure no red squirrels are in the area. If any red squirrel are in the trees, or in the immediate vicinity, felling will be postponed until they have left the area. - Tree planting the Hell Fire Club will consist of at least 10% Scots Pine and shrub planting will include 20% hazel. In the context of the wider landscape and the South Dublin red squirrel population, which currently depends on monocultures of conifers that are subject to clear-felling, a permanent native woodland will be a positive impact. Broadleaved woodland can support a higher population density of red squirrels and provide a year-round food source for the species. - Two rope bridges will be constructed, one on each side of the canopy bridge. The siting of the bridges will be agreed with the ecologist and the contractor, depending on ground conditions and suitable trees to link the rope bridges to. The rope bridge will be 6.25m above the road level to accommodate traffic and to match the height of the canopy bridge. The use of rope bridges to reduce road fatalities for red squirrels has been widely documented in Europe and is listed as a 'proposed action' in Section 5.3.8 of the All-Ireland Red Squirrel Species Action Plan (NPWS/ EHS, 2008). - The proposed interpretive signage at the site will include information on red squirrel ecology and notices requesting the public not to feed grey squirrels. - Two artificial dreys will be erected the Hell Fire Club. The location will be directed by the ECoW. Suggested locations are presented in the draft Red Squirrel Management Plan. - The draft Red Squirrel Management Plan will be implemented and will include measures to control grey squirrels, if required. 		Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	<p>This work has already commenced and a revised Forest Management plan has been agreed with NPWS.</p> <p>The rope bridges shall be constructed at the same time as the treetop walkway and have been included in the Works Requirements for that Contract.</p> <p>The signage is currently under development through the Interpretative Consultant and will be installed at the end of Contract 5.</p> <p>The draft Red Squirrel Management Plan is currently being reviewed and is being incorporated into the Operational Management Plan.</p>
Bryophytes and Tufa Springs	<ul style="list-style-type: none"> - In order to protect the area containing Orthotrichum stramineum in the vicinity of the proposed canopy bridge and the population of Plagiothecium laetum in the vicinity of the proposed visitor centre, a pre-construction survey will be carried out to determine the abundance of these species. - The populations of O. stramineum will be marked by the ECoW and the populations will be protected from damage during construction. - The paths near the proposed visitor centre will be routed locally to avoid the populations of Plagiothecium laetum. - The populations will be protected during the operational phase by fencing, as directed by the ECoW. - The tufa springs adjacent to the paths, including their sources, will be marked out by the ECoW and protected during the path upgrades. - The northern link path which was proposed in the original EIAR has been removed from the design to avoid the potential for impacts on the tufa springs. 	Ongoing through the construction stage	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	<p>This has already commenced.</p> <p>The ECoW has reviewed and inspected the locations and these have been noted on drawings. At present, the works will not impact on the locations noted to date.</p> <p>Further surveys will occur prior to commencement on site.</p>
Badger	- A pre-construction survey will be undertaken 2-3 weeks prior to construction to ensure that Badger have not taken up residence within the construction envelope. The survey will cover the footprint of the proposed development and a 50m buffer. Should any protected species shelters (e.g. dreys, setts) be found, the ECoW will seek direction from the NPWS.	Prior to commencement of each contract	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	<p>This has already commenced.</p> <p>The ECoW has reviewed and inspected the locations and these have been noted on drawings. At present, the works will not impact on the locations noted to date.</p> <p>Further surveys will occur prior to each Contract.</p>

Pine Marten	<ul style="list-style-type: none"> - Two pine marten nest boxes will be erected. The locations will be directed by the ECoW. Suggested locations are presented in the draft Red Squirrel Management Plan - A pre-construction survey will be undertaken 2-3 weeks prior to construction. The survey will cover the footprint of the proposed development and a 50m buffer. Should any protected species shelters (e.g. dreys, setts) be found, the ECoW will seek direction from the NPWS. 	Prior to commencement of each contract	<ul style="list-style-type: none"> Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal 	<p>Pine Marten Boxes (as well as red squirrel and bat boxes) are to be erected in locations agreed with the ECoW during the trail upgrade contract. These have been included in the Works Requirements. The ECoW has reviewed and inspected the locations and these have been noted on drawings. At present, the works will not impact on the locations noted to date.</p> <p>Further surveys will occur prior to installation on site to ensure optimum placement.</p>
Birds	<ul style="list-style-type: none"> - If any vegetation needs to be removed outside the permitted period (October-January), the area shall be checked by an experienced ecologist for nesting birds. If nesting birds are found, the works will be postponed until the chicks have fledged. - Where larger trees are removed and to further minimise the loss of nesting sites, 20 nest boxes will be erected. The nest boxes will be located at a sufficient distance from the construction envelope and the type and location will be directed by the ECoW. - Bird-friendly glass (e.g. www.omilux.com or equivalent) or retrofitted measures such as tape and film, which will reduce the reflectivity of glass facades and windows, will be used on all buildings. This will not prevent all bird collisions but will reduce the risk of collisions significantly. These measures will be approved by the ECoW and will follow the guidance published by the American Birds Conservancy (ABC, undated) 	Prior to commencement of each contract	<ul style="list-style-type: none"> Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal 	<p>It is not intended that all vegetation measures will occur in the permitted period. Any works outside these times will require the ECoW to inspect the zones and prepare a report prior to removal.</p> <p>The use of bird friendly glass is being incorporated into the Works Requirements.</p>
Otters	<ul style="list-style-type: none"> - Prior to any works being carried out, a pre-construction survey will be undertaken 2-3 weeks prior to works to ensure no Otters have taken up residence within 150m of works. - Any temporarily exposed open pipe system will be capped to prevent otters from gaining access when contractors are off site to avoid risk of otters becoming trapped. 	Prior to commencement of each contract	<ul style="list-style-type: none"> Contract 4a: Conservation Works to Massey's Woods (this development) Contract 5: Trail Upgrade Works Contract 7: Invasive Species Removal 	<p>This has already commenced.</p> <p>The ECoW has reviewed and inspected the works locations and no otters have yet been noted.</p> <p>Further surveys will occur prior to commencement on site.</p>
Bats	<ul style="list-style-type: none"> - In order to avoid impacts on bats, a pre-construction bat suitability assessment will be undertaken. This shall be undertaken no more than 3 weeks prior to the works to identify any new features that have been created since the surveys which informed this EIA were undertaken. - The construction of the canopy bridge may require some pruning of branches or felling of immature trees. The trees in this area have low bat potential and as such, shall be left on the ground for 24 hours once felled. - Should any bat roost be detected during the pre-construction survey which will be disturbed or lost during construction, a derogation licence will be required from the NPWS. - Following an assessment by a conservation architect, any proposed works to the structures will be reviewed by the ECoW and bat surveys shall be undertaken, if required. - The chimney flues in the Hell Fire Club building will be sealed using a single iron bar or similar. This will be off centre so as to prevent people climbing up the chimney while leaving as much of an open gap as possible. Signs of recent fire lighting mean the flues are likely unsuitable bat roosting habitat. - Three crevice type bat boxes will be placed in the application site. The bat boxes will be located at a sufficient distance from the construction envelope to limit any disturbance and the type and location will be directed by the ECoW and in accordance with Kelleher & Marnell (2006). 	Prior to commencement of each contract	<ul style="list-style-type: none"> Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal 	<p>This has already commenced.</p> <p>The ECoW has reviewed and inspected the works locations and no otters have yet been noted.</p> <p>Further surveys will occur prior to commencement on site.</p> <p>Bat Boxes (as well as red squirrel and pine marten boxes) are to be erected in locations agreed with the ECoW during the trail upgrade contract. These have been included in the Works Requirements.</p>
Upland habitats	<ul style="list-style-type: none"> - Information boards will be provided at the proposed visitor centre, in the car park, at the entrances to Massey's Estate and at the southern end of Massey's Estate. The boards shall be aesthetically engaging to encourage buy-in from visitors. - The information boards will communicate the following to visitors: <ul style="list-style-type: none"> - The presence of Natura 2000 sites. - The presence of ground nesting birds and other sensitive wildlife. - The presence of sensitive heath habitats. - A request to remain on the paths and to keep dogs on the lead. - A map showing the waymarked trails in Massey's Estate, the Hell Fire Club and the Dublin Mountains Way but not the trails leading into the SAC or SPA. - A number of looped, waymarked walking routes will be established in Massey's Estate and at the Hell Fire Club. These will be on the existing trails, with some sections improved and a small section of new trail forming a new link path. The establishment of these walks shall involve: <ul style="list-style-type: none"> - The placement of suitably spaced colour-coded way marker posts at appropriate locations along the trails; and, - The erection of a sign at the outset of the routes displaying a map of the routes with approximate length (km), duration (hours/minutes) and a conservative estimate of difficulty level (i.e. easy/moderate/strenuous). 	Upon completion.	Contract 5: Trail Upgrade Works	<p>Already commenced.</p> <p>The interpretative consultant is currently preparing trail and information signage designs for review. It is intended these will be installed at the end of Contract 5.</p>

Invasive Species	<p>- During the construction phase, to prevent/minimise potential negative effects as a result of the introduction and/or spread of invasive during the operation of the proposed development, SDCC will adopt an invasive species management plan, a draft of which is presented in Appendix S10.</p> <p>- The invasive species management plan adopted by SDCC will seek to eradicate invasive species in Massy's Estate and at the Hell Fire Club and promote the regeneration of native species.</p> <p>- Herbicides will be used in accordance with the European Communities (Plant Protection Products) Regulations, 2012 (S.I. No. 159 of 2012) and the (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) (as amended).</p> <p>- Landscaping of the proposed development shall use native species of plants of national provenance only and, insofar as possible, soil reused from on-site excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from invasive species.</p>	Annually after completion of the works	Contract 7: Invasive Species Removal	This has already commenced. A separate invasive species plan is currently being prepared and a separate invasive species will be released due to the specialist nature of these works.
Operational				
Trail Design	The proposed trail improvement and new trails have been designed as Classes 1, 2 and 3 in accordance with the National Trail Office's Classification and Grading of National Trails (2008). This will ensure that proposed increase in footfall will not damage the existing paths which could lead to erosion outside this area.	None required.	Contract 5: Trail Upgrade Works	Already incorporated into Works Requirements
Oversight	A Strategic Oversight Group comprised of representatives at Senior Management / Director Level from SDCC and Coillte will be established to provide formal high-level governance in relation to the proposed Dublin Mountains Visitor Centre. This group will meet at least every two months in the initial year following opening of the centre in order to address strategic and governance issues in relation to the proposed visitor centre as well as responding to issues arising from the Management Steering Committee. It is proposed that the Strategic Oversight Group will be responsible for carrying out an annual inspection of the site trails during the operational phase of the development. The inspections will be carried out by the Dublin Mountains Partnership (DMP) and Coillte. The annual inspections will establish the condition of all trails with reference to National Trails Office standards. If necessary, the trails will be closed and/or repair works will be specified, and implementation will be supervised by the DMP and Coillte. The trails inspection and specification of works will be informed by the results of the annual ecological surveys, in order that any necessary protection measures for heritage resources are incorporated. This may include temporarily restricting or prohibiting access to areas where erosion is a problem.	Post Completion and annually	None	to be in place prior to completion of the first package from Contract, 1, 2, 5 or 6 as these will impact on the operation of the site
Information Boards	Information boards will be provided at the proposed visitor centre, in the car park, at the entrances to Massy's Estate and at the southern end of Massy's Estate. The boards shall be aesthetically engaging to encourage buy-in from visitors. Signage has been demonstrated to effectively manage the negative impacts of recreation on wildlife. Herstine et al. (2006) concluded that signage can be an effective approach for passively managing human behaviour and tourism in natural resource settings. A study from Iceland (Marschall et al., 2017) on the impact of signage on visitor behaviour around seals showed that signage was effective, but in particular, 'teleological' signage which provided an explanation as well as a command was more effective. The information boards will provide information on the ecology of the site and include a request for visitors to remain on the trails and to keep dogs on leads.	Upon completion.	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works	Already commenced. The interpretative consultant is currently preparing trail and information signage designs for review. It is intended these will be installed at the end of Contract 5.
Quiet Zones	The series of improved trails will maintain 'quiet zones' (areas away from trails) which will reduce the impact of noise and visual disturbance on species such as Red Squirrel and birds. The quiet zones include blocks of woodland and edge woodland edge habitat away from the trails.	Upon completion.	Contract 5: Trail Upgrade Works	Already commenced with the revised Forest Management plan agreed with NPWS as well as the trail design package
Opening hours	The opening hours of the visitor centre are 8am-8pm from April to September and 9am-5pm from October to March. This will limit the presence of light spill from the visitor centre and outside lighting after dark. For a short period, light spill from the visitor centre will be felt over a small area. However, this will be significantly less after the vegetation matures and during the summer months when the trees are in leaf and artificial lighting is not required as much.	None required.	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 6: Treetop Walkway	Lighting requirements are being incorporated into the design of the scheme.
Drainage	The construction and operation of the proposed development will maintain a drainage neutral situation i.e. there will be no increase or decrease in the flow discharge rate from the application site. The drainage design includes a hydrocarbon interceptor and the construction of ponds and swales to attenuate surface water, which will also provide additional wetland habitat.	Upon completion.	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works	These requirements have already been included into the Works Requirements for all contracts.

	Native Planting	The landscaping plan includes the widespread planting of native Irish species of trees and shrubs. The eastern slopes of the Hell Fire Club will be planted before construction work begins so as to enhance the existing habitat and reduce the impacts during construction. The biodiversity value of the woodlands will be low at first but will improve with time as the trees grow and a diverse field layer becomes established. The conversion of the conifer plantations to native woodland will take place after the construction phase and will involve the felling of a maximum of 10% of mature conifers per annum.	Annually during trail maintenance	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	Already commenced. The Eastern slopes of the hellfire club are currently being naturally rewilded as required by NPWS.
	Ecological Regeneration	There will be no seeding carried out as part of the proposed development, with the exception of the wildflower meadow in the walled garden. The disturbed habitats, including areas where invasive species have been removed, will be allowed to regenerate naturally with locally occurring native species	None required.	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	No action to be taken.
	Perimeter Fencing	Perimeter fencing will allow wildlife such as badger and hedgehog to pass through it. Crossing points will be located a minimum of every 50m along new perimeter fences and will be at least 30cm x 20cm.	During construction works	Contract 5: Trail Upgrade Works	These requirements have already been included into the Works Requirements.
	Ongoing Surveys	Inspections will establish the condition/prevalence of each habitat or species on the site. If necessary (caused by deterioration of habitat, reduction of species, increase in the spread of an Invasive Alien Plant Species (IAPS) are identified), management measures will be prescribed by the ecologist.	Ongoing	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	Already commenced. The Project ecologist is undertaking surveys in advance of each contract being issued for tender and undertaking a review of the Works Requirements.
7- Land					
	Construction				
	Chemical Storage	Bunded storage units for oil/fuel/hydrocarbons/chemicals are to be provided on impermeable surfaces with a minimum 110% capacity.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Refueling	There will be designated refuelling points selected which will be located on hard standing areas with no pathway to the surface water drainage system.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Interceptors	Oil interceptors will be provided in order to prevent runoff of pollutants to the soils and sub soils. The use of interceptors will be in compliance with Pollution Prevention Guidelines (PPG) 3.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Vehicle Wash	No detergents will be discharged to interceptors. A designated vehicle wash down area will be identified with consideration to drainage arrangements and will be located away from surface water discharge point. Wash water will be collected and contained for disposal off site. Concrete washout will not be permitted to enter the surface water system.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	These requirements have already been included into the Works Requirements for all contracts.
	Drainage Testing	All new drainage systems will require pressure testing by the contractor and a CCTV survey to discover any possible defects.	None needed	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	Prior to completion of the works

	Excavated Materials	All excavated materials will be assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred at the proposed development site. Should it be determined that any of the soil excavated is contaminated, this will be managed according to best practice and disposed of accordingly by a licensed waste disposal contractor.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	These requirements have already been included into the Works Requirements for all contracts.
	Construction Guidance	Construction operation will be required to take cognisance of the following guidance documents for construction work on, over or near water. CIRIA C532D Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	These requirements have already been included into the Works Requirements for all contracts.
Operational					
	Drainage	All new drainage on site will be pressure tested and have a CCTV survey carried out prior to being made operational. All fuel tanks will be required to be double banded and leak detection measures to be put in place to prevent any accidental discharge. A petrol interceptor will be used to capture any pollutants arising from vehicles in the car park	None needed	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	Prior to completion of the works
8- Water and Hydrology					
Construction					
	Chemical Storage	Bunded storage units for oil/fuel/hydrocarbons/chemicals are to be provided on impermeable surfaces with a minimum 110% capacity.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Refueling	There will be designated refuelling points selected which will be located on hard standing areas with no pathway to the surface water drainage system.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Interceptors	Oil interceptors will be provided in order to prevent runoff of pollutants to the soils and sub soils. The use of interceptors will be in compliance with Pollution Prevention Guidelines (PPG) 3.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	These requirements have already been included into the Works Requirements for all contracts.
	Vehicle Wash	No detergents will be discharged to interceptors. A designated vehicle wash down area will be identified with consideration to drainage arrangements and will be located away from surface water discharge point. Wash water will be collected and contained for disposal off site. Concrete washout will not be permitted to enter the surface water system.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 6: Treetop Walkway	These requirements have already been included into the Works Requirements for all contracts.
	Drainage Testing	All new drainage systems will require pressure testing by the contractor and a CCTV survey to discover any possible defects.	None needed	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	Prior to completion of the works
	Surface Water Storage	The surface water drainage system will be developed as part of the works with sufficient storage capacity for any additional runoff. A new surface water drainage system has been designed to cater for the new hardstanding areas additional surface water runoff of 792 cu. m in the 1 in 100 year event. Runoff will be stored on site with an allowable outflow of 2 l/s/ha and to limit the flow into the open stream in the Massy Estate. The existing site has a low permeability and runoff from the non-hardstanding areas currently flows into the stream.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works	These requirements have already been included into the Works Requirements for all contracts.
Operational					
	Drainage	All new drainage on site will be pressure tested and have a CCTV survey carried out prior to being made operational. All fuel tanks will be required to be double banded and leak detection measures to be put in place to prevent any accidental discharge. A petrol interceptor will be used to capture any pollutants arising from vehicles in the car park.	None needed	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	Prior to completion of the works

	Discharge Control	A range of mitigation measures have been proposed for the operational phases of the project. These measures, as detailed on the drawings DMVC-ROD-C-DR-XX-ZO-0030-32, seek to ensure that all discharges from the development are controlled to prevent impacts to receiving systems.	None needed	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works	Prior to completion of the works
9- Air Noise and Vibration					
Construction					
	Construction management	Air and noise impacts from the construction works will be mitigated via the following measures to be incorporated in the Works Requirements - Appointment of competent contractor and use of standard construction practices; - Noise and vibration monitoring at key receptors and along neighbouring property boundaries; - The contractor will be required to use off-site parking and provide shuttle service to the site; - Construction will be limited to 07:00- 19:00 Monday to Friday and 08:00- 13:00 on Saturday. No works will be allowed to take place on Sundays and bank holiday weekends which are the busiest times at the Hellfire Club.	Throughout construction periods	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	These requirements have already been included into the Works Requirements for all contracts.
Operational					
		None			
10- Landscape and Visual					
Construction					
		None	N/A	N/A	N/A
Operational					
	Hell Fire Forest Property	- Planting and development, on Montpelier Hill, of a mixed predominantly broadleaved forest landscape over a 10 year period to enhance landscape capacity, compose a new sustainable landscape, and maximise biodiversity and habitat whilst facilitating access and trails to the new woodland park; - The retention, where feasible, of existing mature broadleaved specimen trees currently within the forest canopy and setting a precedent for the new woodland landscape; - Management of woodland to enhance panoramic views; - Management including removal of woodland / forest to enhance views towards Montpelier Hill including the restoration of the legibility of the Hell Fire Club on the summit in distant views; - Planting to screen site infrastructure and integrate built development; - Use of materials appropriate to location and place; - Sensitive and simple presentation of site heritage and culture – the idea of conserved ruins retaining mystery and romantic character; - Trails and walkways will generally follow existing routes and be surfaced in traditional quarry dust / rolled gravel, or simple grassed / earthen tracks; - Existing uses will be maintained and enhanced.	On an annual basis upon completion of the works	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway Contract 7: Invasive Species Removal	Already Commenced at design stage. Required details have been incorporated into the design requirements and are to be included in the Works Requirements. A revised and updated Forest Management plan has been agreed with NPWS.
	Massy's Wood	Existing management of the area as an amenity woodland and habitat will be enhanced and invasive species programmes accelerated to improve habitat further. Existing trails will be improved, and new trails provided to manage access through the site – away from more sensitive ecological features with rest points provided with suitable surfacing and seating.	Ongoing (post project completion)	Contract 5: Trail Upgrade Works	Incorporated into Works Requirements and shall be constructed as per the plans.
11 & 12- Cultural Heritage and Archaeology					
Construction					
	Design	The circular walk, though located close perimeters of the passage tombs (DU025-001001 and DU025-001002) has been designed and set back from the monuments so that it will not directly impact on the underlying archaeology		Contract 5: Trail Upgrade Works	Incorporated into Works Requirements and shall be constructed as per the plans.
		- Where archaeological features or potential archaeological features are likely to be impacted, a licensed archaeologist shall be appointed to carry out the recommended walkover survey, archaeological monitoring, and subsequent archaeological excavations in fulfilment of the DOCHGs recommendations and subject to ministerial consent and permissions under Section 26 of the National Monuments Act 1930 and Section 14 (2) (a) of the National Monuments Act 2004, particularly in the areas of the proposed car park, visitors centre and where service runs and trails are to be routed before or during the construction phase - All information recovered from advance archaeological investigations (subject to the project's approval) will be incorporated into the exhibition along with information on the archaeology of the wider Dublin Mountains Region and how they fit in to a the regional, national and international context.	Throughout construction stage	Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works Contract 6: Treetop Walkway	Already commenced. SDCC have employed a licensed archaeologist as part of the design team who is reviewing all packages as they are prepared as well as works on the ground. Interpretation Consultant is currently preparing initial proposals for review utilising information gathered to date.

	Conservation Works	<p>Subject to the necessary permissions and ministerial consent, small areas on the lower ground and first floors of the Hell Fire Club will be investigated to determine their nature. The proposed stone floor is intended to protect any underlying archaeological features that may be found.</p> <ul style="list-style-type: none"> - The instalment of discreet lighting in the Hell Fire Club will not involve the chasing of walls. Where possible, wires will be hidden by the proposed stone flooring. - Most of the other works to the Hell Fire Club and the various structures in Massy's Wood involve closer inspection and repairs. - Where vegetation is being removed it must be done with care so that removal does not cause damage. - The widening of the R115 will result in the realignment of a small part of the boundary wall to Massey's Woods. It is proposed to rebuild the wall, using the same materials, along the newly aligned boundary. This is intended to ensure a retention of character along the Boundary to Massy's Wood. - Although no works are currently proposed for the Gothic Gate lodge in Massy's Woods, the realigned boundary wall will be built very close to the rear wall of the lodge. Measures will therefore be taken to ensure that the lodge is protected from damage during the demolition and construction works. - The lodge is currently hidden by the boundary wall. The proposal will reveal the lodge more fully. - The blocking of the chimney flues in the Hell Fire Club is intended to curb people from climbing up on the roof. It will not prevent it altogether however as it is possible to climb up the building via the lean-to wings. 	Throughout construction stage	<p>Contract 3: Road Upgrade Works Contract 4a: Conservation Works to Massey's Woods (this development) Contract 4b: Conservation Works to the Hellfire Club Building</p>	<p>Already commenced.</p> <p>Investigation works to the hellfire building have already been undertaken and overseen by a licenced archaeologist. Reports are currently being prepared to inform the design of the conservation Works.</p> <p>A licenced Conservation architect has designed the works to the structures in Massey's Woods and these formed the basis of the Works Requirements package for that contract.</p> <p>the Works to the boundary wall along the R115 as well as the Gothic Gate lodge protection have been incorporated into the Works Requirements. The widening works have been reduced where possible also.</p>
	Roads	Careful road widening, including a small buried retaining wall to accommodate the level difference between the road and the ground level at the Gothic gate lodge (Massey's Wood), will ensure no damage to the building, and the western elevation of the gate lodge will become the boundary at this point, revealed to public view (the lodge is currently hidden from view).		Contract 3: Road Upgrade Works	<p>Already commenced.</p> <p>The Works to the boundary wall along the R115 as well as the Gothic Gate lodge protection have been incorporated into the Works Requirements. The widening works have been reduced where possible also.</p>
	Operational				
		<ul style="list-style-type: none"> - During operation, the circular path on Montpelier Hill will encourage pedestrians to use this route, reducing wear and tear elsewhere on the summit and protecting the two tombs. - The blocking of the chimney flues in the Hell Fire Club during the construction phase is intended to curb people from climbing up on the roof during the operational phase. It will not prevent it altogether however as it is possible to climb up the building via the lean-to wings. 	Annually during trail maintenance	<p>Contract 4b: Conservation Works to the Hellfire Club Building Contract 5: Trail Upgrade Works</p>	Annual Trail maintenance to be undertaken
13- Forestry					
	Construction				
	None		N/A		
	Operational				
	Forest Activities	Commercial forest activities such as road maintenance, thinning and clear-felling will be planned well in advance and organised during winter months when visitor numbers are lower. Pedestrian diversions will be installed off paths etc. to allow forest activities as normal if necessary. Certain car parks may need to be closed during these operations also.	As works are undertaken	None	This is part of Coillite Standard practice for felling operations under health and Safety regulations
	Barriers	For security and health and safety, barriers shall be kept in place to prevent vandalism, dumping, anti-social behaviour, rallying and overnight parking. Car parks shall close during the night.	Following opening of the car park, SDCC will need to monitor operations of the gates.	Contract 2: Car Park Upgrade	Car park design to incorporate barriers than can be opened and closed remotely as well as manually. To be included in Works Requirements for Car Park Upgrades
	Tree Shelters	Specific types of trees shelters shall be used instead of deer fencing where areas are being converted from conifer to broadleaf.	To be reviewed on an annual basis as re-wilding takes place.	None	This has been agreed as part of the updated forestry management plan with NPWS. Already underway through rewilding
14- Traffic and Roads					
	Construction				
	Car Parking	Management of extended carpark	During car park works and building works.	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade</p>	Separate car park management plans will need to be produced prior to the car park contract being issued setting out the requirements clearly. In addition, the building contract may also need management of the car park as this access with through this zone. To be reviewed prior to issue of Contracts.
	VMS	Installation and use of a Variable Message Sign (VMS) on M50 with live updates on parking at Hell Fire Woods.	During car park works and building works.	<p>Contract 1: Dublin Mountain Visitor Centre Café and Interpretation buildings Contract 2: Car Park Upgrade</p>	It has been agreed that TII are to be notified prior to commencement of construction works. Live website monitoring with email to be arranged to Motorway Operations Control Centre in Dublin Port to allow operators to warn motorists
	Operational				

	Footpaths	- Provision of 1.8 -1.5m width (dependant on road width) footpath on one side of Gunny Hill Road, Stocking Lane and Killakee Road/Old Military Road. Provision of footpaths will also act as a traffic calming measure.		Contract 3: Road Upgrade Works	Incoporated into designs already and shall be included in the Works Requirements
	Cycle Lane	- Provision of an advisory slow-moving uphill cycle lane by the removal of the existing centre line and the addition of a cycle lane marking during road resurfacing - Provision of cycle lane will also act as a traffic calming measure.		Contract 3: Road Upgrade Works	Incoporated into designs already and shall be included in the Works Requirements
	Shuttle Bus	Shuttle Bus (midi-coach) from Tallaght Stadium at 15-30min intervals, thereby minimising the volume of single car users on Stocking Lane and Killakee Road/Old Military Road.		Contract 3: Road Upgrade Works	SDCC have started converstions with NTA on bus service. To be resolved prior to opening of the new car park and visitor centre
	Roads	Proposed one-way systems at notated Pinch Points in EIAR will act as a traffic calming measure.		Contract 3: Road Upgrade Works	Incoporated into designs already and shall be included in the Works Requirements