FEASIBILITY STUDY AND MASTERPLAN FOR A FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS

FOR SOUTH DUBLIN COUNTY COUNCIL

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EXECUTIVE SUMMARY

This feasibility study and masterplan is in response to the 2015 South Dublin Tourism Strategy proposal in which the principal recommendation was the creation of a Dublin Mountains Flagship Project. This followed the 2007 report Dublin Mountains Strategic Development Plan for Outdoor Recreation in which a flagship welcome and orientation point was proposed.

The Dublin Mountain Partnership and Coillte also have a key objective to develop a flagship facility to act as a focal tourism attraction and actively support this project.

To deliver a "flagship project" we understand the definition to be:

"A major attraction defined as flagship when its appeal is attributed to distinct qualities, including uniqueness, location, international reputation and outstanding media attention and, making it a must see attraction and relatively large in size and economic impact." [Source: A Weidenfeld "Iconicity and Flagshipness of Tourist Attractions"]

In addition we note the challenge / desired outcome to respond to Failte Ireland's vision for the visitor experience:

"The vibrant capital city bursting with a variety of surprising experiences - where city living thrives side by side with the natural outdoors."

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STAGE 1 FEASIBILITY STUDY

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INTRODUCTION

The Stage 1 feasibility study report is to determine the rational, location and type options for an Iconic Flagship Tourism Facility in the Dublin Mountains within a general study area centered on but not limited to Montpelier, Killakee and Masseys Wood.

The key objective of this report is to select 3 sites to develop a flagship facility to act as a key tourism attraction to the Dublin Mountains and the wider landscape, which will be of regional importance.

There are many considerations to be taken into account including constraints, which we have analysed and presented in written format, photographs, maps and matrix.

The key issues include, character of sites, archeology and heritage, activity types, best views to the city, protection of views from the city, target markets, potential economic impact, planning constraints land ownership constraints, orientation, ecology, access, services, connection to existing trails, protection of the wider landscape, fulfilling user needs, sustainability – (transport, resources, energy) access, services, connection to existing trails, and connection to the city, user needs sustainability – (transport, resources, energy),site capacity and design opportunity.

This report is presented in the knowledge that clarity will be formed when further development of the 3 sites are explored in more detail in the following stages of the feasibility study, in particular, the type of project, and the scale and size of project and visual impacts as this work has to be done to test out the ideas and proposals going forward to maximise opportunities.

1.1. ENVIRONMENTAL PLANNING, LANDSCAPE AND VISUAL APPRAISAL

1.1.1 OVERVIEW OF ENVIRONMENTAL PLANNING, LANSCAPE AND VISUAL APPRAISAL

Tourism

- Tourism policy is supportive of recreational developments and tourism product development of this nature – based on natural amenities, expansion of trails etc. The draft 2016-2022 plan has a specific objective to develop a visitor facility and/or outdoor pursuits centre in the Dublin Mountains Zone.

- Tourism Developments above the 120m contour or within the High Amenity Zoned Lands shall require a landscape assessment / rationale.

Zoning

- Much of the study area for the proposed development is Zoning Objective H in the Adopted County Development Plan 2010-2016 - To protect and enhance the outstanding natural character of the Dublin Mountain Area. The possible uses within the development – car-park, Caravan Park, guest house, hotel, recreational facility / sports club, restaurant, rural industry–cottage, rural-industry- food, shop local – are “Open for Consideration” and have use specific conditions e.g. Must be based in existing premises, are not permitted above the 350m contour or combinations of both.

- The draft 2016-2022 Development plan has a similar Zoning for the area but appears to support a facility as proposed. As “Open for Consideration” it lists a Recreational Facility when “Directly linked to the heritage and amenity value of the Dublin Mountains”, with no elevational restrictions.

- Part of the study area lies in Zoning Objective B (to protect and improve rural amenity and to provide for the development of agriculture). Relevant permitted uses include Caravan Park-Holiday, Rural Industry – Cottage and Rural Industry–Food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant.

- The Glenasmole and Bohernabreena area is almost entirely zoned as restricted areas and areas where development cannot be accepted.

Landscape and Visual

- Landscape Policy is governed by Character Assessments in both current and draft Development Plans. In both current and draft plans the entire study area and potential location of the proposed facility is in one character area reflecting the footprint of the Dublin Mountains. Policy seeks to manage, enhance and improve the landscape character and quality.

- A range of views and prospects are protected in both current and draft plans. These represent:
  - Views from urban or peri-urban areas towards the mountains
  - The prospect or landscape composition presented by the mountains looking towards the urban area.
  - Scenic routes and drives within the upland area.

- Views and prospects of a similar nature are identified in the Dun Laoghaire Rathdown County Development Plan.

- Policy seeks to protect the open character of the Dublin Mountains Area above the 350m contour.

- New Buildings within the Dublin Mountain Zone (H) should generally be low rise. Sensitivity in siting and design required.

- Only development related to the areas amenity potential or agricultural functions will be permitted in Zone H.

- Developments above the 120m contour with the potential to have adverse visual impacts will require a visual impact assessment. Impacts should be consistent with the sensitivity of the landscape.

- Forestry proposals suggest clear felling over the next few years. The Council will seek to mitigate potentially negative visual impact.

- Much of the study area contains limited built heritage. Most of this is archaeological in character including a large number of funereal monuments constructed on elevated sites. However there is a concentration of built heritage on the north and western slopes generally and around Montpelier Hill in particular. As well as archaeology built heritage consists of hill cottages and scattered demesne houses and remnants, and hunting lodges of Victorian or 18th century origin the most famous being the Hell Fire club itself. As well as requiring protection these elements enrich the visitor experience with layers of history and meaning.

- Notwithstanding the protected views towards the mountains from the lowland and urban areas, and the protected routes, views and landscape in the open upland areas, there is varying localised capacity, due to tree cover and local topographical variances, to absorb development in those areas north of Kilakee / Cruagh, subject to appropriate and sensitive design and location.

- Visibility does not necessarily imply negative visual impact. Visibility may be desirable. The key issue is appropriateness and sensitivity to the prospect and landscape composition within which any new building is set.

- The existing landscape context and its aesthetic value is not permanent and is potentially subject to major change over the next few years as maturing forests are harvested by Coillte and private landowners. This has implications for the landscape value and current recreational uses and poses a major challenge for the location and setting of any new visitor facility. There is a need to balance recreational land use and the upland amenity of the adjacent city with the commercial objectives of forestry immediately adjacent to the city.

Natural Environmental

- There are two significant designated sites in the southern half of the study area making up much of the Glensamle, Bohernabreena and Kippure area.

- Policy generally seeks to protect and enhance trees, woodlands, hedgerows, water bodies and courses and habitat and biodiversity

Other

- The Wicklow Mountains National Park lies just over the county boundary. This park at 205km^2 is the largest national park in the state. A large area of land covering much of the moorland on the slopes of Kippure and Glenasmole is understood to be on the market with little interest. The land if acquired has the potential to link the national park to the likely site of a visitor facility and essentially, directly to the capital city offering a unique attribute to both the mountain centre and the National Park.

- The proposed project delivers one of the key objectives of the Dublin Mountain Partnership.

Key Planning and Environmental Considerations

- Preference should be given to sites beneath the 350m contour line in accordance with the current zoning requirements (see note (i) below).

- Any development above the 350m contour will need to ensure the open character of the mountains.

- Tourism developments above the 120m contour or within high amenity zoned lands will require a landscape assessment / rationale.

- Protected views and prospects from the city will need to be considered in any site selection and design.

- Protected scenic routes will need to be considered in any site selection and design.

1. Any proposed building in the Dublin Mountains Area (Objective H) should be low rise and be sensitive in siting and design.

2. Adverse impacts on Natura 2000 sites and the Wicklow National Park should be carefully considered and avoided where possible.

(i) The current zoning of much of the study area (Objective H – to protect and enhance the outstanding natural character of the Dublin Mountain Area) lists a number of relevant uses open for consideration including car-parking, cultural use, recreational facilities/sports clubs, restaurants, rural industry–cottage, rural industry–food and shop-local which would need to be accommodated below the 350m contour. In addition restaurants, rural industry–food and shop-local are also required to be located in existing premises.
Part of the study area is located in Zone Objective B (to protect and improve rural amenity and to provide for the development of agriculture. Relevant permitted uses include Caravan Park-Holiday, Rural Industry–Cottage and Rural Industry–Food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant.

The Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy. As the design and concept evolves that mix of uses will become clearer.

Conclusions

Within the study area the following areas have been identified with potential for addressing the requirements of the brief:

Kilakee / Cruagh – offering some framed views and an afforested setting but generally above the restricted development 350m contour.

Tibradden / Kilmashogue – also offering views in afforested setting (Tibradden less so) with some public lands below the 350m contour. Outside SDCC area.

Montpelier / Masseys Wood – A high profile location, offering extensive views and a mixed wooded setting with a significant built and cultural heritage. Opportunities in public lands below the 350m contour.

Six specific sites or locations have been identified in the above areas for further assessment:

Option 1 – North east Flank of Montpelier Mountain
Option 2 – Masseys Estate and the Owendoher River
Option 3 – Stewards House and Belfry adjacent Hell Fire Wood
Option 4 – Featherbed/Kilakee Mountain
Option 5 – Cruagh Mountain
Option 6 – Combination of Option 1 and 2.

These are assessed in more detail in Section 3 of the overall feasibility study.

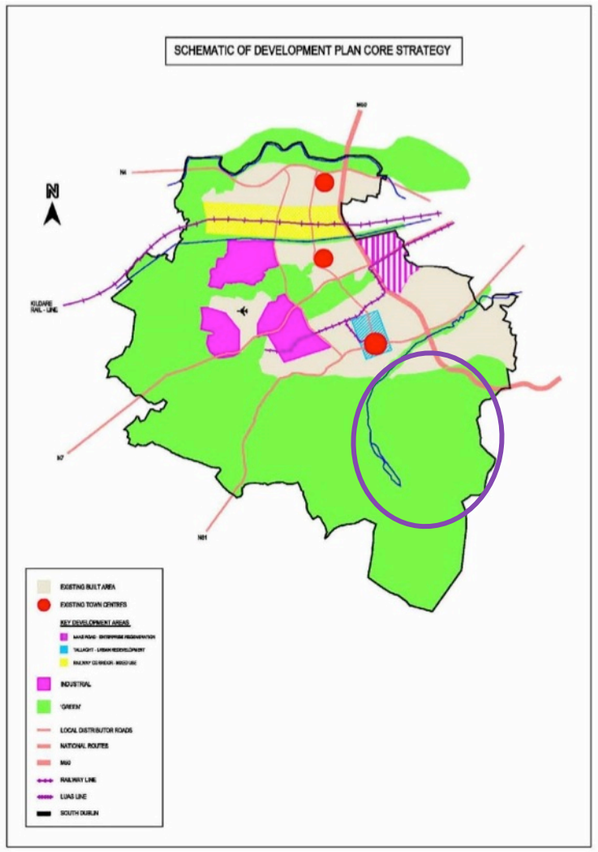

Fig. 1 SDCDP Core Strategy schematic diagram

1.1.2. PLANNING

Planning and Environmental Policy Context

Relevant planning policy is set out in the 2010 – 2016 County Development Plan (SDCDP). These are discussed in Section 1 below.

The draft 2016 – 2022 County Development Plan is currently on public display. It is likely to be finalised and adopted in the latter half of 2016 and the future development of this project would probably progress under that plan. Variances to policies relevant to the study area require consideration and these are discussed in Section 2 below. The recently completed South Dublin County Council Landscape Character Assessment (part of the Draft 2016-2022 County Development Plan) is also reviewed as is the neighbouring Dun Laoghaire Rathdown County Development Plan 2010-2016.

As a relevant non-statutory document but dealing with many contextual issues, The Dublin Mountain Partnership Strategic Plan is also reviewed.

All policies and plans are supportive of a development of the nature of the Flagship Tourism Facility subject to sensitive location, siting and design and with due regard to a number of Key Planning and Environmental Policy Considerations – these are summarised in Section 6 below.

1.1.2.a SOUTH DUBLIN COUNTY COUNCIL DEVELOPMENT PLAN 2010 – 2016

The SDCDP Core Strategy schematic diagram (Fig.1) illustrates the location of the study area in the south eastern quadrant of South Dublin, south and east of the county town of Tallaght, bordering County Wicklow to the east and County Wicklow to the south. Key transport corridors are shown and spatial elements of the county.
The study area represents a significant part of the County "Green" Area. Most specifically it represents a distinct part of the county identity and there is broad range of policy designed to conserve and enhance the unique character imparted to the county by its upland setting.

Tourism

The SDCDP recognises the potential of tourism in the County and its potential employment generation. It recognises that built and natural environmental amenities are important for tourism and that …

"the County has many natural advantages for recreation, leisure and tourism activities. The demand for recreation and leisure facilities is growing. The Council intends to facilitate and support the growth of leisure and tourism and many of the policies and objectives in the Plan are directed towards the protection of the natural amenities that are central to the promotion of tourism in the County."

One aspect of tourism policy is the protection of the County's natural amenities, built and natural heritage and the potential for countryside recreation.

Relevant Policies for tourism are set out below:

Policy EE25: Tourism Infrastructure It is the policy of the Council to facilitate development of tourism infrastructure in a sustainable and sensitive manner that maximises the recreational and tourist potential of the County's natural and built assets.

Policy EE27: Tourist Accommodation and Facilities. It is the policy of the Council to encourage the provision of suitably designed hotels, hostels and tourism-related facilities in appropriate locations within the County. A landscape assessment and rationale must be submitted for any such development above the 120m contour or within Liffey Valley or high amenity zoned lands, or as shall be considered appropriate in other lands within the County.

Policy EE28: Major Leisure Facilities. It is the policy of the Council to secure the sustainable provision of major leisure facilities in the County. A landscape assessment and rationale must be submitted for any such development above the 120m contour or within high amenity zoned lands, or as shall be considered appropriate in other areas.

Policy EE29: Tourist Trails. It is the policy of the Council to implement a tourist trail of the villages of Clondalkin, Lucan, Newcastle-Lyons, Rathcoole, Saggart, Brittas, Tallaght, and Rathfarnham.

Policy EE30: Rural Tourism. It is the policy of the Council to encourage farmhouse accommodation, open farms and agri-, green-, eco- and geo-tourism.

Zoning

The Study Area covers lands south of built up areas of Rathfarnham and east of the county town of Tallaght. These areas consist of rural agricultural lands and upland mountain areas. The zoning maps indicate two zones of relevance to the study area.

B: To protect and improve rural amenity and to provide for the development of agriculture.

H: To protect and enhance the outstanding natural character of the Dublin Mountain Area.

Zoning Objective B

The following uses are permitted in principle:

Aerodrome/Airfeld, Agricultural Buildings, Boarding Kennels, Caravan Park-Holiday, Cemetery, Concrete/Asphalt Plant in or adjacent to a Quarry, Industry-Extractive, Nursing Home, Open Space, Place of Worship, Public Services, Rural Industry-Cottage, Rural Industry-Food, Traveller Accommodation.

The following uses are open for consideration:	Conditions		Conditions
Abattoir		Motor Sales Outlet	b
Bed & Breakfast		Office-Based Industry	b
Betting Office	b	Offices less than 100m^2	b
Car park		Petrol Station	b
Cash & Carry/Wholesale Outlet	b	Primary Health Care Centre	b
Childcare Facilities	b	Public House	b
Community Centre		Recreational Buildings	b
Cultural Use		Commercial	
Dance hall/Discotheque	b	Recreational-Facility/Sports Club	
Doctor/Dentist		Recycling Facility	
Education,		Refuse Landfll/Tip	
Enterprise Centre	b	Refuse Transfer Station	
Funeral Home	b	Residential	c
Garden Centre		Residential Institution	
Guest House		Restaurant	
Health Centre	b	Retirement Home	
Heavy Vehicle Park		Science and Technology Based Enterprise	
Home Based Economic Activities		Service Garage	b
Hospital		Shop-Discount Food Store	b
Hotel/Motel		Shop-Local	b
Household Fuel Depot	b	Shop-Neighbourhood	b
Industry-General	b	Transport Depot	
Industry-Light		Veterinary Surgery	
Industry-Special			

The following uses are not permitted

Advertisements/Advertising Structures, Caravan Park-Residential, Offices 100m^2-1,000m^2, Offices over 1,000m^2, Off-Licence, Retail Warehouse, Scrap Yard, Shop-Major Sales Outlet, Warehousing.

Condition References
b In Villages to Serve Local Needs
c In accordance with Council policy for residential development in rural areas

Zoning Objective H

The following uses are permitted in principle:

Open Space.

The following uses are open for consideration:	Conditions		Conditions
Aerodrome/Airfield	D	Hospital	a, d
Agricultural buildings		Hotel/Motel	a, d
Bed & Breakfast	a, d	Industry-Extractive	d
Boarding Kennels	D	Nursing Home	a, d
Car park	D	Place of Worship,.	d
Caravan Park-Holiday	D	Public Services,	
Cemetery	D	Recreational Facility/Sports Club,	d
Childcare Facilities	A	Refuse Landfill/Tip,	d
Community Centre	D	Residential	c, d
Concrete/Asphalt Plant in or adjacent to a Quarry	D	Residential Institutional,	a, d
Cultural Use		Restaurant,	a, d
Doctor/Dentist	a, d	Rural Industry-Cottage,	d
Education		Rural Industry-Food,	a, d
Garden Centre	D	Shop-Local,	a, d
Guest House	a, d	Traveller Accommodation,	d
Health Centre	A	Veterinary Surgery	a, d
Home Based Economic Activities	a, d		

The following uses are not permitted

Abattoir, Advertisements and Advertising Structures, Betting Office, Caravan Park- Residential, Cash & Carry/Wholesale Outlet, Childcare Facilities, Dance Hall/Discotheque, Enterprise Centre, Funeral Home, Health Centre, Heavy Vehicle Park, Household Fuel Depot, Industry-General, Industry-Light, Industry-Special, Motor Sales Outlet, Office-Based Industry, Offices less than 100m2, Offices 100m2-1,000m2, Offices over 1,000m2, Off Licence, Petrol Station, Primary Health Care Centre, Public House, Recreational Buildings-Commercial, Recycling Facility, Refuse Transfer Station, Retail Warehouse, Retirement Home, Science and Technology Based Enterprise, Scrap Yard, Service Garage, Shop-Discount Food Store, Shop-Major Sales Outlet, Shop-Neighbourhood, Transport Depot, Warehousing.

Condition References
a In existing premises
c In accordance with Council Policy for Development in Rural Areas.
d Not permitted above 350m contour

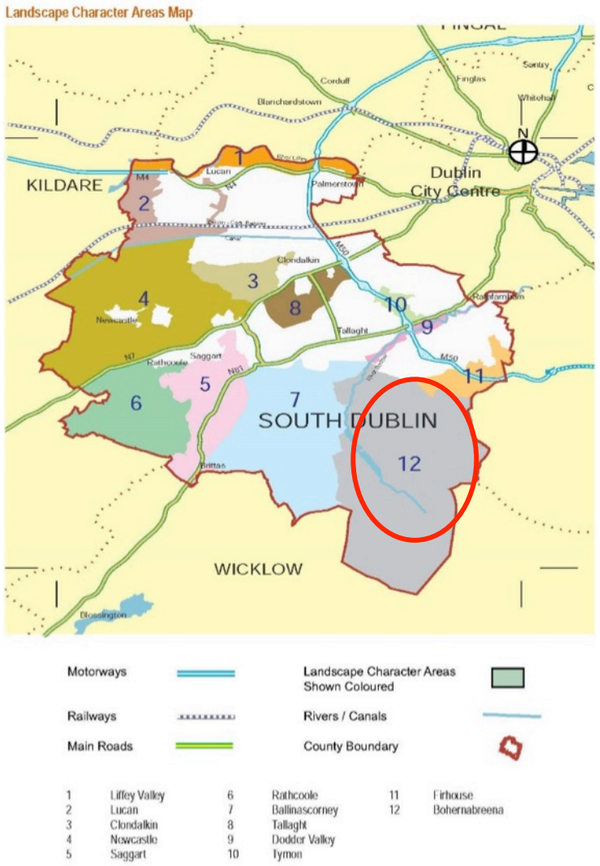

Fig 2. Landscape Character Area Map

Landscape (including visual amenity and protected views and prospects)

The SDCDP includes a range of policies to protect the landscape and visual amenity of the County.
Relevant policies to the study area include

Policy LHA1: Preservation of Landscape Character
It is the policy of the Council to protect the character of the landscape in the County in accordance with the policies and objectives of the Development Plan and with the "Draft Guidelines for Landscape and Landscape Assessment", (2000) or any finalise Guidelines which may be issued. It is an objective of the Council to further develop the Landscape Character Areas Assessment in accordance with the Draft Guidelines including deriving a series of objectives for each character area.

The 2010-2016 SDCDP contains a preliminary Landscape Character Assessment

The study area is found primarily in and occupying much of Landscape Character Area 12 – Bohernabreena.

The area description is set out below:

This is a large character area which is contained by the urban fringe at Oldcourt, Woodtown and Newtown to the north and the Dublin Mountains, culminating at Kippure (Co. Wicklow), in the south. The area is bounded to the west by the R114 and the Ballymorefnn Road and to the east partially by the R116, which runs into the Wicklow Way. This area is the most mountainous in Dublin and is also where the River Dodder rises, feeding into the reservoirs at Bohernabreena and giving rise to the picturesque linear parks along the Dodder Valley. The Military Road (R115) also runs through this Landscape Character Area giving access to the woodlands, heaths and peatlands of the Dublin and Wicklow Mountains. The area is steeped in local history and has mountain peaks throughout.

Landcover

There are a number of landscape types within this area. At the urban fringe and towards the north of the area, there is urban fringe and upland farmland. Here the dominant features are the small-scale feld pattern with intact hedgerows, some lush green pasture and rough grazing. To the south the land is almost all mountainous and landscape types are mountain heath and mountain woodland. To the northwest of the area there are coniferous plantations at Mountpelier, Kilakee and Cruagh, where there are trails and parking facilities for the public to avail of the scenic amenity.

In the centre of the area, there are patches of deciduous woodland, there is also mixed planting following the course of the Dodder and at the banks of both the Bohernabreena reservoirs, which were constructed in 1883 and 1887 to increase and improve the supply of water to Dublin city. The reservoirs themselves are very scenic and a distinctive landscape feature and are surrounded by small-scale field pattern on either side. Towards the south of the area the mountain peaks are higher and mountain heath and peat land is dominant. Brooks dissect the mountain slopes of Corrig, Seefngan and Kippure and the steep slopes of Kippure are exposed, with erosion prominent on higher ground.

There are numerous historic sites and structures in the Bohernabreena area. These include passage and portal tombs, a cist site, graveyard sites, standing stones and the infamous Hellfre Club at Mountpelier.

Strategy

- *Cultural heritage including passage tombs, cist site, old graveyard site and the Military Road including any bridges or culverts to be well maintained and preserved.*
- *The scenic quality of the reservoirs to be maintained and preserved.*
- *Amenity facilities to be maintained to a high standard and where possible enhanced and/or extended.*
- *Agriculture – farming lifestyles, where possible, to be maintained, while seeking ways of expanding agri-business in a manner that does not have significant negative impacts on the landscape.*
- *Buildings – permitted development should be sympathetic in design, scale and mass and residential development should be clustered rather than linear.*
- *Forestry – coniferous plantations at Montpelier, Kilakee and Cruagh to be carefully maintained to ensure minimal negative impacts on the landscape.*

A more detailed Landscape Character Assessment was prepared in 2014 and is now part of the Draft 2016 – 2022 Development Plan. This is reviewed in Section 2 below

Policy LHA2: Views and Prospects
It is the policy of the Council to protect views and prospects of special amenity value or special interest. The County contains many scenic areas and vantage points from which views of great natural beauty may be obtained over adjoining counties and the rural landscape in general. In addition to scenic views, the County also contains important "prospects" i.e. prominent landscapes or areas of special amenity value or special interest, which are visible from the surrounding area. Views and prospects for protection have been identified in the Plan, these are shown on the Development Plan Maps and prospects are listed in Table 4.3.1.

Those relevant to the Study Area are listed below:

Viewing Points	Prospects
Blessington Road (in the vicinity of Tallaght)	Kilakee Mountain, Cruagh Mountain
Blessington Road (Killinarden area)	Blessington Road (Killinarden area)
Blessington Road (Killinarden area)	Knockannavea, Tallaght Hill
Belgard Road	Cruagh, Kilakee Mountain, Mountpelier, Piperstown Hill, Kippure, Seefngan, Corrig Mountain, Seahan
Ballinascorney Road	*Ballymorefnn Hill, Sliabh na mBanog, Seahan*
Eastern and Western sides of Glenasmole Valley	*Glenasmole Valley, hillsides of Sliabh na mBanog, Corrig Mountain, Ballymorefnn Hill, Seahan to the west, Killakee Mountain to the east.*
Naas Road (in the vicinity of the Redcow Roundabout)	*Kilakee Mountain, Cruagh*
Rathcoole-Lucan Road (R120) (in the vicinity of Milltown)	*Verschoyle's Hill, Knockannavea, Sliabh na mBanog*
Scholarstown Interchange	*Knockannavea, Sliabh na mBanog, Piperstown and Mountpelier*

Policy LHA10: Dublin Mountains Area above 350m Contour,
It is the policy of the Council that within the part of the Dublin Mountains area, which is generally above the 350m contour, the management of development will seek to protect the open natural character of mountain heaths and mountain blanket bogs.

Policy LHA11: New Buildings in the Dublin Mountain Zone
It is the policy of the Council that in order to preserve the unique character of the Dublin Mountain Zone new buildings should be low-rise, generally single-storey structures. Sensitivity in the siting and design of new developments in general will be required in the High Amenity, Liffey Valley and Dublin Mountain Zones.

Policy LHA12: Outdoor Recreational Potential of the Mountain Area
It is the policy of the Council that Development shall be managed with the objective of enhancing the sustainable outdoor recreational potential of the area while protecting and sustaining the environmental capacity of the upland landscape.

Policy LHA13: Development within Liffey Valley, High Amenity Areas or Mountain Areas
It is the policy of the Council that within Liffey Valley, High Amenity Areas or the Dublin Mountain Area, any new development not related directly to the area's amenity potential or to its use for agriculture, mountain or hill farming will not be permitted.

Policy LHA14: Development below the 120m Contour in the Dublin Mountain Area
It is the policy of the Council to limit the development of residential, commercial or industrial clusters to areas below the 120m contour in the Dublin Mountain area, (except where 'A1' zones are shown in this Plan above the 120m contour and also where specific objectives so permit in this Plan), in the interest of pursuing the policy of sustainability in both high amenity and rural areas.

Development proposals that have the potential to adversely impact upon landscapes attributed with Liffey Valley, High Amenity Areas zoning objective, upon protected views or prospects, for land above the 120m contour, or for any land considered to have sensitive landscape character, shall be accompanied by an assessment of the potential visual impacts of the proposed development on the landscape- demonstrating that impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape.

Policy LHA16: Forestry
It is the policy of the Council to facilitate the sustainable development of forestry in areas of the County where it will not have an adverse environmental impact, and where it will not detract from the recreational potential or the character of the Dublin Mountain Area or other High Amenity Zones or character or landscape of Liffey Valley Zone.

In addition to their economic function forests have a major role to play in facilitating recreational activities. In the mountain areas the Council will seek to ensure that new forestry development facilitates public access wherever possible. In addition, the Council is conscious of the potentially negative visual impact of extensive forestry development (particularly ridge line planting and clear-felling activity) and will seek to have such planting and felling conducted in a manner which takes into account best practice in forestry planting and felling in the context of landscape design and impact.

The Council will encourage the planting of broadleaf native species such as oak in both urban and rural areas in order to enhance biodiversity. The Council will also promote the development of urban forests on appropriate sites as circumstances permit.

Within areas designated as 'Sensitive To Forestry', the Council shall, in assessing any forestry proposal, have regard to the likely impact on:

- *Views and prospects;*
- *Visual amenity of landscape;*
- *Existing residential amenity;*
- *Impact on existing flora an fauna;*
- *Impact on archaeological features;*
- *Drainage;*
- *Impact on water supply to reservoirs;*
- *Water pollution*
- *Access and*
- *Recreational potential.*

Policy LHA25: Dublin Mountain Zone-Character
It is the policy of the Council to conserve the character of the Dublin Mountain and High Amenity Zones in conjunction with the Dublin Mountains Partnership.
In the implementation of this policy it is the intention of the Council to designate and conserve areas of outstanding natural beauty and/or recreational value. Such areas include the Dublin Mountains and the Liffey and Dodder Valleys, and are covered by the zoning objectives 'G' - "To protect and improve High Amenity Areas" 'H' - " To protect and enhance the outstanding natural character of the Dublin Mountain Area" and 'I' - "To protect and enhance the outstanding character and amenity of the Liffey Valley and to preserve its strategic importance as a green break between urban settlement areas".
These areas play a crucial role in recreation and amenity terms, in addition to serving as valuable wildlife habitats. It is an objective of the Council to facilitate the implementation of the "Dublin Mountains Strategic Plan for Development of Outdoor Recreation", (2008).

Policy LHA29:
Dodder Valley Linear Park It is the policy of the Council to provide for the continued development of the Dodder Valley Linear Park.

Policy LHA26: Areas of Special Amenity
It is the policy of the Council to examine areas within the Dublin Mountains including the Bohernabreena Reservoirs and High Amenity Area and Liffey Valley Zones with a view to making Special Amenity Area Orders for all or part of them. The Council will investigate the feasibility of adopting a joint management structure with Dublin City Council for the Bohernabreena Reservoirs, and will report back within two years of the adoption of the Development Plan and that the Draft County Development Plan be amended accordingly.

Policy LHA28: National Park
It is the policy of the Council to assist and cooperate in the protection of the Wicklow Mountains National Park that adjoins the County at Glenasmole and Kippure and extends into the County at Glendoo and to promote the extension of the Park to areas adjoining the County.

Policy LHA31: Green Structure
It is the policy of the Council to facilitate, where possible, the development of a Green Structure where heritage and landscape are afforded protection, management and enhancement and where there will be adequate opportunity for passive and active recreation.

Policy LHA34: Access to Forest and Woodland Areas It is the policy of the Council to seek the co-operation of Coillte and other agencies and landowners where appropriate, in the establishment of access ways, bridle paths, nature trails and other recreational facilities within forest and woodland areas, as part of a connected network of walking and cycling routes within the County.

Policy LHA27: Preservation of Major Natural Amenities
It is the policy of the Council to preserve the major natural amenities of the County (i.e. Dublin Mountains and River Valleys) and to provide parks and open spaces in association with them, along with facilitating walking and cycling routes linking the mountains, river valleys and major parks.

Policy LHA35: Public Rights of Way
It is the policy of the Council to preserve and/or extend and enhance existing public rights of way and to create new rights of way in the interest of amenity as opportunities or needs arise whilst also allowing for the extinguishment of certain urban public rights of way as provided for in Roads Legislation.

It is an objective of the Council to secure retention of established public rights of way. Among the most important of these are the Grand Canal Way. (Waymarked Walk), a short section of the Wicklow Way (Waymarked Walk), and public rights of way in the Dublin Mountains.

It is an objective of the Council to examine existing rights of way, paths, access points to rivers, lakes, mountains and other amenity areas to determine where existing public rights of way exist, and where public rights of way should be created, either by agreement or by compulsion, in the interests of ensuring access to amenities for recreation and amenity purposes, by the provision of walking routes.
It is an objective of the Council to compile a list and map of public rights of way and that a charter of pedestrian rights be adopted in conjunction with this.

Policy LHA36: Trails, Hiking and Walking Routes
It is the policy of the Council to promote the development of regional and local networks of hiking and walking routes and way marked trails.

Natural Environment

The following policies are in place to protect the natural environment:
Policy LHA8: Special Areas of Conservation and proposed Natural Heritage Areas It is the policy of the Council to protect and preserve areas designated or proposed as Special Areas of Conservation (E.U. Habitats Directive) and proposed Natural Heritage Areas.
Those relevant to the Study Area are listed below:

SAC Site Code	Area	Interest Type
001209	Glenasmole Valley SAC	Ecological
002122	Wicklow Mountains SAC	Ecological

Policy LHA9: Impacts on Natura 2000 Sites: It is the policy of the Council that projects giving rise to significant direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall not be permitted on the basis of this Plan (either individually or in combination with other plans or projects), except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

(a) No alternative solution available;
(b) Imperative reasons of overriding public interest for the plan to proceed and
(c) Adequate compensatory measures in place.

Policy LHA15: Heritage and Biodiversity Plan
It is the policy of the Council to support the objectives and actions of the South Dublin County Heritage Plan and to prepare a County Biodiversity Plan following public consultation and within the lifetime of the plan. This Plan will be set within the context of the National Biodiversity Plan, (2002). In order to protect, strengthen and improve the biodiversity linkages within the County, as required by Article 10 of the Habitats Directive, the Council shall formulate a Green Network Plan or as part of the Biodiversity Plan indicating linkages between open space, sensitive habitats, river systems which shall incorporate walking routes and greenways. Any recommendations and outputs arising from the Green Network Plans for South Dublin County will be incorporated into the Development Plan.

Policy LHA17: Trees and Woodlands
It is the policy of the Council that trees, groups of trees or woodlands, which form a significant feature in the landscape, or are important in setting the character of an area, will be preserved wherever possible.
In the implementation of this policy, the Council will consider making Tree Preservation Orders where it appears expedient in the interest of amenity. A number of orders have been made and these are detailed in the table below. In addition, certain trees, groups of trees and woodlands have been identified on the Development Plan Maps. It is intended that these trees be protected and maintained.
The Council will review the existing Tree Preservation Orders in the County and as part of that review will undertake an assessment of significant trees, groups of trees and woodlands in the county with a view to making further Tree Preservation Orders in circumstances where it is considered desirable, and where the subject trees meet the requirements set out in the TPO Guidelines issued by the DoEHLG, to enhance the protection of such trees within the lifetime of the plan (see Table 4.3.3).

Policy LHA18: Hedgerows
It is the policy of the Council to protect hedgerows in the County from development which would impact adversely upon them and to enhance the County's hedgerows by increasing coverage, where possible, using locally native species.
Where appropriate, the Council will require a comprehensive tree and hedgerow survey on drawings of a suitable scale. Details of tree and hedgerow survey requirements and of measures necessary to protect trees and hedgerows are to be found in 'Guidelines for Open Space Development and Taking in Charge (2005)', Layouts will be required to facilitate the retention of the maximum number of signifcant trees, which must be adequately protected before and during development works.Security by means of a fnancial bond may be required to ensure the protection of existing trees on a development site.

Policy LHA19: Flora and Fauna
It is the policy of the Council to protect the natural resources of the County and conserve the existing wide range of flora and fauna in the County through the protection of wildlife habitats and wildlife corridors wherever possible.

Policy LHA21: River and Stream Management
It is the policy of the Council to implement a strategy (prepared on a regional basis) for the management of rivers and streams throughout the County.
The purpose of the strategy is to implement an integrated programme for the management of rivers and streams, dealing with the creation of riparian zones, issues such as nature conservation, food control, pollution control, general recreation, walking and angling. It will facilitate monitoring of changes in water quality and aquatic habitats, and assist in the preparation of landscape improvement schemes for existing rivers and streams. The strategy will be prepared in consultation with local community and environmental groups, angling organisations and fsheries authorities and should have regard to the "E.U. Water Framework Directive",(2000) and the "EU Floods Directive", (2007).
It is an objective of the Council to co-operate with Dublin City Council and Dun Laoghaire Rathdown County Council in the preparation of an Environmental Management Plan for the River Dodder and its environs.

With respect to river and stream management it is an objective of the Council that existing County flood plain management policy seeks to limit development in identified foodplains and to preserve riparian corridors. Development proposals in river corridors will only be considered providing they:

- *Dedicate a minimum of 10m each side of the waters edge for amenity, biodiversity and walkway purposes where practical. This may be increased depending on the size of the watercourse and any particular circumstances*
- *Do not have a negative effect on the distinctive character and appearance of the waterway corridor;*
- *Preserve the biodiversity of the site*
- *Do not involve land filling,diverting, culverting or re alignment of river or stream corridors.*

Policy LHA22: Watercourses
It is the policy of the Council to protect, maintain, improve and enhance the natural and organic character of the watercourses in the County and to promote access, walkways and other recreational uses of their associated public open space, subject to a defined strategy of nature conservation and flood protection. The Council will pursue the establishment of a working group in association with adjoining Local Authorities, the Department of Environment, Heritage and Local Government, the Office of Public Works and Fisheries Authorities to oversee the preparation of a guide on Irish river rehabilitation and a public education programme. The Council will also aim to evaluate all watercourses in the County for rehabilitation potential, particularly in conjunction with sustainable drainage

Policy LHA24: Geological Features It is the policy of the Council to identify and seek to preserve important features of geological and geomorphological interest within the County.

Built and Cultural Heritage

The SDCDP recognises the importance of its rich built and cultural heritage and Section 2 of the plan includes a range of policies for the protection and conservation of archaeological and historical sites. This includes:
Policy AA2: Historical and Archaeological Sites and Features.
It is the policy of the Council to secure the preservation (i.e. preservation in-situ or, as a minimum, preservation by record) of all sites and features of historical and archaeological interest.

Policy AA3: Historical and Archaeological Preservation in Situ.
It is the policy of the Council to favour the preservation in situ of archaeological remains or objects in their settings.

Policy AA4: Development in Vicinity of Recorded Monument or Zone of Archaeological Potential
It is the policy of the Council to ensure that development within the vicinity of a recorded monument or zone of archaeological potential does not seriously detract from the setting of the feature, and is sited and designed appropriately.

Policy AA5: Historical Burial Grounds.
It is the policy of the Council to protect historical burial grounds within South Dublin County and encourage their maintenance in accordance with conservation principles.

Policy AA6: Areas of Archaeological Potential
It is the policy of the Council to conserve and protect areas designated as Areas of Archaeological Potential.

Policy AA7: Conservation of Buildings, Structures and Sites
It is the policy of the Council to conserve and protect buildings, structures and sites contained in the Record of Protected Structures that are of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest. The Council will carefully consider and scrutinise proposals for development within the curtilage of a Protected Structure in order to assess the impact that development may have on the contribution that the curtilage makes to the character of a Protected Structure.

Policy AA8: Architectural Conservation Areas
It is the policy of the Council that areas that have particular environmental qualities that derive from their overall layout, design and unity of character be designated as Architectural Conservation Areas.

Policy AA10: Retention of Older Buildings
It is the policy of the Council to encourage the rehabilitation, renovation and re-use of existing older buildings where appropriate. The Council promotes proper conservation standards in all adaptive design work and promotes best conservation skills in all renovation work to Protected Structures which are re-utilised for housing, retail, commercial and other uses.

Policy AA11: Development Proposals involving Protected Structures.
It is the policy of the Council that in assessing proposals for developments affecting Protected Structures it is the intention of the Council to:

- *Encourage appropriate use and re-use of Protected Structures;*
- *Discourage demolition and unnecessary alteration of Protected Structures;*
- *Ensure that proposals to extend, alter or refurbish a Protected Structure are sympathetic to its essential character and in accordance with good conservation principles and practice and*

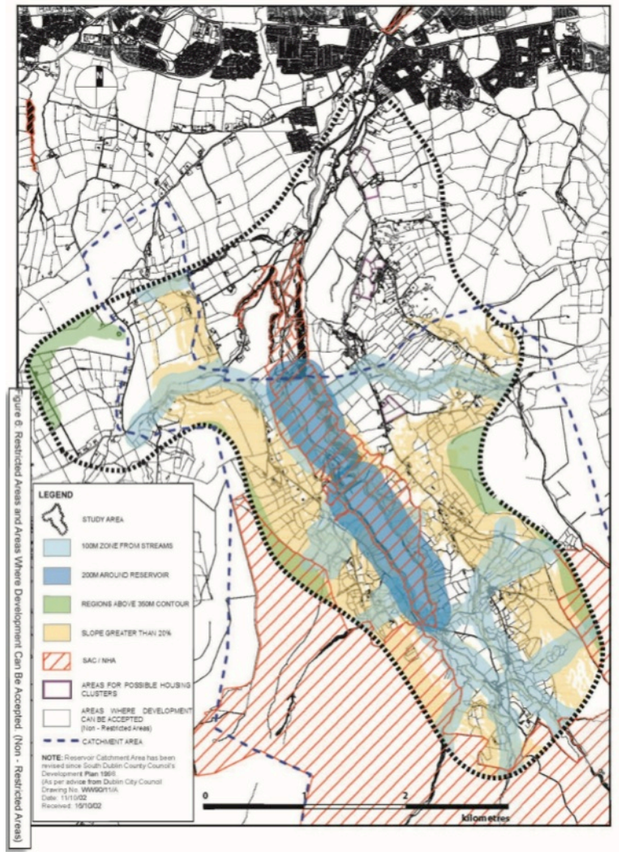

Figure 6: Restricted Areas and Areas Where Development Can Be Accepted (Non - Restricted Areas)

Fig. 3 Extract from Glenasmole/Bohernabreena Housing and Planning Study – November 2002

- *Ensure that all significant development proposals for Protected Structures or that would affect the setting of such structures are referred to the appropriate prescribed bodies, and the Council will have regard to the advice and recommendations received.*

Sites of historic, archaeological or architectural interest are shown on page 25.

Glenasmole/Bohernabreena Housing and Planning Study – November 2002

Due to its sensitivity in landscape and ecological terms and development as a result of its proximity to the urban area a housing sand planning study was carried out of Glensamole and Bohernabreena in 2002. The following plan illustrates restricted areas and areas where development can be accepted within the study area.

1.1.2.b SOUTH DUBLIN COUNTY COUNCIL DRAFT DEVELOPMENT PLAN 2016-2022

The 2016-2022 South Dublin County Council Draft Development Plan (the Draft Dev. Plan) is currently on public display as part of the statutory consultation process. Depending on amendments it is likely that the final plan will be approved and adopted in the second half of 2016.
Many of the plans and policies, relevant to this project, reflect the aims and objectives of the current plan. Significant variations or additional objectives and policies are set out below. These include policies that would facilitate the development of the Visitor Centre within the High Amenity Area.

Under Economic and Tourism (ET) Policy 5 Tourism Infrastucture

ET5 Objective 1
It is the policy of the Council to support the development of a sustainable tourism industry that maximises the recreational and tourism potential of the County, through the implementation of the South Dublin Tourism Strategy 2015.

ET5 Objective 3
To support the development of a visitor facility in or adjacent to the High Amenity – Dublin Mountains zone (HA-DM), subject to an appropriate scale of development having regard to the pertaining environmental conditions and sensitivities, scenic amenity and availability of services.

ET5 Objective 4
To support the development of an outdoor pursuits centre in or adjacent to lands designated with Zoning Objective High Amenity – Dublin Mountains (HA-DM), subject to an appropriate scale of development having regard to the pertaining environmental conditions and sensitivities, scenic amenity and availability of services.

ACTION:
South Dublin County Council will seek to establish a multi-stakeholder working group to oversee the preparation of a feasibility study for an interpretative and visitor facility in the County.

This current study is an early implementation of the above action.

There is further supportive policy under ET6 for the development of integrated Greenways, Trails and Loops throughout the County.

ET7 contains policy to support the development of leisure activities in the forest including *the active use of managed forests for tourism and leisure related activities subject to an appropriate scale of development having regard to the pertaining environmental conditions and sensitivities, scenic amenity and availability of services.*

Under Transport and Mobility (T&M) Cycle Network Programme.

The design and development of the Dodder Greenway – Bohernabreena via Firhouse to the City Centre.

Under Green Infrastructure (G) Policy 2 GI Network

It is the policy of the Council to promote and develop a coherent, integrated and evolving Green Infrastructure network in South Dublin County that can connect to the regional network, secure and enhance biodiversity, provide readily accessible parks, open spaces and recreational facilities.

A range of supportive objectives are set out for the preservation of and creation of ecological and biodiversity networks addressing habitat fragmentation and including Eco-Ducts and Green Bridges at ecologically sensitive locations facilitating the free movement of people and species through the urban and rural environment; tree and hedgerow networks; and path and cycle networks.

Under Green Infrastructure Policy 3 Watercourses Network

G3 Objective 2:
To maintain a biodiversity protection zone of not less than 10 metres from the top of the bank of all watercourses in the County, with the full extent of the protection zone to be determined on a case by case basis by the Planning Authority, based on site specific characteristics and sensitivities. Strategic Green Routes and Trails identified in the South Dublin Tourism Strategy, 2015; the Greater Dublin Area Strategic Cycle Network; and other government plans or programmes will be open for consideration within the biodiversity protection zone, subject to appropriate safeguards and assessments, as these routes increase the accessibility of the Green Infrastructure network.

Under Heritage, Conservation & Landscape Policy 7 Landscapes

It is the policy of the Council to preserve and enhance the character of the County's landscapes particularly areas that have been deemed to have a medium to high Landscape Value or medium to high Landscape Sensitivity and to ensure that landscape considerations are an important factor in the management of development.

A number of objectives are included referencing the guidance provided in the Landscape Character Assessment 2015 and for developments to assessed against this guidance.

Views and prospects to be protected under HCL8 broadly reflect those in the current plan.

Under Heritage, Conservation & Landscape Policy 9 Dublin Mountains

It is the policy of the Council to protect and enhance the visual, recreational, environmental, ecological, geological, archaeological and amenity value of

Fig. 4.

Fig. 5

the Dublin Mountains, as a key element of the County's Green Infrastructure network.

The following more detailed objectives are set out:

HCL 9 Objective 1
To restrict development within areas designated with Zoning Objective 'HA – DM' (To protect and enhance the outstanding natural character of the Dublin Mountains Area) and to ensure that new development is related to the area's amenity potential or to its use for agriculture, mountain or hill farming and is designed and sited to minimise environmental and visual impacts

HCL 9 Objective 2
To ensure that development above the 350 metre contour in the Dublin Mountains will seek to protect the open natural character of mountain heath, gorselands and mountain bogs.

HCL 9 Objective 3
To ensure that development within the Dublin Mountains will not prejudice the future creation and development of a National Park, the County's Green Infrastructure Network and local and regional networks of walking and cycling routes.

HCL 9 Objective 4
To ensure that development proposals within the Dublin Mountains maximise the opportunities for enhancement of existing ecological and geological features and archaeological landscapes.

HCL 9 Objective 5
To support the re-routing of the Dublin Mountains Way from public roads and to improve access to publicly owned lands in the upland area.

HCL 9 Objective 6
To protect the rural environment of the Slade Valley (Slade of Saggart and Crooksling pNHA) from inappropriate development.

HCL 9 Objective 7
To enhance and protect our rural traditions by preserving traditional common grazing grounds in Bohernabreena.

Under Heritage, Conservation & Landscape Policy 16 Public Rights of Way and Permissive Access Routes

There is policy and a number of objectives to promote and improve public rights of way, permissive access routes and heritage trails including access to rural areas and forests and in particular the continued development of the Dublin Mountains Way particularly off public roads.

Under Zoning Objectives HA-DM

"to protect and enhance the outstanding natural character of the Dublin Mountains area"
The list of uses open for consideration developments includes a Recreational Facility when *"Directly linked to the heritage and amenity value of the Dublin Mountains".*

1.1.2.c SOUTH DUBLIN COUNTY COUNCIL LANDSCAPE CHARACTER ASSESSMENT

A new County Landscape Character Assessment is included in the Draft 2016-2022 Development Plan.
The study area broadly reflects the Landscape Character Area that consists of the mountains and uplands of South Dublin and is called Dodder and Glenasmole. This LCA is described below.

The characteristics of this area are as follows:

- *Highly scenic and distinctive glacial valley*
- *River Dodder and natural heritage designations*
- *Extensive views over the greater Dublin area*
- *Attractive and diverse topography and landuse*
- *Field patterns and agricultural use contrasts with open blanket bog areas*
- *Distinctive cluster of stone built cottages along the valley*
- *Important archaeological clusters including Neolithic and Bronze Age cluster at Piperstown*

Extent: western boundary of the regional road R114 to foothills around Bohernabreena to Oldcourt, comprising the eastern and southern county boundary.

The Landscape Character Types, Historical Landscape Types and Habitat Types present are:

LCTs	HLT	Habitats identified under corine	Hectares
River Valley	Prehistoric	discontinuous urban fabric	52.592566
Mountains		road and rail	9.027848
Hills		mineral extraction sites	35.709006
		sport and leisure facilities	53.907256
		pasture	1128.424
		complex cultivation (mixed)	36.893503
		Land principally occupied by agriculture with significant areas of natural vegetation	695.98594
		broadleaf forest	67.604889
		coniferous forest	780.91563
		mixed forest	59.695141
		moors and heathland	528.23943
		transitional woodland scrub	232.6438
		peat bogs	1648.3144
		water bodies	25.487262

Geology and Landform

The collision of ancient continents around 419 million years ago led to the great mountain building period known as the Caledonian period. Following this, large masses of granite were injected into the underlying crust during the Devonian Period around 405 million years ago. Today these granites form the largest area of upland granite in the British Isles and comprise the highest mountains found in South Dublin County including Seefingan, Corrig and Kippure (the highest mountain in Leinster- the summit is located in Wicklow but the southern slopes form part of the South Dublin County uplands).

These resistant granite uplands form their own distinctive landform, Seefingan at 722m, Corrig (617m OD) and Seahan (647m) are amongst the highest peaks in the mountain range; these mountains include incised river valleys that add further interest to the landform as they rise steeply from the Dodder River.
Glenasmole itself comprises two valleys, the upper valley being formed by glaciation, whilst the lower valley is a river valley where the River Dodder eroded the glacial debris.

Once the bedrock changes to the more common shales and greywackes found in the hills and foothills, the landform alters again, comprising gentler hills of lower elevations and more rounded landform.
The terminal moraine of the midlandian glaciation rests on the western slopes of Piperstown Hill and glacial drift deposits fanned out up valley sides, which increased the limits of cultivation. The highest elevations of glacial till marks the differentiation between enclosed and open land.
This landform and changing bedrock gives rise to a very interesting and diverse topography with mountains and hills enclosing the valley on all aspects except to the north towards Dublin.

Landform and Ecology

A mosaic of habitats are present in this LCA increasing overall biodiversity; landuse is primarily agricultural with rough grazing on the uplands and improved, enclosed pasture on the lower elevations and river valley floor. Coniferous forestry plantations are present more on the western area adjoining the Athgoe and Saggart Hills LCA. The uplands proper are unenclosed and are primarily blanket bog and associates habitats. Further diversity is added by the numerous streams that feed into the River Dodder, rising on the southern slopes of Kippure and entering the Dodder at Glenasmole Reservoir.

Marrens Brook, Cod's Brook and Slades Brook all feed into the Dodder and along the blanket bog further springs rise from the wet soil and contribute further to this large watershed.

Wicklow Mountains SAC is an extensive, upland site covering much of the Wicklow Mountains and a portion of the Dublin Mountain range. Within the boundaries of South Dublin County, the SAC encompasses the mountains of Ballymorefinn, Corrig, Kilakee, and Cruagh, stretching south to the summit of Kippure Mountain at the border with County Wicklow. The mountains in the county generally represent good examples of upland habitats including blanket bog, heath and upland grassland. Several rare, protected plant and animal species also occur in this SAC.

Glenasmole Valley Special Area of Conservation contains three habitats listed on Annex 1 of the EU Habitats directive -petrifying springs with tufa formation, seminatural dry grassland and scrubland facies on calcareous substrate (Festuco-Brometalia) (important orchid sites), and Molinia meadows on calcareous, peaty, or clayey-silt-laden soils (Molinia caerulea). Both petrifying springs and orchid- rich calcareous grasslands also qualify as Priority Habitats under the Habitats Directive. The presence of four Red Data Book plant species further enhances the value of the site as does the presence of populations of several mammal and bird species of conservation interest.

Historical and Human Influences

Historically this LCA is primarily a prehistoric landscape type with evidence of human activity from the Neolithic and Bronze Ages. There is a significant archaeological complex at Piperstown, which has been excavated, and includes ritual and domestic monuments. The southern slopes of Piperstown make it relatively dry and protected from the colder north winds which may explain its location. Archaeological research has indicated a field wall to the east of Piperstown, running across Piperstown Hill. This dates to before the formation of the blanket bog.

Ballinascorney Upper, Montpelier, Killakee, Woodtown and Cunard have megalithic tombs (two passage tombs, a wedge tomb and two portal tombs respectively). There seems to be distinctive phase of Bronze Age activity evidenced by barrows, pits and cists at Ballymorefinn, Glassamucky, Ballinascorney Lower, Cruagh and possibly Castlekelly, with a possible record of a dugout canoe from there.

Within this LCA, the highest passage tombs are found on Seahan mountain and this could be considered a passage tomb cemetery in its own right, the summit containing at least three passage tombs in close proximity. The views from here are panoramic including views south to the Seefin passage tomb in Co. Wicklow. The siting of such tombs along and on top of these mountains and hills suggest a significant amount of social organisation to construct such tombs and that the situation of these must have been significant given the extensive views and their location in such a liminal locations.
The standing stone at Killakee is located close to the much later Military Road, which suggest this route may have been in use in the prehistoric period assuming that standing stones functioned as a mark of boundaries and routes.

Interestingly the townland names around Glenasmole suggest associations with the Fiannaíocht, the quasi-military and hunting men who assisted early Irish kings with administration of justice and defence of boundaries. This area is also the reputed location of the one of the Royal hostels on the road from Tara to the east coasts – Bruidhean De Dhearg on the Dodder was reputedly where Cormac Mor, king of Ireland was slain by invading Britons and the hostel was destroyed. The word bruidhean (pronounced breen) is understood throughout Ireland to mean a fairy place, but it appears from ancient Irish tales that the word was used to signify any splendid house. The road from Glenasmole to Bohernabreena is still known as the 'road to hospitality'.

Evidence of medieval activity within this area is less strong with a ringfort at the most northern tip at Bohernabreena and a holy well at Glassmucky Brakes. Oldcourt on the lower ground was the only nucleated settlement and is just outside this LCA; Archbishop Deacon constructed his manor at Oldbawn in 1635 and dominated the local economy; contemporary accounts state how he altered this area from a 'rude desolated and wild land' to 'most delightful patrimony', Evidence from the 1641 depositions following the rebellion suggest very limited inhabitation around Glenasmole and a mixed

Fig. 6 Hell Fire Club

Fig. 7 Killakee Estate

Fig. 8 Dodder Valley Floor

agricultural economy; these records also show the perception that the mountains south of Tallaght were hostile, lawless and harmful to the settled farmers of the limestone lowlands. These mountains continued to function as a stronghold of Gaelic rebels and were the prime reason for the construction of Military Road after the 1798 rebellion; built with the purpose of improving access between these mountain regions to the capital city, and supported by a series of barracks.

The most notorious site within this LCA is probably the Hell Fire Club, a hunting lodge built in 1725 and reputedly the site of the appearance of the devil; this site was however already been used significantly in earlier times. Two prehistoric monuments are present in neighbouring Massy Woods and within the Hell Fire Woods with the stone from the passage tombs being utilised for the construction of the hunting lodge.

Killakee, Massy and Cobbe estates were the major landholding estates within this LCA. Interestingly this LCA saw the appropriation of the wilderness landscape into a contrived vision of wilderness in line with the naturalistic fashions of estate design in the eighteenth and nineteenth century; Ponsonby Shaw's estate at Friarstown and Grierson's developments within this LCA were examples of these kind of designs.

In the nineteenth century, the productive value of the watershed and two valleys were recognised and the Bohernabreena Reservoir was constructed between 1883 and 1887 to supply drinking water to Rathmines and also to the numerous mills that were located on the River Dodder –at that time there were fifteen flour mills, in addition to thirty other mills including paper, cotton, cardboard as well as distilleries, foundries and tanneries.

Field patterns remain quite strong in this LCA with generally medium sized fields enclosed by stone walls or hedgerows. This contrasts with the unenclosed commonage areas associated with the blanket bog uplands.

Today settlement is dispersed along the Dodder valley floor and strung along the narrow roads that run parallel to the Dodder valley (Allagour Road being an example). Along the valley floor, the housing styles retain a strong vernacular character, largely comprising single storey houses of plaster and stone, built into the slopes; this housing stock is associated with the Cobbe estate and dates from around 1832. In this area, there is an enclosed intimate character with vernacular style houses along narrow, curved lands enclosed with stone walls, trees and riparian vegetation. These houses give way to more recent bungalows heading north and out of the valley.

Landscape Values

- *Reflected in designations of European importance*
- *Importance of watershed and water supply*
- *High number of scenic routes*
- *Archaeological and prehistoric* **cluster**
- *Recreational use*

Forces for Change

- Recreational
- Rural housing
- Coniferous plantation
- Changing agricultural practices
- Climate change.
- Traffic
- Tourism.

1.1.2.d DUN LAOGHAIRE RATHDOWN COUNTY DEVELOPMENT PLAN 2010-2016

Although the main focus of this study is within South Dublin, potential locations for the proposed visitor centre and the landscape and recreational context includes neighbouring areas in the Dun Laughaire Rathdown county area. Areas of interest here include Tibraden, Kilmashogue and Three Rock Mountain. In addition consideration of cross border visual impacts must be addressed.

Many of the policies with regard to the Dublin Mountains and upland areas reflect the same concerns sensitivities and objective to conserve and protect the landscape and amenity value of those areas. The main relevant policy with potential cross border implications in the Dun Laoghaire Plan is Policy LHB4: Views and Prospects:

It is Council policy to protect and encourage the enjoyment of views and prospects of special amenity value or special interests.

The following relevant prospects to be preserved are identified:

- *Three Rock Mountain and Kilmashogue Mountain from Marlay ParkTibradden Mountain and Kilmashogue*
- *Tibradden Mountain and Kilmashogue Mountain from Kilmashogue Lane*
- *Glencullen Mountain and Valley from the Ballybrack Road*
- *Glendoo Mountain from the Ballybrack Road*

1.1.2.e THE DUBLIN MOUNTAIN PARTNERSHIP STRATEGIC PLAN

The Dublin Mountains Partnership or DMP was set up in May 2008 with the ultimate aim of improving the recreational experience for users of the Dublin Mountains, whilst recognising the objectives and constraints of the various landowners.

The partner organisations involved are Coillte, South Dublin County Council, Dun Laoghaire Rathdown County Council, Dublin City Council, National Parks and Wildlife Service and the Dublin Mountains Initiative, an umbrella group representing the recreation users of the Dublin Mountains.
The establishment of the DMP addresses the key need to manage the area as an integrated entity and also provides for commitments on funding and resources to underpin the DMP's work. The long term strategy is to manage recreation in the Dublin Mountains on a more sustainable basis, and a strategic plan has been put in place. The following benefits are proposed:

- Easy access to the countryside within the Dublin area, including access by public transport.
- An increased recreational value of the forest recreation resource owned.
- Opportunities to promote heath and well-being.
- Improving the tourism appeal of the capital.
- Managing interactions between recreation users.
- Providing services to land managers in managing recreational use and misuse.
- Discouraging unwelcome forms of recreation for the hills and developing specifically designed sites for motorised recreation.

The DMP strategy shares the following concensus views:

- A shared recognition of the importance and value of the Dublin Mountains area as a resource for sustainable outdoor recreation access and activities participation.
- A stated commitment by a range of partners to work together in providing, developing and managing sustainable (and responsible) recreational activity in the Dublin Mountains area;
- Access to, and responsible outdoor recreational use of, the Dublin Mountains should be available to all and reflected in both the quality and scope of recreational facility and infrastructure provision;
- Recognition that the Dublin Mountains have important economic value for the main landowner Coillte and this needs to be recognised;
- Shared recognition that outdoor recreation promotion and provision in the Dublin Mountains area requires to respect the landscape, natural and cultural heritage value of the upland location and be harmonious with the legitimate, economic and other objectives of the landowners;
- Outdoor recreation in the Dublin Mountains provides a spectrum of "non-market value" benefits, such as health and well-being gains, as well as "market value" benefits and development opportunities embracing local and wider direct/indirect economic benefits, tourism spend etc. These collectively strengthen the justification for capital and revenue funding support at Government level.

Stakeholder meetings were held highlighting the following issues:

- Management and Resources
- Access
- Unregulated Use
- Public Awareness and Information

The strategy process resulted in the following vision

"The Dublin Mountains is a Well Resourced and Well Managed Area of Significant Scenic and High Nature Conservation Value that Provides:-

A High Quality Recreation Amenity and Experience;
Breathing Space for the People of Dublin and Responsible Visitors;
Sustainable Economic Activity for those who Own or Manage the Land."

and themed actions proposed and summarised below:

Theme 1 - Developing Effective Management Arrangements for the Dublin Mountains

Including the following:
- Ongoing partnership arrangements,
- Employment of a recreation manager and a programme manager, with administrative support, offices and accommodation, a ranger service and vehicles.
- Conduct best practice research
- Initiation of a Friends organisation
- Address unlawful activities / recreation and nuisance activities.
- Monitor progress and implementation

Theme 2 - Improving the Quality and Safety of Recreational Facilities and Visitor Services and Promoting Sustainable Use

Including the following:
- *A flagship welcome and orientation point with views and information – Three Rock Mountain is suggested,*
- *New long distance walking routes, shared routes and family walking loops, including universal access, improved signage,*
- *Restoration of historic areas, settings and conservation areas.*
- *Improve and Maintain signage and parking.*
- *Promote use of the area.*
- *Combat vandalism and misuse.*
- *Develop facilities for other users – mountain biking, horse riding etc*

Theme 3 - Promoting and Ensuring Responsible Use of the Dublin Mountains

Including the following:
- Develop improved maps, signage, public information, and brand.
- Encourage good practice amongst user groups and sports bodies
- Proactively Manage unwelcome or conflicting activities

Theme 4 - Maintaining the Integrity of the Landscape as well as the Natural and Built Heritage of the Dublin Mountains

Including the following:
- Respond to area character, look at zoning of the area based on robustness, wildness and character areas.
- Manage built and natural heritage

Theme 5 - Involving Farmers, Landowners and Communities in Management

- Develop a forum for landowners, famers and communities
- Develop complementary private sector opportunities e.g campsites etc.
- Encourage and develop public transport access

All of the above objectives are complementary to the Flagship Tourism Facility in the Dublin Mountains. Without the existing resource and its sensitive management and development such a facility would be redundant. Theme 2 specifically proposes a flagship welcome and orientation point with views and information. A location at Three Rock Mountain is given by way of example but not necessarily preferred. This objective would be delivered by the proposed Flagship Tourism facility in the (south) Dublin Mountains.

1.1.2.f PLANNING HISTORY

Outlined below is a brief overview of the planning history within our study area. Two case studies have been used, describing the proposals and the reasons for approval/denial.

Killakee House/Steward's House

Planning Ref	Address	Description	Decision
SD10A/0032	Killakee House	Redevelopment of Killakee House and old stable buildings which are Protected Structures. Demolitions include extensions to the perimeter of the main house together with internal partitions and the existing staircase. The works will involve extensive conservation works to the main building including internal remodelling and the provision of additional windows in order to use the structure as a single residential unit. The works will also involve the the conversion of the original stable buildings into 3 no. holiday home residential units which will include the construction of a ground floor/basement extension to the western side. The coach house will be converted for use as a games room and maintenance facility. Car parking for all units will be in the entrance courtyard.	Split decision by the Council. Granted by ABP
SD08A/0411	Killakee House	Demolition including extensions and other structures to perimeter of main house, and single storey store room to northern side of entrance gates. Construction of 2 storey glazed atrium structure to south western side and a first floor terrace to southern end of the return building to the main house which is to be used as a single dwelling unit. The works also involve conversion of the original stable buildings into 3 no. holiday home residential units, which include reconstruction of perimeter walls and the construction of a single storey over basement extension to western side. Car parking for all units will be in entrance courtyard. Protected structures.	Refused by the Council and ABP

The Council issued a split decision in relation to SD10A/0032, refusing permission for the conversion of the original stable buildings to holiday homes and associated car parking, while granting permission for the work to the main house. The grounds for refusing the holiday homes were fears of traffic safety linked to the adequacy of the existing access and achieving safe sightlines. The Inspector agreed with this decision. The Board however overturned the decision on the grounds that a restaurant previously operated successfully from the site with no traffic issues, and finding a new use for the buildings was the best means of ensuring their continued protection.

A similar proposal under Reg. Ref SD08A/0411 was previously refused for failing to comply with the policies for the area, notably the zoning, and the potential negative impact on the character of the protected structures.

ZIPIT Forest Adventures, Tibradden Wood

ZIPIT Forest Adventures were granted permission for their facility in Tibradden Wood in 2012, as such it provides useful guidance for a tourism use within the Mountains. The application consisted of:

- Construction of the end point of High Wire Adventure Activity Course located in trees;
- Wooden platforms suspended on trees
- A log cabin and decking area
- Provision of temporary toilets
- Ancillary works.

Planning permission was granted by both South Dublin and Dun Laoghaire Rathdown (within who's jurisdiction part of the application site fell).

The application site fell beneath the 300m contour and as a recreational use was deemed open for consideration. There were some concerns from a traffic perspective regarding numbers expected and the entrance. However the Council granted permission without requesting clarification on this matter. This permission indicates that were a development is sensitive to the landscape, locataed beneath the 350m contour and there are no significant technical issues, there is a reasonable chance of success.

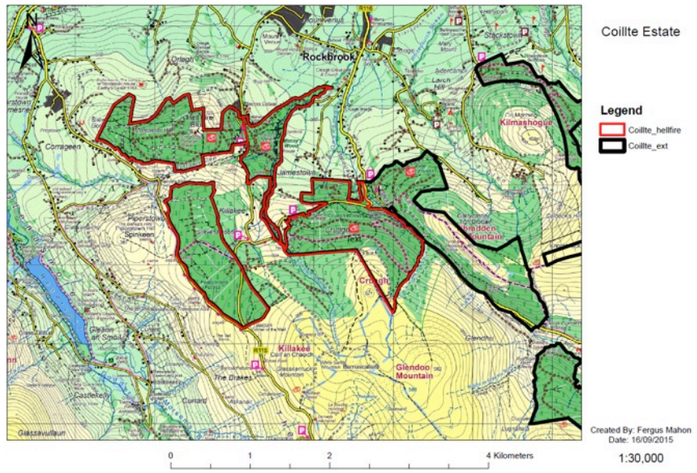

Fig. 9 Map of Coilltes Massy's Wood, Cruagh, Killakee and Hell Fire Club

Fig. 10 Evidence of deer fence vandalism

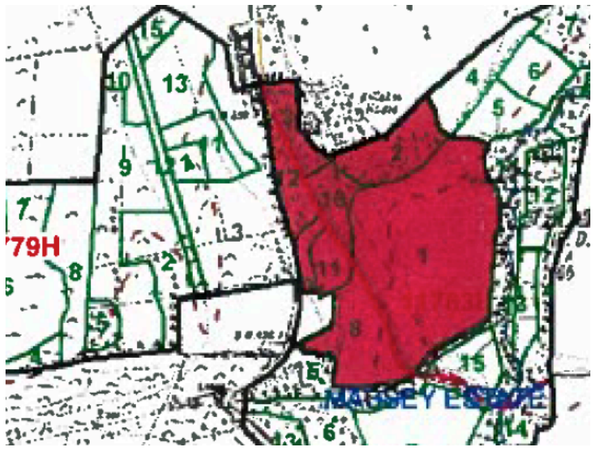

Fig. 11 Beech plot to be thinned in 2015

1.1.2.g PLANNING SUMMARY

Based on our review of the above and related policy the key planning and environmental considerations for any flagship tourism facility in the Dublin Mountains area are as follows:

3. Preference should be given to sites beneath the 350m contour line in accordance with the current zoning requirements (see note (i) below).

4. Any development above the 350m contour will need to ensure the open character of the mountains.

5. Tourism developments above the 120m contour or within high amenity zoned lands will require a landscape assessment / rationale.

6. Protected views and prospects from the city will need to be considered in any site selection and design.

7. Protected scenic routes will need to be considered in any site selection and design.

8. Any proposed building in the Dublin Mountains Area (Objective H) should be low rise and be sensitive in siting and design.

9. Adverse impacts on Natura 2000 sites and the Wicklow National Park should be carefully considered and avoided where possible.

(ii) The current zoning of much of the study area (Objective H – to protect and enhance the outstanding natural character of the Dublin Mountain Area) lists a number of relevant uses open for consideration including car-parking, cultural use, recreational facilities/sports clubs, restaurants, rural industry–cottage, rural industry–food and shop-local which would need to be accommodated below the 350m contour. In addition restaurants, rural industry–food and shop-local are also required to be located in existing premises.
Part of the study area is located in Zone Objective B (to protect and improve rural amenity and to provide for the development of agriculture). Relevant permitted uses include Caravan Park-Holiday, Rural Industry–Cottage and Rural Industry–Food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant.

The Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy. As the design and concept evolves that mix of uses will become clearer.

1.1.3. FORESTRY

Introduction

The majority of the forestry in the study area is owned by the state and managed by Coillte. There are private forest owners, mostly located around the Killakee Coillte forest. Four Coillte forests were closely examined for this overview, Hell Fire Club, Massy's Estate, Killakee, and Cruagh forests. These forests are illustrated below for reference. Other forests such as Tibradden and privately owned forests were reviewed also for completeness.

Forest Overview

All Coillte forests are managed under the principles of sustainable forest management and are certified by the Forest Stewardship Council (FSC). Coillte's primary focus for the forests is the production of high quality timber. This is the case for 75% of the Coillte forests. Management for biodiversity and recreation is the priority for 25% of Coillte's forest area. This could be a constraint for potential tourism development, in that if replanting of broadleaves is decided on over conifers the rate of return on that piece of ground is reduced.

The population of deer is high in all forest properties in the area and they cause severe browsing damage to the trees. It should be noted that the ever increasing deer population makes the establishment of broadleaves difficult in this area even with the presence of deer fencing. Deer fences are often breeched by trees falling and breaking the fence or more often people cutting holes in the fence as illustrated below.

The overgrowth of laurel is a factor to take into account, Coillte are attempting to stem the spread of this invasive plant at the moment, but this will be an ongoing activity as Laurel is very hard to control. Massy's wood is the worst effected forest.

Commercial forest activities such as road maintenance, thinning and clearfelling will need to be planned well in advance and organised during winter months when visitor numbers are lower. Pedestrian diversions can be installed off paths etc. to allow forest activities as normal.

For security and health and safety, barriers are in place at forest entrances. These barriers are regularly vandalised and locks are damaged. Dumping, and burning of cars is a problem in all areas. Because of anti social behaviour, rallying, dumping and overnight parking, car parks are closed during the night. Coillte is involved in the PURE project (Protecting Uplands and Rural Environments) with the aim of stamping out fly-tipping. Fires are of potential concern also in the South Dublin forests. Fire risk is high during prolonged periods of dry weather in the spring.

Massey's Wood

is a popular destination for visitors because of its visual and recreational value. It offers a vast ecological resource of flora, wildlife, tree species, estate artefacts and items of geological interest. This forest would be of far more interest for recreational users than the other forests in the area. Coillte have planned for the large beech plot, highlighted on Fig. 11 to be thinned in 2015. There are no clear-fells planned for the next 5 years.

Images below illustrate the type of specimen trees and archaeologiccal structures etc. that can be found in Massy's Wood.

Fig. 12 Irish Sessile oak

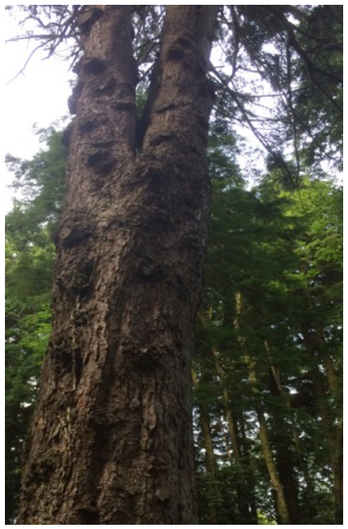

Fig. 13 European silver fir

Fig. 16 Lawson Cypress

Fig. 17 Monterey Pine

Fig. 20 West Himalayan spruce

Fig. 21 Noble fir

Fig. 14 Giant Sequoia (Redwood)

Fig. 15 Monkey Puzzle

Fig. 18 Irish Yew

Fig. 19 Western red cedar

Fig. 22 Water Storage Tank at Killakee House

Fig. 24 Disused icehouse

Fig. 23 Footstones of an old Turner Conservatory

Fig. 25 Ruins of the walled gardens

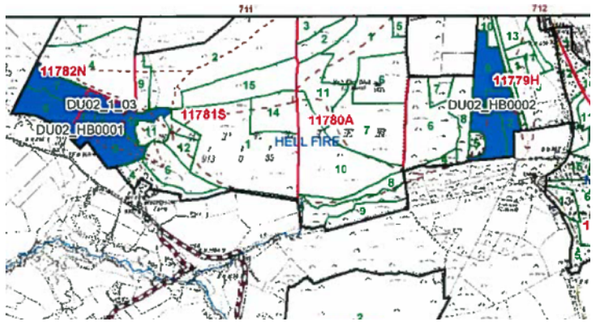

Fig. 26 Conifer plots scheduled for clearfell in 2016


Fig. 27 View of Dublin from the Hell Fire Club East entrance

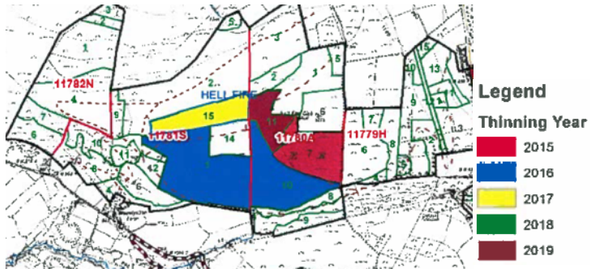

Fig. 28 Areas in the Hell Fire Club scheduled for thinning over the next 5 years

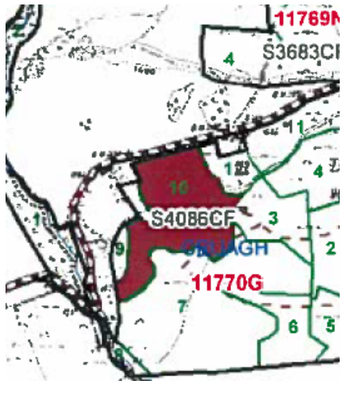

Fig. 29 Area in the Cruagh Wood scheduled for Clear-fell in 2019

A forest road goes around Massy's wood which is called the Nature Trail. There are also many smaller tracks and shortcuts crossing the forest and all these paths lead to the main road.

Hell Fire Club's

forestry is not as diverse as Massy's Wood. However, there are other considerations to take into account with forestry such as landscape issues. There are far more views over Dublin City from the Hell Fire Club forest. There are two areas scheduled for clear-fell in 2016, these areas are highlighted in blue in Fig. 26.

When the forest highlight above is clear-felled a view north will be exposed as illustrated in Fig. 27.

There are also 5 plots scheduled for thinning operations over the next 5 years in Hellfire, these areas are highlighted in Fig. 28. There are a lot more coniferous commercial plots in this forest than Massy's Wood.

The forests are also a lot younger in Hell Fire as the majority are second rotation where clear-fells have occurred over the past 20 years. The entrance for the car park is shared as the commercial forest entrance which leads to the main forest road, this goes around the top of the mountain. There are sections of the Hell Fire also that are unproductive and covered in heather and furze etc.

There are many smaller forest tracks and shortcuts crossing the Hell Fire forest. All these paths lead either to the main road or to the top of the mountain where a ruined hunting lodge stands with a view over the Dublin Bay. On the southern side of the mountain there are views of the Piperstown Gap.

Cruagh Wood

forests are similar in nature to Hell Fire Clubs. All of Cruagh Wood forests are commercial in nature and have conifer species. The majority of the species present is Sitka spruce. There are some very nice plots of European larch, one of which is scheduled for clear-fell in 2019. This plot is highlighted in Fig.29 in wine and is located beside the car park.

The view from the plot highlighted above for clear-fell is illustrated below. There are no other commercial forestry activities planned for Cruagh Wood over the next 5 years, however, the age class of Cruagh Wood is older than that of the Hell Fire Club so it is envisaged that clear-fell plots will come of age over the next 10-20 years.

There are plenty of tracks and trails that are either on or connected to the main forest road in Cruagh, one of these trails is the Sli na Slainte loop. The Dublin Mountain way also passes through this forest which gives access to the open mountain and eventually the Wicklow Way.

You can also access Tobradden forest and Massys's Wood from Cruagh. There is also quiet poor quality privately owned forestry neighbouring Coillte's forest to the south of Cruagh Wood.

Killakee Forest like Cruagh has a mix of privately owned and state forestry. All the forestry in Killakee is made up of commercial conifer species. There have been some recent clear-fells also which have now been replanted. Some of these are along the public road. Tree shelters were required to plant broadleaves along the road as deer presence is so high.

Maintaining walkways through a clear-fell area can be an issue as the ground is usually very rough after operations are complete, this is due to the lop and top left behind. There are biomass solutions to clean up this lop and top but the techniques used are very site specific and can be expensive.

As a point of interest there is a property that is known to be on the market and joins Killakee Forest along the south west side. This property is made up of circa 5,000 acres and goes all the way up to the Wicklow Mountains.

There are also 2 plots scheduled for clear-fell over the next 5 years in Killakee. All of the plots in Killakee forest are coniferous commercial plots planted with 90% Sitka spruce.

Tibradden Wood

is between Cruagh and Kilmashogue mountains. The major species planted in Tibradden are Scots pine, Japanese larch, European larch, Sitka spruce, oak and beech. The pine is of particular interest as it was planted in 1910. Forestry is somewhat restricted in Tibradden due to archaeological interests, in that there is a cairn and kist burial site on the south side of the rocks which mark the highest point on Tibradden. The site is a registered National Monument and a burial urn recovered on the site is now housed in the National Museum in Dublin.

As in nearly all of the forests in the Dublin Mountains areas of conifers are coming up to clear-fell in the coming years. Whether this is for silvicultural reasons or for recreational purposes all harvesting activities will require felling licences.

The forestry act states, in layman terms, that when forests are cut down they need to be replanted. If replanting is not going to occur then a limited felling licence is required and replacement lands will need to be planting instead.

Singles trees and small groups of trees can be removed under a normal general felling licence. However, discussions will have to be opened with the Department of Agriculture in relation to clearing larger areas and lines of trees for tracks etc. without replanting. As the areas are going to be used for recreation there may be scope to forgo limited felling licence rules.

With clearing areas of trees the remaining forest can sometimes be disturbed depending on a number of factors (aspect, elevation, remaining tree shelter etc.) Opening areas of the forest for structures and tracks etc. may lead to some trees becoming unstable and prone to windblow as evident in Massy's wood. This could be a health and safety risk.

1.1.4 ENVIRONMENTAL ASSESSMENT

1.1.4.a AIR, SOIL AND WATER

When considering the possible environmental impacts from the proposed development existing baseline data for Air, Soil and Water was examined for each location option. For example in the case of possible impacts on soil and hydrology a review of published available information predominantly based on the 1:100,000 scale Geological Survey of Ireland (GSI) map of the study area was undertaken. A general assessment of predicted impacts at each location was then carried out for each factor e.g. for example predicted air quality impacts included expected emissions from construction vehicles and dust generation due to their movements at construction phase and recreational user traffic at operation phase. This baseline information gathered was then used to inform table 1.1.4.a.

1.1.4.b ECOLOGY

Table 1.1.4.b. considers the possible impacts that the proposed development may have on ecology at each option location. Each option has been ranked on a scale of 1 to 3, with 1 identified as most desirable due to the predicted least amount of impact on ecology. An examination of available protected species records and habitats present in the areas was used to inform the results. As can be seen from the above, the quality of habitat present in Massey's Estate would rank higher than the habitats available in the alternative coniferous forestry. Stewards House and Belfry has the potential to host roosts for certain species of bat and therefore has been ranked accordingly to highlight this possible constraint. Some of the options have been ranked the same due to the similar conditions present at these locations.

AIR SOIL AND WATER	Visitor Centre Site Location Options					
Factor	1 Hell Fire Wood	2 Massey's Estate	3 Stewards House & Belfry	4 Featherbed	5 Cruagh	6 Options 1 & 2 Combined
Air Quality Impact: Higher vehicle emissions to higher elevation sites.	1	1	1	5	5	1
Water Quality Impact: Suitability for surface water drainage discharge.	1	1	1	2	2	1
Soils Impact: All sites are similar on land managed for forestry.	1	1	1	2 Some peat?	1	1

Table 1.1.4.a

ECOLOGY	Visitor Centre Site Location Options					
Factor	1 Hell Fire Wood	2 Massey's Estate	3 Stewards House & Belfry	4 Featherbed	5 Cruagh	6 Options 1 & 2 Combined
Context	Coniferous Forestry	Deciduous Woodland	Buildings	Coniferous Forestry	Coniferous Forestry	Coniferous & Deciduous Forestry
Rank based on possible impacts to protected mammals and species e.g. otter, bats, pine marten, red squirrel	1	3	2	1	1	3
Rank based on possible impacts to forestry habitat – this is rated on the presence of native species or plantation forestry	1	2	N/A	1	1	2
Overall Ecology Rank	1	3	2	1	1	2

Table 1.1.4.b

1.1.5 LANDSCAPE AND VISUAL

The study area has been assessed in landscape terms and corresponds broadly to the area described in LCA Dodder and Glenasmole in the Draft Development Plan.

In general landscape and visual sensitivities, and opportunities relate to:

- The wide range of archeological sites on the Sites and Monument Record for South Dublin City Council, throughout the study area.

- The composition of the Dublin Mountains panorama (Prospect) as viewed from the urban area. A number of specific viewpoints are identified in the urban area or adjacent countryside roads, however in reality the entire city experiences to varying degrees the visual amenity of the Northern prospect of the Dublin Mountains and in fact it is a defining and orientation feature in the city. Closer to the mountains and in south Dublin in particular the various patterns and features on the mountains are particularly distinctive including forests and the distinctive outline of the Hell Fire Club on Mountpelier Hill – although somewhat softened/less clear with the maturing forests in recent years. Forest plantations and harvesting on these north facing mountain slopes creates significant visual impact and landscape change.
  Whilst the northern edge of the mountains comprise Montpelier, Cruagh, Tibradden and Kilmashogue, the higher mountains to the south – Kippure and Gledoo – and lower outlying hills to the west – Piperstown and Slieveabawnoge - also form part of this composition

- By definition the north facing slopes enjoy panoramic views, to varying degrees, over the county and city of Dublin, the bay area and Howth, with many city features identifiable and the city patterns and places legible.

- South of the northern mountain slopes and faces, the study area is criss-crossed by minor and regional rural roads. Many of these are identified in the SDCDP as having significant views to be protected i.e. scenic routes. Many of these routes are through open moorland and heathland with extensive long views of a distinct wild, remote and upland character with little capacity to absorb development.

- At the interface between the north facing slopes and the remote more upland open landscapes a range of woodland, forestry plantations and local variances in contours and topography creates capacity in the landscape for appropriately located and sensitively designed development related to the area functions.

Fig. 30

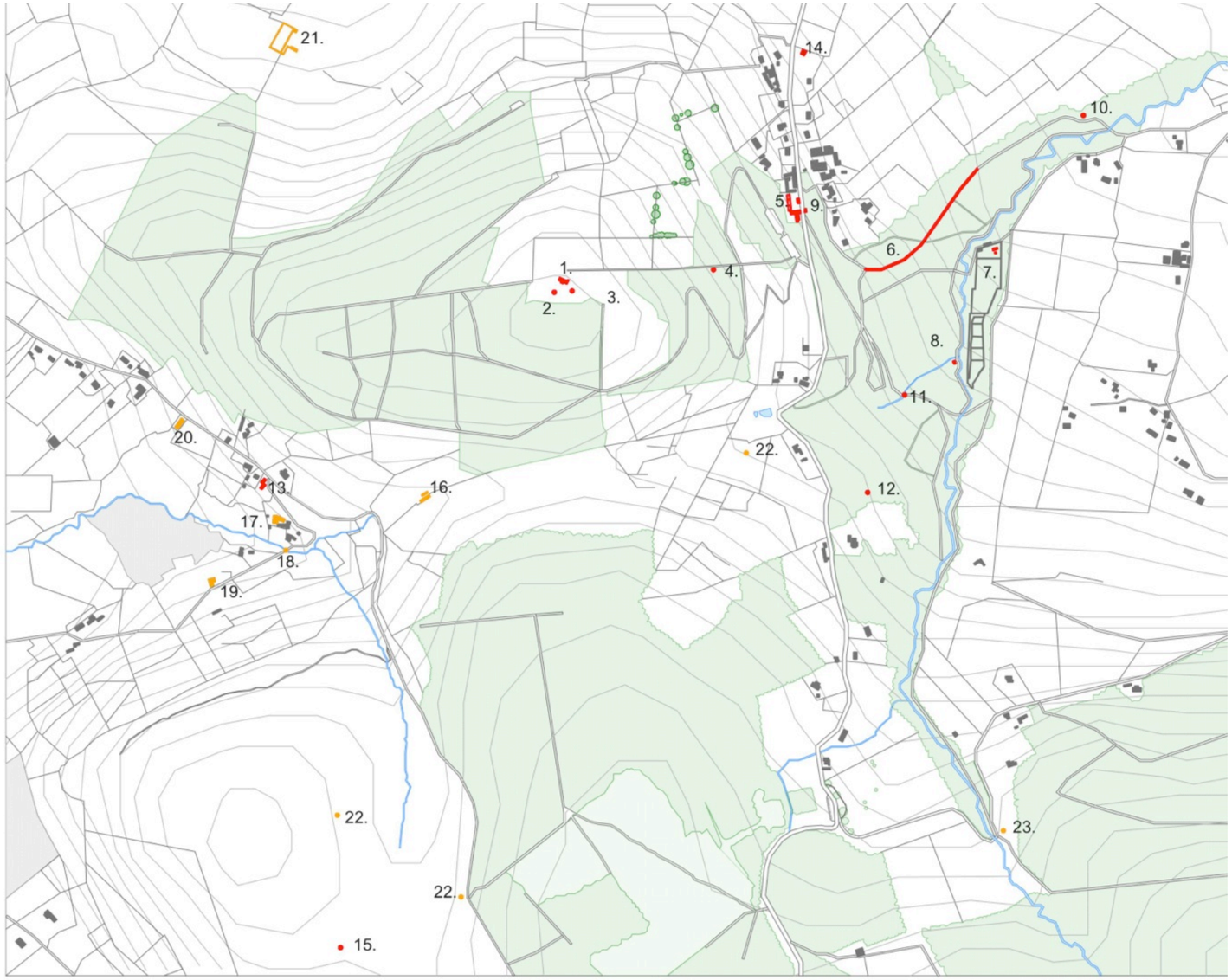

Fig. 31 Study Area Heritage Mapping

1.1.5.a ARCHAEOLOGY AND HERITAGE RESOURCES

The following section identifies and assesses the archaeology and heritage resources apparent within the study area. The findings vary from prehistoric heritage - from the Mesolithic to the Iron Age - to 19th Century social and built heritage.

Acknowledged in the report, 'The Dublin Uplands – Past, Present and Future' – commissioned by South Dublin County Council and Dun Laoghaire-Rathdown County Council, is the importance of the Dublin Uplands, including the study area identified, and it's prehistory archaeology.

Coupled with the social heritage prevalent in Massy's Estate, including the military road, and the low-lying settlements around the study area, there is great potential for a visitors centre as a facility to orientate and educate members of the public.

Fig. 30 indicates the locations of protected structures and heritage sites of interest. This will start to help us identify a suitable location for the visitors centre to best present these resources – balancing accessibility and visibility with preservation and conservation.

Protected Structures:

1. Hellfire Club 1730-50
2. Neolithic Passage Tomb
3. Neolithic Passage Tomb
4. Collapsed Standing Stone and underground enclosure
5. Stewards House: Stables, Tower and Gate1750-1770
6. Old Military Road
7. Massey's gardens 1800-1810
8. Massey's estate Ice-house
9. Massey's Estate Stone Lodge
10. Massey's Estate Stone Well
11. Massey's Estate Stone Bridge
12. Wedge Tomb in Massey's Woods
13. Kearney's Cottage, Piperstown
14. Beehive Lodge 1840-1860
15. Piperstown Cairns

Further Heritage Sites:

16. Mountpellier Farm 1825-45
17. Farmhouse 1800-1840
18. Bridge 1910-1930
19. Cottage 1830-1850
20. Farm Cottage 1830-1860
21. Carthy's Castle
22. Ice-pits
23. Hart Memorial


Fig. 32 Hell Fire Club


Fig. 33 Neolithic Passage Tomb


Fig. 34 Neolithic Passage Tomb


Fig. 35 Collapsed Standing Stone

Features and Appraisal of Archaeological and Heritage Resources

1. Hellfire Club
Recorded Monument Reference: DU025-001003

Date:	1730-1750
Previous Name:	N/A
Townland:	Mountpelier
County:	South Dublin County
Coordinates:	311509, 223666
Categories of Special Interest:	Architectural, Artistic, Cultural, Archaeological, Historical, Social
Rating:	Regional
Original Use:	Hunting/Fishing Lodge

Description:

Detached five-bay single-storey-over-basement former hunting lodge on hill summit, built c.1740, burnt soon after, with vaulted stone roof repair, now derelict. Projecting porch / gallery with arched window to front, between plain openings in main elevation. Two wings with small rooms and sloping stone roofs, and projecting shelter walls. Projecting wing to rear with small semi-circular window. Internal rooms with fireplaces, arched doorways and niches, and connecting gallery. Robbed megalithic tomb and triangulation survey pillar nearby.

Appraisal:

This building has possibly the most infamous history of any in the area. Built by the Earl of Rosse c.1740, and later used by the 'young bucks' of Dublin as headquarters of the Hell Fire Club. Supposed scene of many brutal acts and debauched behaviour. The building has an undeniably foreboding presence, and the later stone vaulted roof repair is outstanding in its coarseness.

2. Neolithic Passage Tomb
Recorded Monument Reference: DU025-001001

Date:	4000-2900BC
Townland:	Mountpelier
Coordinates:	311509, 223666
Categories of Special Interest:	Architectural, Artistic, Cultural, Archaeological, Historical, Social
Original Use:	Passage Tomb

Description:

Located south of the Hell-fire Club. It remains as a low mound with a possible circular stone curb, diameter 26m. Cairn remains are partially intact, open to the north.

Appraisal:

Ground condition indicates stone cairn must be partly still in existence below ground. Tomb is said to be largely demolished and quarried for the building of the hellfire club. There is an excavation due to take place next year; this should be taken into consideration in the masterplan, with options as to how to optimise on an excavation site and the findings.

3. Neolithic Passage Tomb
Recorded Monument Reference: DU025-001002

Date:	4000-2900BC
Townland:	Mountpelier
Coordinates:	311509, 223666
Categories of Special Interest:	Archaeological, Historical,
Original Use:	Passage Tomb

Description:

Passage Tomb largely unnoticeable from above ground level.

Appraisal:

Two concentric banks surround the burial area. An Ordnance Survey trigonometry point with large a concrete base is located in the centre.

4. Collapsed Standing Stone and underground enclosure
Recorded Monument Reference: DU025-021001, DU025-021002

Date:	/
Townland:	Montpelier
Coordinates:	/
Categories of Special Interest:	Cultural, Archaeological, Historic, Social
Original Use:	/

Description:

A collapsed standing stone 385m down the slope to the east of the Hell Fire Club. An enclosure has been recorded as in close proximity to the stone but is not visible on the ground.

Appraisal:

The 2014 South Dublin County Council – Archaeology Accessibility Study suggests that a conservation assessment of the standing stone should take place, as it is now in a recumbent position and bears significant amounts of graffiti. The report follows with suggesting the stone could be set upright, and open up the clearing it sits in to restore views.

Also of note is that the standing stone is located close to the much later Military Road, which suggests it may sit on a route that may have been in use in the prehistoric period assuming that standing stones functioned as a mark of boundaries and routes.

Fig. 36 Killakee House

Fig. 37 Old Military Road

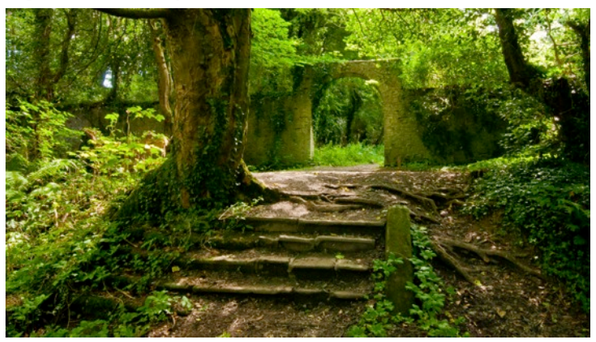

Fig. 38 Massy's Estate Walled Garden

5. Stewards House: Stables, Tower and Gate 1750-1770

Date:	1750-1770
Townland:	Killakee
Coordinates:	312118, 223842
Categories of Special Interest:	Architectural, Historical, Social
Original Use:	Public House

Description:

Detached five-bay two-storey former house, c.1765, previously in use as a restaurant and bar. Coarse rendered walls. Replacement timber sash windows to ground floor. Pitched slate roof with rendered chimney stacks to gables. Four-bay two-storey former dower house of Killakee House, c.1806, abutting to rere to form T-plan. Roughcast rendered walls with cut stone quoins. Timber Wyatt and casement windows. Hipped slate roof. Unroofed remains of two-storey rubble stone stables to north-west, with prominent belfry and blocked carriage arches. Also in yard smaller stable of similar style. Single-cell Gothic style lodge across road.

Appraisal:

This multiple phase site has a rich and varied history, both architecturally and socially. Though refurbished, the house retains its original proportions and spatial relationships with the associated structures, forming a group which makes a bold impression on the passing road.

6. Old Military Road

Date:	1802
Townland:	Jamestown (Up. By.) Whitechurch Ed
Coordinates:	
Categories of Special Interest:	Historical, Social, Cultural
Original Use:	Road

Description:

A short stretch, approximately 0.75Km, of the original Military road runs up through Massey's Estate. It is the only section of the Military road that has not been tarmacked and retains its original cobblestones.

Appraisal:

The Military Road tells the unique story of the rebels and the Military. As the only surviving section of the road, it offers a place - and a tangible piece of history - for people to come and learn about the story.

7. Massey's Gardens 1800-1810

Date:	1800 - 1810
Townland:	Jamestown (Up. By.) Whitechurch Ed
Coordinates:	312520, 223295
Categories of Special Interest:	Architectural, Artistic, Historical, Technical
Original Use:	Private Garden
In Use:	Public Recreation

Description:

Extensive gardens and foundations of former country house, c.1806, demolished 1941. Former building now replaced with modern house, possibly with original basement under, and with surviving wall at driveway. Over the river are remains of four acres of tiered high-walled gardens with arches, buildings, garden furniture, bridges, an icehouse, curvilinear glasshouse foundations and fountains designed by Richard Turner supplied by dammed pond to south-west, all within a wooded designed landscape with walks and exotic trees.

Appraisal:

The Massy's Woods of today, managed by Coillte, are a voyage of discovery within the former designed landscape of Killakee House, built by Colonel Luke White in 1806. The connection of the estate with everything from the Rebellion and the Civil War to the decline of this Irish Ascendancy makes it a highly important site. The presence of so many garden features set in such an intact designed landscape is quite rare, further enhancing the significance of this estate.

8. Massey's Estate Ice-House

Date:	1800-1810
Townland:	Jamestown (Up. By) Whitechurch
EDCoordinates:	312520, 223295
Original Use:	Ice House
Categories of Special Interest:	Architectural, Technical, Social

Fig. 39 Massy's Estate Ice-House

Description:

Old stone ice house built to store ice for the preservation of food. Filled in winter with ice that was harvested in winter. The ice was kept in an underground storage pit. The cold room was a domed space above this pit.

Fig. 40 Massy's Estate Stone Lodge

Fig. 41 Massy's Estate Stone Well

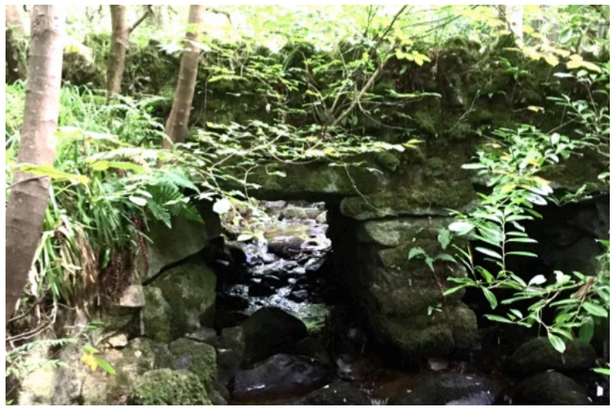

Fig. 42 Massy's Stone Bridge

9. Massey's Estate Stone Lodge

Date:	1800-1810
Townland:	Jamestown (Up. By) Whitechurch ED
Coordinates:	312520, 223295
Categories of Special Interest:	Architectural, Historic
Original Use:	Lodge

10. Massey's Estate Stone Well

Date:	1800-1810
Townland:	Jamestown (Up. By) Whitechurch ED
Coordinates:	312520, 223295
Categories of Special Interest:	Architectural, Technical, Social
Original Use:	Well

11. Massey's Estate Stone Bridge

Date:	1800-1810
Townland:	Jamestown (Up. By.) Whitechurch ED
Coordinates:	312520, 223295
Categories of Special Interest:	Architectural, Technical
Original Use:	Bridge
In use:	Bridge

12. Wedge Tomb in Massey's Estate

Recorded Monument Reference: DU025-022

Date:	c. 2000BC
Townland:	Killakee
Coordinates:	312354, 223160
Categories of Special Interest:	Architectural, Artistic, Cultural, Archaeological, Historical, Social
Original Use:	Megalithic Tomb

Description:

Megalithic tomb situated on a slight summit overlooking a stream in the glen between Cruagh Mountain and Mountpelier. The chamber lies east and west with an entrance and flat façade to the west and a rounded end to the east. The position of the chamber is clearly defined by seven of the side stones and the eastern end stone.

Appraisal:

The wedge tomb is located in a state forestry plantation and was formerly part of the Masseys Estate. Due to dense foliage overhead there is no growth over the area. The monument at present consists of an irregular low mound 7m wide, upon which are a number of standing slabs apparently in situ.

Fig. 43 Wedge Tomb in Massy's Estate

13. Kearney's Cottage 1800-1820

Date:	1800-1820
Townland:	Piperstown
Coordinates:	310754, 223162
Categories of Special Interest:	Architectural, Social
Original Use:	Farmhouse
In use:	Barn

Description:

Detached four-bay single-storey former farm cottage, c.1810, now in use as a barn. Rubble stone walls with iron ties. Iron casement windows. Pitched slate roof with cut stone gable coping. Probably originally a dwelling to the south with a byre to the north.

Appraisal:

This former cottage marks the beginning of a laneway with intact vernacular farmsteads beyond. More humble than the other groups, this simple structure is nevertheless a good example of a dual function farm building, containing both a dwelling and a byre in one unit.

Fig. 44 Kearney's Cottage

Fig. 45 Beehive Lodge

Fig. 46 Piperstown Cairns

Fig. 47 Montpelier Farm

Fig. 48 Farmhouse

14. Beehive Lodge 1830-1860

Date:	1840 - 1860
Townland	Killakee
Coordinates	312115, 224244
Categories of Special Interest	Architectural Artistic Technical
Original Use	gate lodge
In Use As	house

Description:

Detached three-bay single-storey former gate lodge, c.1850, on a square-plan with three chamfered corners. Now in use as a private house. Smooth rendered walls. Replacement leaded timber casement windows. Canted bay window to south front. Entrance in flat-roofed projection to east. Hipped slate roof with central rendered chimney stack and wide projecting eaves, supported at each chamfered corner by a column, Greek Doric, to the principal elevation. Ornate painted cast- and wrought-iron railings and gate posts with beehive finials at entrance.

Appraisal:

This picturesque lodge was formerly an entrance to Killakee House. It stands set-back from a very busy country road, and is thus easily missed. Once in the garden, however, its original proportions and classical serenity may be fully appreciated.

15. Piperstown Cairns
Recorded Monument Reference: DU025-019001 to 019011

Date:	Late Neolithic/Early Bronze Age
Townland:	Piperstown
Coordinates:	
Categories of Special Interest:	Archaeological, Social, Cultural, Historic
Original Use:	Burial Cairn
In use:	Burial Cairn

Description:

These burial cairns are part of an extensive settlement and cemetery of Late Neolithic/Early Bronze Age data on the south slopes of Piperstown Hill. Along the top edge of the steep ground were eight small burial cairns, some with remains of kerbs. Scattered over a level area east of these cairns were seven well defined hut sites.

Appraisal:

In 1960 an extensive mountain fire stripped most of the hillside of both peat and heather and left it barren. This revealed the presence of at least thirteen prehistoric sites hidden under the heather. This prompted the excavations in 1962.

16. Montpelier Farm 1825-45

Date:	1825-1845
Townland:	Mountpelier
Coordinates:	311158, 223114
Categories of Special Interest:	Architectural, Social
Original Use:	Farmhouse Complex
In use:	Farmhouse Complex

Description:

Farmyard with detached five-bay single-storey former farm house, c.1835. Roughcast rendered walls with iron casement windows. Projecting porch with glazed timber door. Pitched slate roof with three brick chimney stacks. Several single-storey rubble stone barns with pitched slate roofs surround the house.

Appraisal:

This group of buildings is preserved as a farmstead, and although out of use as a dwelling today, is kept in working condition as the buildings are in agricultural use. The removed location has helped keep the group and setting unspoilt.

17. Farmhouse 1800-1840

Date:	1800-1840
Townland:	Piperstown
Coordinates:	310799, 223067
Categories of Special Interest:	Architectural, Social
Original Use:	Farmhouse
In use:	Farmhouse

Description:

Detached four-bay single-storey farm house, c.1820, with gabled projecting porch. Roughcast rendered walls. Replacement timber casement windows. Pitched slate roof with two rendered chimney stacks. Range of single-storey rubble stone barns, one with buttresses, with pitched slate or corrugated iron roofs, extending eastwards from the house.

Appraisal:

A small vernacular farmstead of a type once common in this part of the county, with a long continuity of use. Internally, a great deal more is revealed about the development of the current house from a humble cottage.

18. Bridge 1910-1930

Date:	1910-1930
Townland:	Piperstown
Coordinates:	310808, 222983
Categories of Special Interest:	Architectural, Technical
Original Use:	Bridge
In use:	Bridge

Description:

Single-arch road bridge over stream, c.1920. Rubble and mass concrete construction, rubble parapet with coping. Pipe in arch to east. Part of north parapet missing.

Appraisal:

A simple road bridge of bold geometry, with an almost primitive articulation and presence in the bucolic rural landscape.

Fig. 49 Bridge

Fig. 50 Cottage

Fig. 51 Farm Cottage

19. Cottage 1830-1850

Date	1830 - 1850
Townland	Piperstown
Coordinates	310617, 222903
Categories of Special Interest	Architectural Social
Original Use	house
In Use As	house

Description

Detached four-bay single-storey house, c.1840. Timber door in porch, timber sash windows in rendered walls. Blank gable to road (south) with raised gables and returned kneelers. Rere (west) two bays, dug into hillside. Pitched slate roof with rendered chimney stacks. Rubble outbuildings.

Appraisal

This cottage utilises local topography to ensure that it has a sheltered location. Its blank gable and terraced rere give privacy and protection. The returned kneelers and blind walls are local stylistic features.

20. Farm Cottage 1830-1860

Date	1830 - 1860
Townland	Piperstown
Coordinates	310543, 223307
Categories of Special Interest	Architectural Artistic Social Technical
Original Use	farm house
In Use As	house

Description

Detached five-bay single-storey former farm cottage, c.1850, now in use as a house. Roughcast rendered walls with timber casement windows. Pitched slate and concrete tile roof with gable coping and two rendered chimney stacks. Single-storey extension to the east. Large concrete barn to south with segmental corrugated roof, now in use as a painting studio. Cast-iron pedestrian entrance gate. Cast-iron water pump with raised manufacturers' logo facing street, with low mass concrete boundary wall.

Appraisal

A simple former farm house with an associated water pump, which together constitute a good vernacular group with a strong social history in the area.

21. Carthy's Castle

Date	Late 18th Century
Townland	Mountpelier
Coordinates	
Categories of Special Interest	Architectural Social
Original Use	House
In Use As	Ruin

Description:

This hunting residence was built by Lord Ely towards the end of the eighteenth century. It consisted of a long two-storied frontage facing north-east, at each corner of which was an arched entrance. After the house that was abandoned by the Ely family it became uninhabitable. In 1950, the majority of the house was demolished. The only surviving part of the house is the tower at the west end known as Carthy's Castle.

Appraisal

Also known as Dollymount or Mountpelier Castle. This site is in fragmentary and ruinous condition; indeed the majority of site presents no upstanding remains. Consequently the site is not considered worthy of inclusion in record of protected structures.

Fig. 52 Carthy's Castle

Summary

The study area has a vast archeology and heritage offering, spanning pre-history to the 18th Century, from Neolithic passage tombs to the Hell Fire Ruin.

As part of the masterplan is will be important to acknowledge the sites identified in this report as well as the wider landscape, as shown in figure 54. There is great potential for a visitor centre to not only orientate and educate on the heritage prevalent within the study area, but to act as a gateway into the Dublin Mountains and beyond.

Key objectives:

- Interpretation: education and awareness
- Accessibility: orientation and trails
- Visibility: maintenance and clearing
- Conservation: to preserve and mitigate agaisnt negative impacts

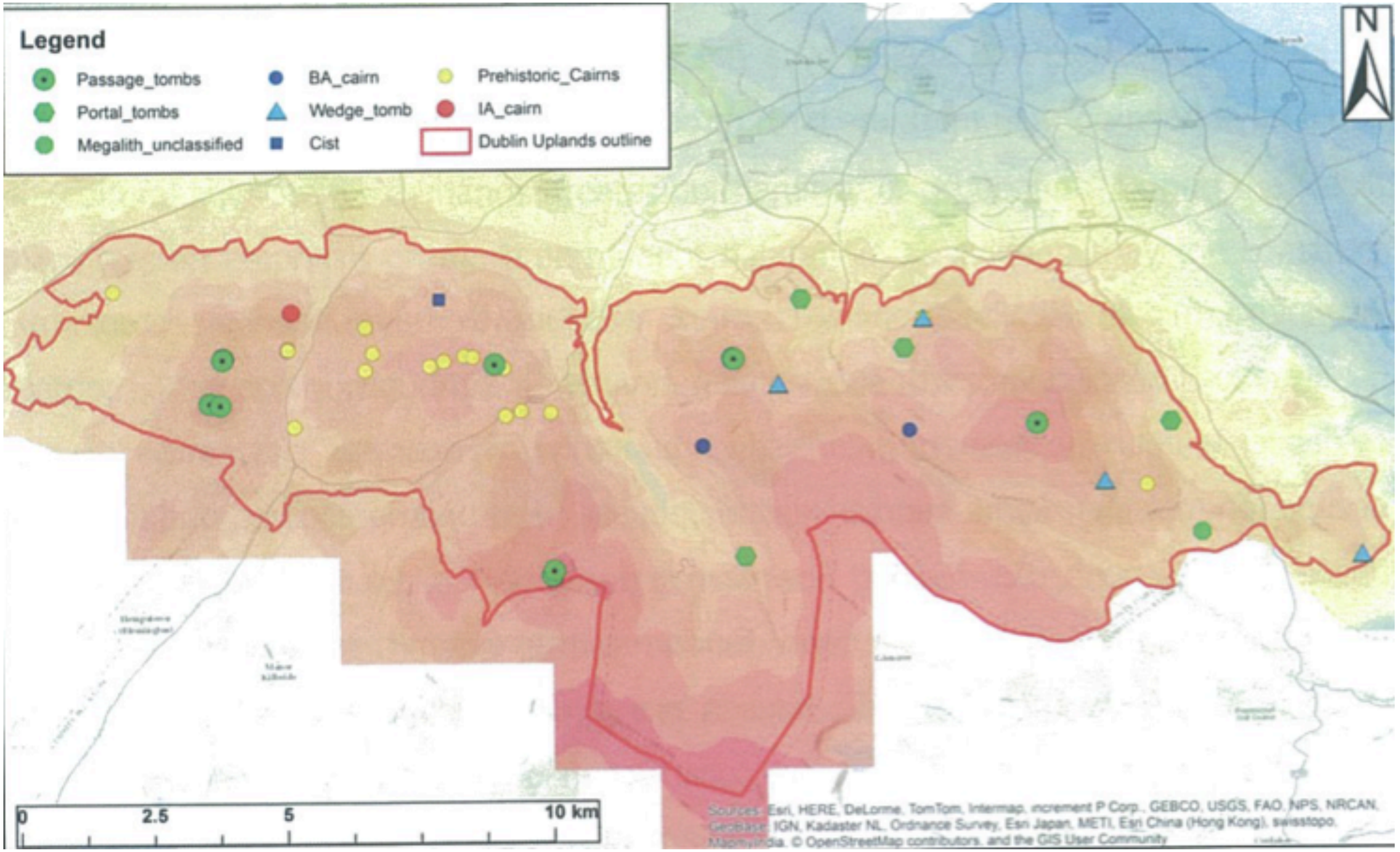

Fig. 53 Mapping of tombs and cairns in the Dublin Uplands area

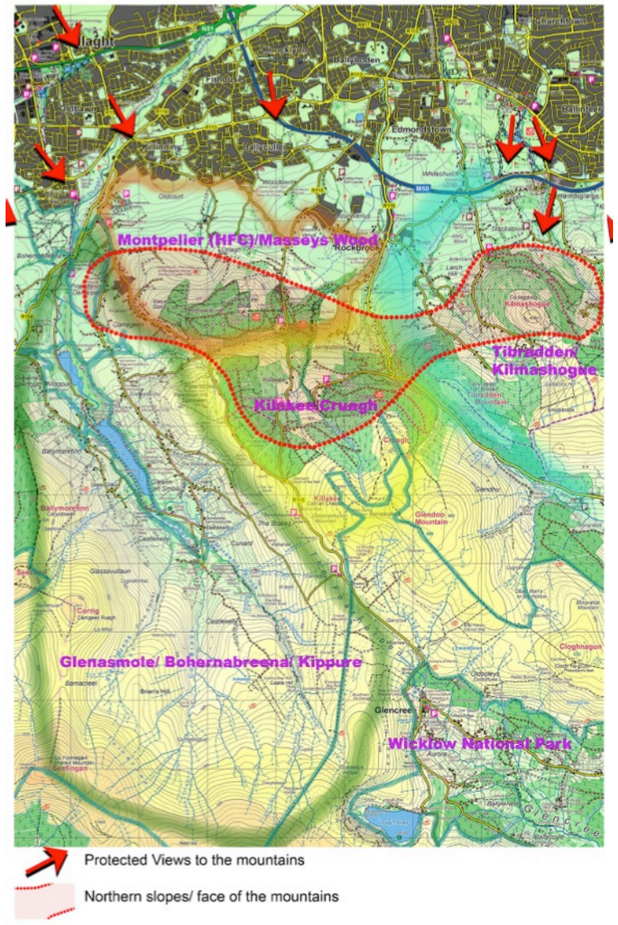

Fig. 54 Landscape Areas of Interest – Key Prospects / Views and Opportunity Area

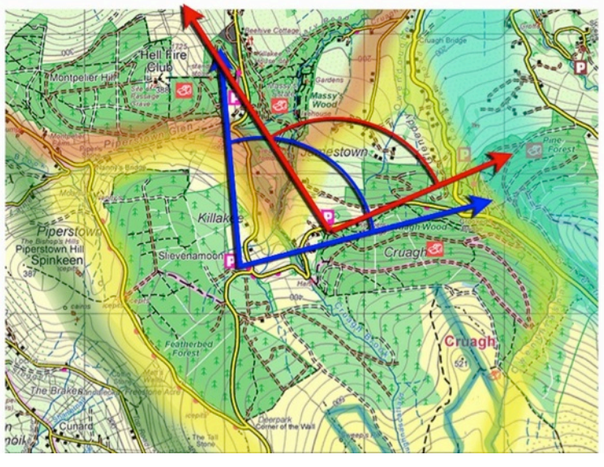

Fig. 55 Kilakee / Cruagh Views

1.1.5.a LANDSCAPE AND VISUAL AMENTITY AMENITY SITES AND SUMMARIES.

As outlined at the beginning of this section, the study area has been assessed in landscape terms and corresponds broadly to the area described in LCA Dodder and Glenasmole in the Draft Development Plan.

The landscape and visual sensitivities, and opportunities related to issues such as; the archaeology; the composition of the Dublin Mountains panorama (Prospect) as viewed from the urban area; panoramic views over the county and city of Dublin, the bay area and Howth; minor and regional rural roads; scenic routes; capacity to absorb development; woodland, forestry plantations and local variances in contours and topography.

To undertake the appraisal, the area was divided into a number of smaller landscape components with shared characteristics, opportunities and constraints. Summaries and conclusions were then made relating to each site individually.

AREA – GLENASMOLE / BOHERNABRENA / KIPPURE
See photos Appendix 1A.

Glenasmole is a highly scenic and distinctive glacial valley with variety of attractive features, and enclosed fields contrasting with the upland blanket bog areas. To the south Kippure rises to 757m – the highest mountain in County Dublin. The valley is enclosed by Kippure and to the south and west by Seefingan 724m, Seehan 643m falling to Slievenabawnnoge 384m to the west of the valley. The eastern valley side is formed by Piperstown Hill 391m and Killakee 530m and Glendoo 582m mountains.
The middle and upper slopes of the valleys are characterised by open blanket bog landscape and habitat and quickly brings the visitor to wild and seemingly remote uplands. The valley and the slopes of Kippure are the source of the River Dodder which is also fed by numerous streams carving scars on the open hills. The streams and river feed the two reservoirs in the valley, developed in the 1880s to supply water to Rathmines.

The landscape in the lower valley and around the reservoir consist of small fields and hedgerows with pines and larch around the lakes. Small roads service the area adding to the sense of remoteness whist a short distance from the county town. There are circular walks around the reservoirs linking to the Dublin Mountains way heading east and downstream to the Dodder Greenway linking ultimately to Dublins inner suburbs and Grand Canal Dock.

Much of the area is designated SAC and SPA reflecting its unique habitats and sensitive ecology – the open moorland and lakes. Coupled with its visual sensitivity much of the area is deemed in the Local Area Plan as unsuitable for development.

Suitability for a Flagship Tourism Development

Glenasmole is representative of the more remote and open landscapes found further south in Wicklow – with its own dual lake system – and is on Dublins doorstep, however these very qualities contribute to its sensitivity to any kind of development and policy reflects this. In terms of any flagship development it provides context and potential activities to be enjoyed – hill walking, possible water based activities etc – but is not suitable to accommodate any significant built development.

AREA - KILAKEE / CRUAGH
See photos Appendix 1B.

This is a smaller landscape area consisting of Killakee mountain and Cruagh mountain – effectively outlying north facing slopes of Glendoo Mountain 586m. These mountains are heavily afforested with Coillte and some private estates. These forestry elements are described in more detail in the Forestry report by FEL. Some areas have recently experienced clear felling of mature areas and have in places been replanted. There are felling proposals to harvest the timber over the coming years which would have dramatic effects on the landscape.

The Dublin Mountains way traverses both Kilakee and Cruagh heading east. There is a link north to the adjacent Masseys Wood and Montpelier Hill. Kilakee is relatively enclosed by topography and its own forests although there is a well-used visitor layby on the R115 offering framed views over Dublin city. Recent clear felling of a central area of the forest provides an indication of the severe landscape change that is an inevitable part of the forest life cycle.

Cruagh mountain offers what is often considered the best panoramic view over Dublin City and the bay to the north. At 522m it overlooks the flat plain of the city below. The earliest mention of Cruagh in historical records is in 1184 when Prince John, son of Henry 11 granted Creevagh or Cruagh with its churches to the See of Dublin, a gift successively confirmed by Edward 111 in 1337 and by Richard 11 during his visit to Dublin in 1395.

This area of south Dublin on the borderland of the Pale was known as the "the Harold's country" from the powerful family of that name that dominated the area and left their name on localities such as Harold's Grange and Harold's Cross.

Suitability for a Flagship Tourism Development

These mountains and forests are on the north facing slopes of the city, close to the city – part of the mountain prospect looking south. The tree cover and local topographical variations offers capacity to absorb development whilst providing views and access to trails including direct access to the Dublin Mountains Way.

The Coillte lands are intermixed with private estates leading to potential conflicts in places. There are dramatic views across the city, however these are framed and constrained in places by local topography e.g. from serviced areas / car-parks the views do not include the whole of Dublin Bay. In general these locations could be considered as a potential location for a visitor centre depending on the preferred model. Much of the land available is above the 350m contour.

AREA - MONTPELIER HILL/HFC AND MASSEYS WOOD
See photos Appendix 1C.

This landscape area consists of Montpelier Hill, rising to 383m and the Hell Fire Wood, and the low-lying Masseys Wood, typically between 200m and 240m on the east side of R115.

Montpelier Hill although one of the smaller of the hills in the study area is a prominent feature from Dublin City. The summit is crowned by the “bump” of the Hell Fire Club, originally a hunting lodge developed in 1725 before evolving into its more infamous activities and occult rituals. The building is in

a ruined state today, and occupies an open grassed area with sub-surface archaeological remains. From the summit of Montpelier Hill there are panoramic views over Dublin city and bay. These can also be experienced at various stages rising from the car-park on the R115 and on the network of trails and forest paths.

The generally mineral nature of the soils at Montpelier and particularly Masseys Wood results in a more mixed tree cover. Although the Hell Fire Woods are coniferous forestry plantations there are remnant broadleafed trees with the forest and around the car-park area. The attached forestry report indicates that much of the plantations will be clear-felled over the coming years presenting both the issue of major landscape change – including impacts on protected views from the city - but also opening up wider vistas and the opportunity to reinvent the nature of the forest and harvesting in a creative manner.

Massy's Estate is one of the most popular amenities around Dublin. It offers a vast ecological resource of flora, wildlife, tree species, estate artefacts and items of geological interest. It is essentially a mixed woodland, predominantly broadleaved developed in the grounds of the former Kilakee demesne. Whilst Kilakee house is now demolished the woods contain many interesting features such as remnant walled gardens, mill races, an ice-house and as well as planted woodland , a number of exotic and specimen tree. The Owendoher river flows through the estate as a central feature and parts of the original Military Road, are found within the woods. This road was built in the early 1800s I the wake of the 1708 rebellion to facilitate access into the mountains by the British Army. Much of this route is now occupied and improved by the current R115.

Masseys Estate is a delightful and atmospheric, slightly wild, woodland park with interesting elements to discover and a great place to allow children to run wild. It has a unique character in itself and in some ways is independent of the mountain setting.

Montpelier Hill and the HFC, coupled with Masseys Wood offer a wide range of points of interest for an afternoons visit. There are a number of other built and cultural features associated with this area including the Stewards House on the R115 and a number of other pre-historic monuments.

Suitability for a Flagship Tourism Development

As Kilakee and Cruagh, Montpelier and Masseys Woods are on the north facing slopes of the city, close to the city – and form part of the mountain prospect looking south. In fact Montpelier and the HFC would be one of the nearest and best known of the Dublin Mountains overlooking the city. Masseys Wood also offering a much loved broadleaved forest experience that is particularly attractive to children. The combination of a short but steep upland hike and with a relatively level and easy woodland walk, coupled with a range of cultural, built, historic and garden features is distinctive and unique creating added value within this landscape area.

The tree cover and local topographical variations offers capacity to absorb development whilst providing views and access to trails, although access to the Dublin Mountains Way is indirect.

In terms of the landscape offer and convenience, and profile this area is a strong contender to accommodate a flagship tourist facility and much of the site is below the 350m contour.

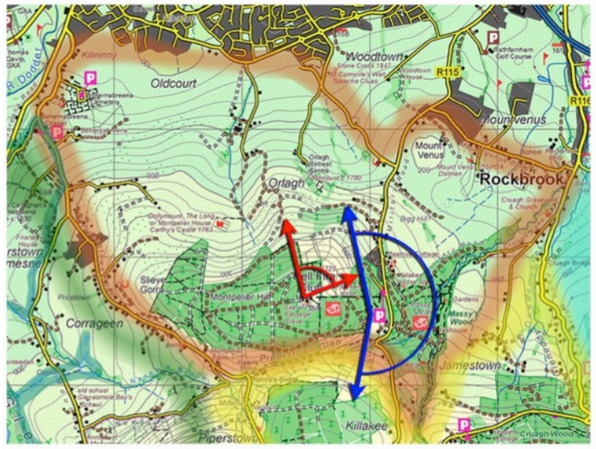

Fig. 56 Montpelier Hill / HFC and Massy's Wood Views

AREA - TIBRADDEN / KILMASHOGUE
See photos Appendix 1D.

Tibradden and Kilmashoue mountains lie in the Dun Laoghaire Rathdown county area. They rise to 450m and 408m respectively. Once clear of the forest visitors experience panoramic views of Dublin City and Bay and the peaty expanse of Tibradden mountain. Leaving the forest behind, the expanse of Cruagh and Glendoo mountain, Glencullen, The Great and Little Sugar Loaf, Wicklow Head, Two Rock and Three Rock mountains come into view. At the summit the visitor is rewarded with spectacular panoramic views of the surrounding mountains and Dublin city, Dublin Bay, Howth and Ireland's Eye.There are also views ewstwards to Montpelier Hill and the HFC.

The area is of archaeological interest. There is a cairn and kist burial site on the south side of the rocks which mark the highest point on Tibradden. Daniel O'Connell addressed a monster meeting from this rock on the slopes of Tibradden Mountain, County Dublin, Ireland on 23 July 1823.

Tibradden links the Dublin Mountain Way and the Wicklow Way and both contain a variety of trails.

Whilst the main views are from the more open summits, there are upcoming plans to harvest the maturing forests over the coming years changing the context and landscape significantly – including protected views from the city.

Suitability for a Flagship Tourism Development

This area offers a range of experiences of interest could be considered as a potential location for a flagship tourist facility.

AREA – WICKLOW MOUNTAINS PARK

This area lies south and east of the county boundary and contains an extensive area of upland landscape, extending south through central Wicklow. It extends slightly into South Dublin county area. It is noted here because of its proximity to the potential sites and the possible synergies that are presented in the context of a flagship mountain tourism facility.

POSSIBLE SITES

Six specific sites or locations have been identified in the above areas for further assessment:

Option 1 – North east Flank of Montpelier Mountain
Option 2 – Masseys Estate and the Owendoher River
Option 3 – Stewarts House and Belfry adjacent Hell Fire Wood
Option 4 – Featherbed/Kilakee Mountain
Option 5 – Cruagh Mountain
Option 6 – Combination of Option 1 and 2.

Fig. 57 No.15B Bus at Woodstown (Stocking Avenue)

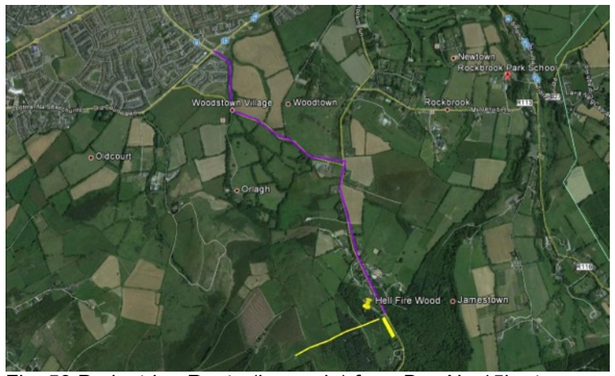

Fig. 58 Pedestrian Route (in purple) from Bus No.15b at Woodstown to Hell Fire Wood: 2.5km

Fig. 59 Gunny Hill, R113

Fig. 60 Killakee Road, R115

1.2 ACCESS AND MOVEMENT

1.2.1. MOVEMENT FRAMEWORK ASSESSMENT

1.2.1.a OVERVIEW OF ACCESSIBILITY AT THE DUBLIN MOUNTAINS

The proposed Dublin Mountains Visitor Centre will be located at the northern gateway into the Dublin and Wicklow Mountains from Dublin City. In broad terms the zone of interest for the possible location of the proposed centre is in the Owendoher River Valley to the south of Rathfarnham. There are several blocks of state owned land (Coillte Forests) in and around this valley at Hell Fire Wood, Massey's Wood, Killakee, Cruagh and Tibradden that already provide extensive public access and walking routes linking into the higher mountains above 300m altitude.

Ease of access for visitors is a major consideration in the selection of the most suitable site for the new centre. As the main focus of the centre will be to encourage and facilitate an appreciation of the mountain environment on the doorstep of the city, it is highly desirable for walking and cycling to be the central modes of transport to and from the site. Public transport services are available almost to the edge of the mountains and these can be availed of with suitable connections to the site.

There are several regional and local roads in the Dublin Mountains all of which are fairly narrow, with long steep gradients (10% or more) as they climb from the edge of the city southward. The local roads generally consist of cul-de-sac routes into the valleys and hillsides that are mostly used for access to farms and rural residences. These roads are typically as narrow as 4m or 3m and are only suitable for very low volumes of local access traffic. They are also suitable and pleasant for walking due to their quiet character with slow traffic speeds.

The two regional roads in the central area of the Dublin Mountains that link southward from Rathfarnham are:

- R115 Stocking Lane / Killakee Road / Military Road from Ballyboden into County Wicklow at Glencree and continuing onward through the heart of the Wicklow Mountains to Laragh and Glendalough; and
- R116 Edmondstown Road / Cruagh Road, also from Ballyboden, that extends south-eastward by Rockbrook and Tibradden and then descends into Glencullen.

These regional roads are typically 5m to 5.5m wide and carry moderate levels of traffic consisting of both local access traffic and visitors entering the mountains from the north. They are the primary access routes into the mountains and are generally suitable to cater for a modest increase in traffic that may be attracted by the proposed visitor centre. However, large coaches would find these roads a bit too narrow to pass each other on.

A further regional road the R113 traverses east to west across the foot of the mountains from Ballinteer towards Oldcourt. This road is narrower in places than the other regional roads and also contains some very sharp bends such as the hairpin bend at Rockbrook at the junction with the R116 Cruagh Road. This road is not suitable for additional traffic volumes, and especially for large coaches, which would not be able to get around several sharp bends at Rockbrook.

In conclusion, the best location for the proposed Dublin Mountains Visitor Centre in terms of accessibility is as close to the city as possible so as to link to public transport services, connected to suitable walking and cycling routes, and along a regional road that can provide suitable traffic access.

A shortlist of three options were selected on the basis of the criteria above:

A. Hell Fire Wood, to the southwest of the existing car park on the north-east facing slope of Montpelier Hill, with access from Killakee Road (R115);

B. Massey's Wood at the former walled gardens towards the north-eastern part of the site, with access from Cruagh Road (R116);

C. Combined option with facilities at both Locations A & B.

1.2.1.b PUBLIC TRANSPORT ACCESS

A. From Bus at Ballycullen / Woodstown

Bus Route 15: Woodstown Village - Ballycullen - Knocklyon - Templeogue - Terenure - Rathmines - City Centre - north side to Clongriffin: 10 minute frequency.

Bus Route 15b: Ballycullen - Woodstown Village - Rathfarnham - Rathgar - Georges Street - Dame Street - Grand Canal Dock: 20 minute frequency Monday to Saturday, 30 minute frequency on Sunday.

Walking connection:

- 2.5 km walk to Hell Fire Wood
- No footpath - unsuitable roads: Killakee Road / Gunny Hill / Ballycullen Road

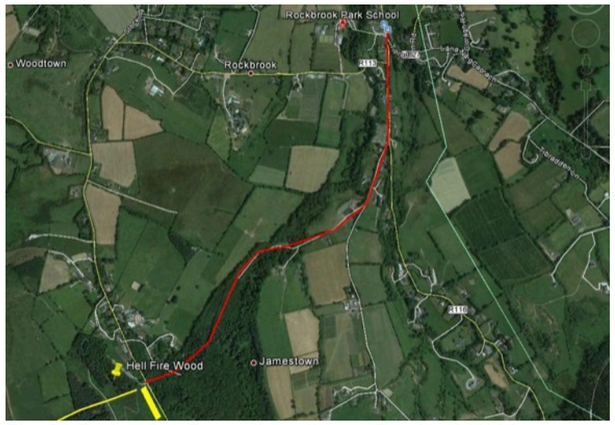

Fig. 61 Pedestrian Route (in red) from Bus No.61/161 at Rockbrook to Hell Fire Wood: 2km

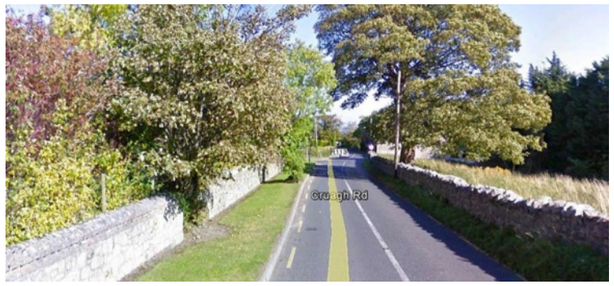

Fig. 62 Cruagh Road, R116

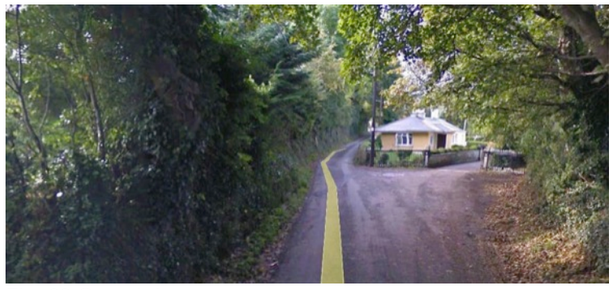
Fig. 63 Cruagh Lane


Fig. 64 Existing Cycle Track along Stocking Lane

B. From Bus at Rockbrook

Bus Routes 61: Rockbrook - Whitechurch - Rathfarnham - Dundrum - Milltown - Ranelagh - Eden Quay:

- Hourly service from city to Whitechurch, 7 days a week;
- 2 services daily Monday to Friday extend to Rockbrook;
- No service at weekends

Bus Routes 161: Rockbrook - Whitechurch - Grange Road - Nutgrove - Dundrum LUAS stop:

- 4 services daily Monday to Friday
- No service at weekends

Pedestrian Access Route from Rockbrook

- 1 km walk to Massey's Wood and a further 1 km to Hell Fire Club, including
- 0.5 km along R116 Cruagh Road. with scope to provide footpath, and
- 0.5 km along Cruagh Lane, a very quiet rural road from Cruagh Road to Massey's Wood.

C. Improvements for Access by Public Transport

The existing bus services do not provide suitable access to the Hell Fire Wood area under consideration for the proposed Dublin Mountains Visitor Centre. The following options could be considered for improved public transport access:

a) Extended Route 15 for 2.5km from Woodstown Village via Gunny Lane, possibly as a Route 15c variant every 30 minutes (1 in 3 services) or hourly (1 in 6 services). However, the gradient of up to 12% on this route is probably too steep for a standard Dublin Bus vehicle and the operating costs would be high for the small number of passengers.

b) Shuttle Bus link to Route 15 at Woodstown Village. This could use a smaller and more suitable vehicle that could better manage the steep gradients and narrow road. It could also be used for a hill-walker shuttle bus service up to the *Feather Bed* on the *Military Road*.

c) Rockbrook Bus Service frequency improvement: More services to Rockbrook to enable walkers to link towards the LUAS at Dundrum and other areas to the east. This could be a secondary service for the visitor centre, involving a pleasant 2km long walk via Massey's Wood.

d) An *Art O'Neill Bus* tourist service from Dublin Castle direct to Hell Fire generally following the historical escape route taken by Art O'Neill and Red Hugh O'Donnell in January 1592. This could be a special service as an event for visitors to Dublin to undertake for a wider experience.

D. From LUAS/Bus at Tallaght to Bus at Marlay Park:

A long distance walking route could be undertaken along the northern edge of the Dublin Mountains following the Dublin Mountain Way and a part of the Wicklow Way from Tallaght to Marlay Park. Mid-way along, this route would pass by the proposed Dublin Mountains Visitor Centre at Killakee, where the centre can provide opportunities for rest and refreshment. Such an itinerary could be as follows:

- LUAS Red Line from City Centre to Tallaght; or
- Bus Routes 49 (30 minutes frequency), 54a (30 minutes frequency), 65b (hourly frequency) from City Centre to Kiltipper Way, 1km south of Tallaght Town Centre;
- 15 km walk from Kiltipper Way along the Dublin Mountains Way via Bohernabreena Reservoirs, of which 7 km is along quiet local rural roads. (Due to private lands, the DMW takes a very circuitous route immediately west of Montpelier Hill (Hell Fire Club), which adds 3.5 km to the walking distance compared to a potential direct route.)
- 15 km walk via Cruagh, Tibradden and Kilmashogue to Marlay Park;
- Bus Route 16 (12 minute frequency) from Grange Road to City Centre (and Dublin Airport).

1.2.1.c CYCLING ACCESS

The Hell Fire Wood is located at some distance from the nearest cycling facilities in the Dublin suburban area as follows:

a) 2.5 km to Ballycullen Road via Killakee Road (R115) and Gunny Hill (R113);
b) 3.5 km to Ballyboden via Killakee Road (R115), Stocking Lane, with a 1 km length of cycle track, and Scholarstown Road;
c) 3.5 km via Massey's Wood, Cruagh Road (R116) through Rockbrook and Edmondstown Road (with some traffic calming) to Ballyboden.

The speed limits on these rural roads are reduced to reflect the narrowness and bendiness:

- Along the R115 route the 50 km/h zone extends southwards from the urban area along Stocking Lane and Killakee Road to the Gunny Hill (R113) junction, which is 1 km north of the Hell Fire Wood car park. There is a 60 km/h speed limit along Killakee Road past the Hell Fire Wood all the way up to just beyond the Killakee Viewing Point at the Cruagh Road junction over a length of 2.5 km;
- On the R116 route along Edmonstown Road and Cruagh Road, there are similar speed limits applied, with the 50 km/h zone extending to just south of the Mount Venus Road junction at Rockbrook.

In the *Greater Dublin Area Cycle Network Plan* (compiled and published by the *National Transport Authority*), there are a number of rural cycle routes identified along rural roads in the Dublin Mountains as shown on the next map extract.

- Route D2 follows Killakee Road past Hell Fire Wood;
- Route D4 follows Cruagh Road through Rockbrook;

Fig. 65 Recreational Cyclist on The Military Road climbing up to The Featherbed

Fig. 66 60/50 km/h Speed Limit on Killakee Road at Gunny Hill Junction, looking south

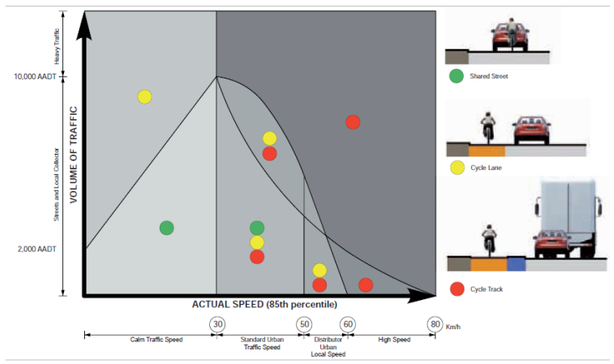

Fig. 67 Guidance Graph from National Cycle Manual

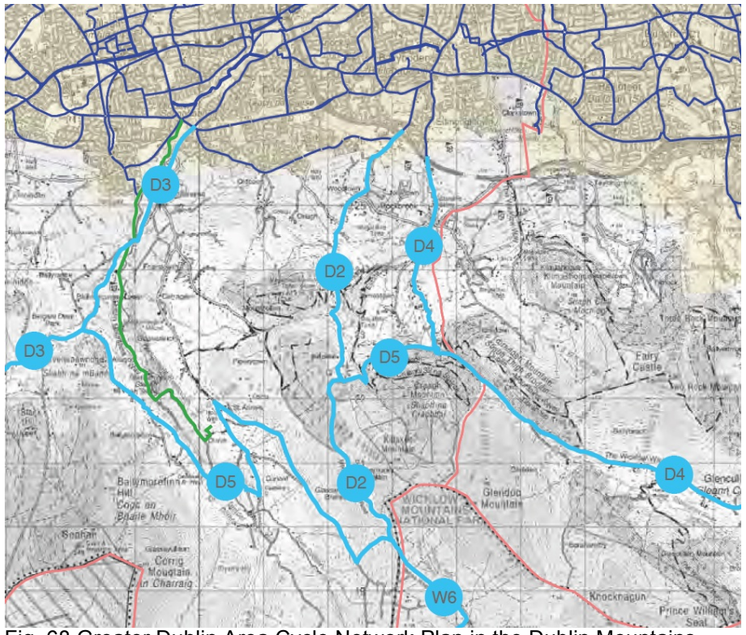

Fig. 68 Greater Dublin Area Cycle Network Plan in the Dublin Mountains

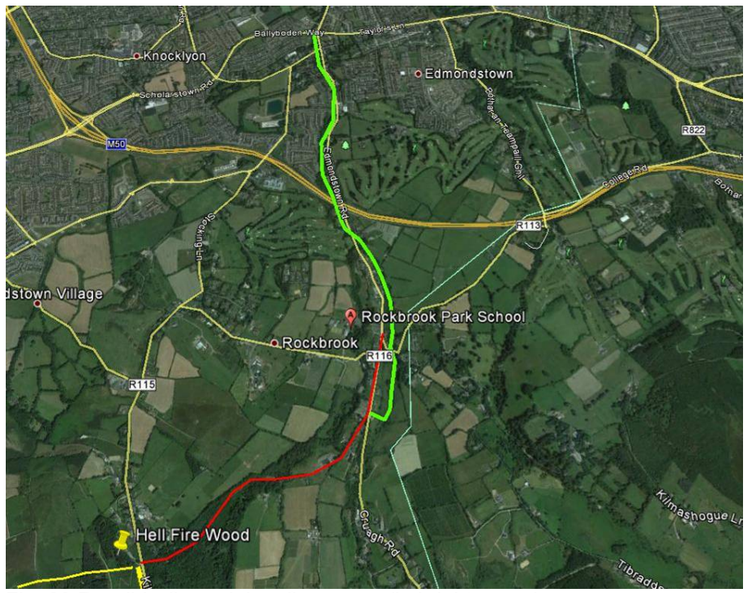

Fig. 69 Possible Owendoher Greenway (in bright green)

There are no cycling facilities suggested for these rural roads as there is no space available without acquisition of property along the frontage.

The existing conditions on these roads are however generally suitable for cycling shared with traffic due to the fairly low traffic volumes and the speed limits.

In Figure 1.7.4 of the *National Cycle Manual* the Guidance Graph – Fig. 68 - suggests that shared use of the road by cyclists and traffic is suitable at a speed limit of 50 km/h and a maximum traffic flow of about 3,000 vehicles per day (AADT = Annual Average Daily Traffic). This guidance suggests that the speed limit on the regional roads in the Dublin Mountains should be lowered to 50 km/h to better suit shared use by cyclists. While no traffic counts were undertaken for this study, the personal experience of the author, who regularly cycles on these roads, is that the traffic volumes are probably a little less than 3,000 vehicles per day and therefore in the suitable range.

Of the two available cycle routes linking the city to the visitor centre site, D4 is probably the better option, as it involves a shorter length along a regional road if connected via Cruagh Lane and Massey's Wood, which provides a very pleasant approach to the visitor centre locality. It follows the line of the original *Military Road*, which provides an interesting historical context and relevance. There also seems to be less traffic along Cruagh Road, based on the personal experience of the author.

Potentially if a higher quality cycleway were desired, a 3 km long greenway could be developed along the *Owendoher River*. Parts of this greenway have already been put in place associated with various developments as shown in later photographs. The river is located alongside Edmondstown Road on the western side for 1.5km from Ballyboden southward to Kilmashogue Cemetery just south of the high bridge under the M50 motorway. Along this section much of the river corridor seems to be publicly accessible as part of the road reservation or within housing developments. However, some private lands would be involved along the route such as at the disused mill in Edmondstown.

South of the M50 the river crosses under Edmondstown Road and passes through fields at a distance of about 50m to the east of the road. A greenway route along this section would entail private lands over a distance of 1.3km.

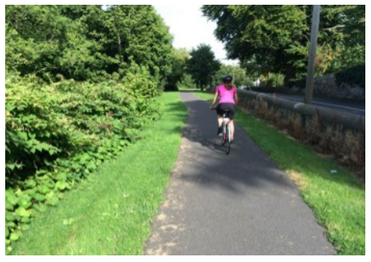

Fig. 70 Existing Section of Owendoher Greenway at Edmondstown

Fig. 71 Sections of the Owendoher River

Fig. 72 Traffic Route from M50 Junction 12 to Hell Fire Wood

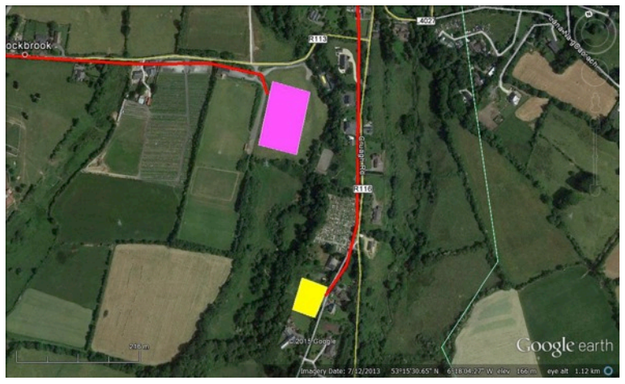

Fig. 73 Massey's Wood Car Park Options at Rockbrook

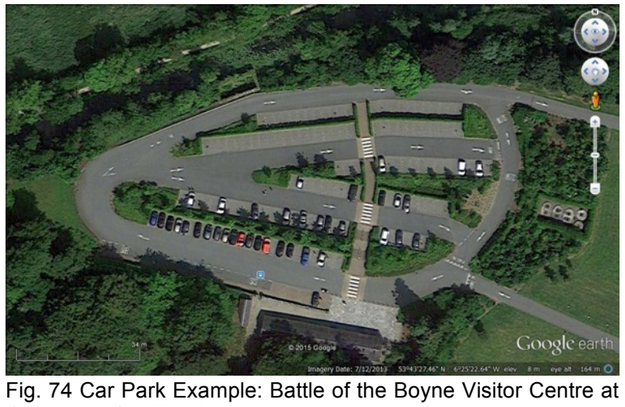

Fig. 74 Car Park Example: Battle of the Boyne Visitor Centre at Oldbridge, Co. Meath

1.2.1.d TRAFFIC ACCESS

Traffic Route to Site A at Hell Fire Wood

Three traffic access routes are available from the Dublin city direction:

i) From Dublin City Centre via Rathfarnham and the R115 regional route along Stocking Lane and Killakee Road, a distance of 12 km;
ii) From M50 Junction 12, Ballycullen Road, Gunny Hill (R113) and Killakee Road (R115), a distance of 4 km;
iii) From Tallaght via Oldbawn Road and Killininny Road to join the same route as from the M50, a distance of 6 km.

All of these access routes involve up to 2.5 km of relatively poor quality rural roads. These roads have considerable landscape character and should not be improved for a modest increase in traffic attracted to the proposed *Dublin Mountains Visitor Centre.* The narrow and bendy roads serve to slow traffic and to support the low speed limits that facilitate shared use by cyclists.

Traffic Routes to Site B at Massey's Wood

Three traffic access routes are available from the Dublin city direction to a possible car park site off Cruagh Road near Massey's Wood:

i) From Dublin City Centre via Rathfarnham and the R116 regional route along Edmondstown Road and Cruagh Road, over a distance of 12 km;
ii) From M50 Junction 12 via Scholarstown Road and either Stocking Lane (R115), or Edmondstown Road (R116), over a distance of 4.5 km;
iii) From Tallaght via Oldbawn Road, Killininny Road via Ballycullen to join the same route as from the M50, over a distance of 8 km.

1.2.2. ESTIMATED TRAFFIC VOLUMES TO THE CENTRE

Demand estimates for sites such as this can be quite tricky as a lot depends on the duration of stay and the mode of transport that is likely to be chosen by various visitor types. There are no real industry guidelines to go by and development plan standards require a site-specific demand assessment. Simple arithmetic is as follows:

- 300,000 visitors per annum as estimated by TDi;
- March to October season = 8 months = 240 days;
- Average visitor numbers = 1,250 per day;
- Typical stay duration = 2 hours?;
- Active period from 9am to 6pm = 9 hours;
- Visitors on site per hour = 1,250/9 x 2 = 280 people;
- 40% by car = 112 people;
- 2.5 people per car average / 2 hours = 22.5 cars per hour;
- Daily peak period is double average = 45 cars per hour x 2 trips in and out = 90 vehicles per hour
- Seasonal peak period is double average = 180 vehicles per hour (two-way);
- Average Daily Traffic = 1,250 persons x 40% by car / 2.5 persons per car = 200 vehicles

Such a traffic flow is quite modest in terms of capacity of the existing regional road for access. As noted previously, in the absence of a traffic survey, it is estimated that the existing traffic low on the R115 Killakee Road is probably in the range of 2,000 to 3,000 vehicles per day. The additional traffic to the site will therefore generate an increase in the range of 7% to 10% on the existing traffic.

1.2.3. CAR PARKING

Car Parking at Massey's Wood

There is no existing car park at Massey's Wood, and the terrain is too steep at the northern end of the wood where it tapers to a very narrow width within the small ravine of the Glendoo Brook. Cruagh Lane is too narrow for a traffic route to access Massey's Wood from Cruagh Road. If a visitor centre is to be developed on Site B at Massey's Wood, it would therefore be preferable to provide a car park adjoining Cruagh Road about 1km to the northeast of the site, with visitors to walk along Cruagh Lane to reach the site.

The topography at Rockbrook is difficult with Cruagh Road following a narrow ridge between the ravines of two small rivers of the Owendoher on the eastern side and the Glendoo Brook on the western side. There are numerous houses and a small cemetery within this narrow strip of land and few undeveloped fields that could possibly be used for a car park. There is a small site of about 0.4Ha to the south of the cemetery about 100m along Cruagh Lane, as shown in yellow on the aerial photograph below, which could accommodate about 140 car parking spaces, which is probably a bit too small. Another and better option is a site on Mount Venus Road, 300m to the north and adjoining the Ballyboden Wanderers GAA Club site at Frank Kelly Park, shown in pink on the aerial photograph, which is over twice the size and could accommodate 300+ car parking spaces. This site would need a walking trail southwards to Massey's Wood following the Glendoo Brook across the fields over a distance of 700m, which would not bring additional pedestrians along Cruagh Lane compared to the first site discussed.

Car Parking at Hell Fire Club

The existing car park at Hell Fire Wood can accommodate a little over 80 cars. As the spaces are not delineated the capacity depends on tidy parking to maximise the number of available spaces. From a spot check on Sunday 27th of September 2015 (at 2pm) 83 cars were counted in the car park which was full, with a further 40 cars approximately parked on the road outside. This was a particularly fine day with a lot of visitor activity in the Dublin Mountains. The existing peak parking demand is therefore in the order of 120 spaces.

Figures for existing annual visitor numbers provided by Coillte are in the order of 100,000, most of which is presumably local domestic custom This existing visitor demand is almost entirely served by car in the absence of targeted efforts to make the site conveniently accessibly by public transport, cycling and walking as proposed earlier in this report.

The above transport demand assessment (Section 3.2) has indicated that the peak demand for parking to serve 300,000 visitors per annum with a modal share by car of 40% would require 180 spaces. However, in the context of existing peak demand for 120 spaces, it would be prudent to

Fig. 75 *Example: Glenveagh National Park, Co. Donegal.*

Fig. 76 Potential Car Park Extension (in yellow) and Visitor Centre Building (in red) at Hell Fire Wood

Fig. 77 Example: Shuttle Bus for Mount Snowdon at Pen-Y-Pass

Fig. 78 Overspill Parking on Killakee Road at Hell Fire Wood, despite double yellow lines

provide a higher parking capacity of say 250 car spaces in an extended car park. That is 170 new spaces in addition to the existing 80 spaces.

As the visitor centre is intended to be a base for a cluster of sites in the vicinity, there will be satellite parking available at Killakee, Cruagh Wood, Tibradden Wood etc. Some visitors may call by the centre on their way to and from these other sites and only stay briefly.

For aesthetic and landscape quality reasons it is desirable not to have the site dominated by a large car park. Careful design can mask the car park with screening by mounding and planting, as has been done very successfully at other visitor centres such as the Battle of the Boyne Visitor Centre at Oldbridge, Co. Meath, or Glenveagh National Park in Co. Donegal. Clear pedestrian walkways should be provided, and possibly with a pergola cover for further visual screening and shelter.

At Hell Fire Wood the most suitable location for an expanded car park is to the south of the existing car park, to the left from the existing entrance, and contoured around the hill parallel to Killakee Road. The proposed visitor centre building will be sited further up the hill with view looking north-eastward above the car park, which should be terraced into the hillside below the eye-line and screened by small trees and shrubs in the foreground.

Over-Flow Parking

There may be a greater than expected parking demand if the visitor centre is particularly successful, or if mode share by car is higher than desirable. It is not desirable to further expand the car parking capacity at Hell Fire Wood for landscape impact reasons. Instead consideration could be given to a satellite car park further north at the edge of the urban area. South Dublin County Council has land at the junction of Stocking Avenue and Stocking Lane at about 2.5km from the visitor centre site, which would suit. The suggested shuttle bus from Woodstown could also link this car park to the visitor centre. Such an arrangement is provided at Pen-Y-Pass in Snowdonia in North Wales.

At Glendalough where there has been a severe traffic and parking problem for many years, Wicklow County Council is considering such an arrangement to relocate the main parking facility to Laragh Village with a shuttle bus service to Glendalough.

In the case of the Dublin Mountains Visitor Centre, there is no technical reason that limits traffic capacity on Killakee Road between the city and Hell Fire Wood. However, overspill parking can lead to traffic blockages as can be seen in the following photograph. It would be quite difficult to enforce parking restrictions through a warden service and possible removal of illegally parked vehicles, which would be unlikely to be practical in such a remote location. Instead a satellite car park further north could divert excess parking demand at times when the site is full. A variable message sign could indicate that the main car park is full and direct visitors to the satellite facility instead.

Parking Charges?

It is a vexed question whether parking charges should apply at a tourist attraction. Collection and enforcement costs for an isolated site can be significant, and usually drive up the parking charges so as to generate a net revenue. Some people will object in principle to the introduction of charges for a car park that was previously free, as is the case at Hell Fire Wood. There is a considerable risk of drivers choosing to park on the public road instead of in the car park. This was often the case at the Upper Lake Car Park in Glendalough until the informal parking opportunities were eliminated and enforcement was rigorous. (Curiously the car park at the visitor centre further down the valley is free of charge).

For these reasons parking charges are rarely applied at visitor sites, with Glendalough Upper Lake and the Cliffs of Moher being rare examples with charges. (The latter has generated much negative publicity for what some people regard as extortionate charges of €6 per adult charged at the car park access). Other OPW sites generally provide free parking with charges applied instead for access to formal tours. Elective revenue such as from cafes and gift shops are often more successful ways of covering running costs for a visitor centre.

For the Dublin Mountains Visitor Centre it would be preferable for the facility to be operated on a low-cost basis without access charges. The capital cost of the infrastructure should be very little, as the site is already largely developed in terms of access, parking and walking trails. Such further investment as is necessary could be recouped through surpluses generated by an on-site cafe facility especially if land costs are excluded. The National Botanic Gardens in Glasnevin provides a suitable example of a public facility that does not charge for access or parking.

Coach Parking

Relatively little coach access is expected at the visitor centre as this site would primarily appeal to different markets. However, coaches can be accommodated at the site as required, with perhaps 10 parking spaces provided, similar in scale to Glendalough. While Killakee Road is a bit too narrow for two-way coach traffic, the likelihood of two such large vehicles meeting is fairly low and can be managed. Coach tours operate on set schedules and can time their arrival and departure to avoid clashes with each other. If necessary a coach driver approaching the site can phone ahead perhaps 10 minutes in advance and request that no other coach set off down the hill back towards Dublin until they arrive. The South Dublin County Council site at Stocking Avenue could even be used as a holding place in a managed access arrangement.


Fig. 79 Existing car dominated traffic layout on Killakee Road


Fig. 80 Cars parked at Massey's Wood to avoid walk along the road from Hell Fire Wood


Fig. 81 Example of a Timber Footbridge at Loch Lomond, Scotland

1.2.4. SHARING THE ROAD SAFELY

Rural roads do not normally have footpaths and the road is intended for shared use by pedestrians, cyclists and traffic. Unfortunately however, practice in Ireland has been to delineate the road centreline with road markings that encourages traffic to travel close to the road edge and at higher than appropriate speed. This places pedestrians and cyclists in a vulnerable position as traffic can arrive behind them unexpectedly at a corner.

The entrance to Massey's Wood is located 150m north of the car park at Hell Fire Wood. Rather than undertake the perceived risk of walking for this short length along the road some people prefer to park on the road as close as possible to the entrance, especially those with young children.
There are two issues that should be addressed in the access arrangements for a visitor centre in the vicinity of Massey's Wood and the Hell Fire Club:

a) Provide a safe pedestrian road crossing between the two sites, either as a zebra crossing at road level with appropriate traffic calming, or a bridge over the road as part of a gateway feature for the centre.
b) Revise the road markings by removing the road centreline and replace with a pair of edge lines to delineate 1.5m wide strips which would encourage traffic to drive in the middle of the road and only move to the left to pass an oncoming vehicle as shown in the later photographs from a rural road in Holland, which is international best practice. Warning signs should alert drivers to take care for pedestrians and cyclists.


Fig. 82 Examples of shared road delineation in Holland (Utrecht)

1.2.5. RECREATIONAL WALKING TRAIL NETWORK

At present the location under consideration for the Dublin Mountains Visitor Centre at Hell Fire Wood & Massey's Wood offers only a limited range of options for walking trails due to the fragmented public amenity sites in the area that are poorly connected. However, with some short new links in key places the proposed visitor centre could form the hub for an extensive and varied set of walking trails that would exploit the potential of this highly attractive area at the threshold of the Dublin Mountains. These trails would explore the pleasant wooded valleys and open up new walking routes into the higher mountains. Many varied loops could be arranged for a range of lengths and interests.

This section identifies a range of potential walking trails that could be developed in conjunction with the proposed Dublin Mountains Visitor Centre. We understand that the *Dublin Mountains Partnership* (DMP) have previously considered some of the potential trails suggested, but encountered difficulty in securing landowner agreements as required for routes that would cross private lands. However, the development of a major Dublin Mountains Visitor Centre at Hell Fire Wood will provide a radically different context for the provision of public walking routes in the vicinity. The involvement of South Dublin County Council as a major investor in a large scale tourism development will need to be underpinned by a more ambitious approach to provision of walking routes in the mountain area closest to Dublin. The local authority can devote suitable resources to purchasing small areas of private land where necessary to establish key connections in a more extensive and accessible walking route network.

These suggested new trails would consist mainly of short links to connect existing amenity areas in the Dublin Mountains which are quite fragmented at present. The main trail through the area is the *Dublin Mountain Way* (DMW) that traverses east-west across the mountains. However, the current route of this trail is unsatisfactory at the western end where it is very convoluted and includes 7 km of walking on public roads. This note suggests a few modifications to improve the DMW in certain key locations.

The following proposals correspond to numbered locations on the accompanying map with colour codes as follows:

- Green: New off-road trail.
- Yellow: Suitable public road.
- Blue: Existing Dublin Mountains Way.

Where routes are proposed along public roads they are generally narrow cul-de-sac roads with very little traffic for local access only and therefore suitable for walking in comfort and safety.

Trail 1. Owendoher Greenway

This route would provide access to the Dublin Mountains from Ballyboden along the small Owendoher River through Rockbrook. It could then link south-westward via Cruagh Lane to Massey's Wood and the Hell Fire Wood. A link to the southeast is also available along Mutton Lane and to Tibradden Mountain, or via Route 2 below to the Wicklow Way. The greenway would make the proposed Dublin Mountains Visitor Centre accessible by walking from Dublin and thus support the sustainability of the centre by reducing reliance on motorised transport.

Trail 2. Larch Hill Link

Scouting Ireland owns a large camping site at Larch Hill on the western side of Kilmashogue Mountain at Kelly's Glen. It is possible to walk through the site to make a connection from Mutton Lane on the western side to Kilmashogue Lane on the eastern side, but this is not a public walking route at present. Public access could be sought along a suitable route at the northern edge of the Larch Hill site. This would make it possible to reach the *Wicklow Way* at Kilmashogue and provide possible continuation routes eastward across Three Rock Mountain, southward to Glencullen, or northward to Marlay Park and the city. Advice from the DMP indicates a reluctance on the part of Scouting Ireland to agree to this idea for child protection reasons. In response a suitable arrangement would be to fence off a walking trail along the boundary, either within the Scout site, or the adjoining farm. The Scout camp site does not have a secure boundary in any event and with frontage onto the public road at Kilmashogue Lane. Provision of a walking route along the northern edge will make no difference to the security context at the site.

Fig. 83 Owendoher River beside Edmondstown Road - Potential Greenway

Fig. 84 Owendoher River beside Edmondstown Road at M50 Bridge - Potential Greenway

Fig. 85 Mutton Lane, Rockbrook at Hazel House Cafe

Fig. 86 Entrance Gate to Larch Hill Scouting Ireland Camp Site on Mutton Lane

There are no public camping sites in the Dublin Mountains at present. Potentially a part of the Scouting Ireland camp site at Larch Hill could be made available to the public, which would avail of the existing facilities and on-site 24 hour supervision.

Trail 3. Pine Forest Link

Tibradden Lane extends southward from Mutton Lane close to the entrance to the Scouting Ireland camp site at Larch Hill. About 1km to the south there is an entrance to Tibradden Wood that provides access to the Dublin Mountain Way.

Trail 4. Piperstown Gap

To the south of the Hell Fire Wood at Montpelier Hill at Piperstown Gap, there is a very short gap of 250m across private land to the next public lands at Killakee Woods. The Dublin Mountains Way currently follows a detour of over 3km to progress westward from Hell Fire Wood towards the Bohernabreena Reservoirs at Glenasmole. It is highly desirable to provide a link across Piperstown Gap to better connect the Hell Fire Wood to the main mountain area to the south and west.

Trail 5. Annmount Spink

The Dublin Mountains Way follows public roads for 3.5km around the northern side of this small hill that reaches an elevation of 390m above sea level. It is desirable instead for the DMW to traverse the hill on existing tracks across private lands of open mountain for a shorter distance of 1.5km.

Trail 6. St. Ann's Link

The Dublin Mountains Way used to descend from the eastern side into the Bohernabreena Reservoirs at Glenasmole via the ground of the old St. Ann's Chapel and graveyard. However, in recent times, due to local sensitivities about the site at the chapel, the official walking trail was re-routed along a 2km detour on public roads to the south. It is desirable for the original direct trail to be reinstated, with suitable routing through the adjoining field to skirt the graveyard.

Trail 7. Orlagh Lane to Hell Fire Club

Directly to the north of Hell Fire Wood, there is an existing track that extends for 1km to join a short cul-de-sac road at Orlagh that connects to Oldcourt Road. The status of this route for public access is unclear, with some amenity maps suggesting that it may be available for walkers. This route could make the Hell Fire Wood accessible directly from the nearby residential areas of Oldcourt and Ballycullen as a better alternative than the busier route along Gunny Hill and Killakee Road.

Trail 8. Kippure Mountain Access

From the southern end of Glenasmole near the headwaters of the River Dodder, there is a track that heads southward onto the open mountain at the foot of Kippure Mountain, the highest summit in the Dublin Mountains. This route is not way-marked and the public access status is unknown. It is however a very good gateway onto the higher mountains that can link to the proposed Dodder Valley Greenway and the Dublin Mountains Way.

Trail 9. Featherbeds Trail

Route 9 can complement Route 8 from Kippure Mountain by following an old turf-cutters track across the *Featherbeds* to the Military Road. It can then cross over Killakee Mountain and Cruagh Mountain to connect to the various trails at the head of the Owendoher Valley, from where walkers can reach the proposed Dublin Mountains Visitor Centre via Massey's Wood alongside the *Glendoo Brook*.

Dublin Mountain Valleys Trail

The various walking routes described above can be combined to provide a low-level trail to link across the three valleys of the Dublin Mountains from *Glenasmole* on the River Dodder in the west, through Hell Fire Wood and Massey's Wood across the *Owendoher Valley* in the centre, then across *Kelly's Glen* in the east to Marlay Park. This route is considerably shorter than the Dublin Mountain Way and avoids traversing the higher mountains. It would provide a different experience mainly through woodlands, including the largest deciduous woods in the Dublin Mountains. It would also be punctuated by the proposed Dublin Mountains Visitor Centre at the mid-way point.

"Rebel Route" Tourist Trail

It would be useful for the proposed Dublin Mountains Visitor Centre to be integrated into a wider context of other connected sites of historical interest to tourists on a thematic trail as follows from Dublin City Centre southward:

1. *Dublin Castle*: the story of the escape in January 1592 by Red Hugh O'Donnell and Art O'Neill who fled southward seeking sanctuary from Fiach McHugh O'Byrne in his stronghold beyond The Pale in the Wicklow Mountains;
2. *Rathfarnham Castle* a major feature of the Norman subjugation of the area surrounding Dublin and a defensive bulwark to protect the city from the rebels raiding northward from the mountains;
3. *Pearse Museum* at St. Enda's Park, south of Rathfarnham, celebrating the leader of the 1916 Rebellion, which laid the foundation for eventual national freedom after a long history of unsuccessful revolts over the preceding 300+ years;
4. *The Military Road* constructed by General Wade after the 1798 Rebellion to enable swift pursuit of the rebels based in the Wicklow Mountains, leading to the first major barracks in the mountains at Glencree. The remnant of the old road that is still unpaved within Massey's Wood can be featured further south.
5. The *Noel Lemass Monument* located prominently at the high point of the *Featherbed* close to the Military Road as a reminder of the destructive events of the *Civil War* that followed *The War of Independence*.

These 5 sites could be brought together to tell the history of the Dublin Mountains and how they featured prominently in the story of Ireland, with interpretation at the proposed Dublin Mountains Visitor Centre. A way marked route could be developed for tourists to follow by walking, cycling, on an organised bus tour or by car. This could be called the *"Rebel Route"* to denote the main theme of the story.

Fig. 87 Piperstown Gap Trail

Fig. 88 Noel Lemass Monument on The Featherbed, with Kippure Mountain in the background

Conclusions for Walking Trails in The Dublin Mountains

There is considerable potential to develop an extensive network of walking trails in and around the proposed Dublin Mountains Visitor Centre, which would make the northern threshold of the Dublin Mountains much more accessible for walkers than at present. These trails would link back to the city by three routes that will enable walkers without need for a car, and connecting to a variety of public transport services. These lower trail sections will also cater for cyclists to access the mountains.

1.2.6. ACCESS PROPOSALS SUMMARY

The proposed *Dublin Mountains Visitor Centre* will be generally located at a distance of about 3km south of the edge of the Dublin urban area and beyond the extent of existing public transport services. Access to the site is currently available along narrow and bendy rural roads without footpaths or cycling facilities, but with suitably low speed limits of 50 km/h and 60 km/h.

The proposed visitor centre will be relatively modest in scale compared to the major international tourist facilities in Ireland such as at the Cliffs of Moher, Brú na Bóinne or Glendalough. It is primarily intended to provide a focus for greater use of the Dublin Mountains by walkers, cyclists and independent car tourists, rather than to cater for coach tours. Although the number of users will hopefully be very significant, the site itself should have a small imprint in environmental terms and to avoid the need for large scale and intrusive facilities and infrastructure.

It is proposed that a sustainable transport strategy will be the central focus for the visitor centre as follows:

a) Public Transport will be promoted as the primary means of access. For this a short 2.5 km long shuttle bus service is proposed to connect with the existing high frequency Dublin Bus Route No.15 at Woodstown Village / Ballycullen. Other services such as an increased frequency to Rockbrook, and a dedicated tourist bus from Dublin Castle should be considered.

b) An *Owendoher Greenway* should be developed along this small river from Ballyboden southward to Rockbrook, and linking into Massey's Wood via Cruagh Lane. Pedestrian and cyclists access to the visitor centre could then avoid the narrow rural roads for a traffic-free link to the site. This would provide an additional link to the *Dublin Mountain Way* in the western sector and could enable loop walks to be made from the city into the mountains and back.

c) The local roads should not be improved to enable increased car access as this would damage the attractive landscape character of these routes into the mountains. It could also lead to higher traffic speeds and reduced safety for cyclists and pedestrians. Instead the road centreline marking should be removed and replaced with a pair of edge lines to delineate 1.5m wide strips which would encourage traffic to drive in the middle of the road and only move to the left to pass an oncoming vehicle.

d) Additional car parking at the site should be capped at about 250 car spaces and 10 coach spaces so as to constrain the additional volume of traffic on the narrow access roads and to encourage access by walking and cycling to a large extent.

e) It is desirable to develop a more attractive and direct route for the *Dublin Mountain Way* directly westward to the proposed *River Dodder Greenway* at Bohernabreena, instead of the very indirect current route that follows public roads for a length of 7km. This would help reduce the current isolation of the *Hell Fire Wood* on *Montpelier Hill* from the main heart of the Dublin Mountains. A very short link across private farmlands at Piperstown Gap would require to be arranged for this route improvement.

f) A range of walking trails should be developed radiating from the Hell Fire Wood in several directions to underpin the main focus of the centre on exploration of the Dublin Mountains by walking. This would include a direct link northward to Woodstown, and an eastward link from Massey's Wood through Rockbrook to the Wicklow Way at Kilmashogue.

2.0 ECONOMIC AND MARKET ANALYSIS

2.1 ACHIEVING FLAGSHIP STATUS AND ROLES

What is a Flagship Facility?

At the outset, it is important to understand the meaning of flagship destinations or attractions. The South Dublin Tourism Strategy describes them as:

- Attractors to the destination in their own right
- A central component of a destination's differentiation
- Determining the visitor's travel decision and choice of destination
- Typically involving an overnight stay in the destination
- Generating economic benefits for the destination

Another definition is:

"A major attraction is defined as 'flagship' when its appeal is attributed to distinct qualities, including uniqueness, location, international reputation, and outstanding media attention, making it a 'must-see' attraction and relatively large in size and economic impact" *(Source: A Weidenfeld "Iconicity and 'Flagshipness' of Tourist Attractions)*

Steering Group Requirements for Flagship

The Steering Group's Terms of Reference lists a range of features or attributes that the Dublin Mountains flagship facility would be expected to include. In summary, these are:

- To be in a key location that will ensure success as a flagship tourist attraction for the region
- To be based on best practice design, layout and operation in a sensitive natural environment
- To adopt innovative and sustainable transport and access solutions
- To have the capacity to accommodate visit numbers and to operate in a sustainable way (economically and environmentally)
- To have the capability for adaptation in response to changing requirements/demands
- To become a "must-see" attraction for visitors to Dublin
- To act as a gateway to welcome and orientate visitors to the Dublin Mountains
- To make it possible for visitors to enjoy the "Best Views" of Dublin
- To provide orientation for visitors to the Mountains but also to the County as a whole
- To offer food and related facilities
- To have interpretation spaces and displays on the Mountains and their activities
- To act as a node for hiring of equipment, for guiding and other services and for booking activities
- To offer opportunities for interactivity and learning, including events and exhibitions
- To act as a launching point for walks and trails

South Dublin Tourism Strategy Flagship Proposals

The South Dublin Tourism Strategy provides a brief description of the flagship facility as consisting of 3 main elements and other subsidiary ones:

1. Orientation/Interpretation Centre
2. Outdoor Pursuits/Education Centre
3. Elevated Viewing Platforms
4. Looped Trails – linked with DMW
5. Activity Events
6. Dublin Mountains Touring Route

The Orientation/Interpretation Centre is described as:

- Presenting the Dublin Mountains Story
- Being targeted at visitors seeking to learn about:
  - Geology
  - History
  - Archaeology
  - Nature
  - The future of the Mountains
  - What to do in the Mountains
  - How best to enjoy the Mountains while maintaining the quality of the environment
- Providing facilities such as:
  - Parking
  - Food and beverage
  - Toilets etc
- Offering visitor information on:
  - Guided walks
  - Maps/orientation to other attractions in the Mountains and elsewhere in South Dublin

The Dublin Mountains Outdoor Pursuits Centre is envisaged as:

- Meeting the needs of visitors seeking outdoor activities such as:
  - Mountaineering
  - Orienteering
  - Zip wire
  - Water-based activities
  - Skills training
  - Residential overnight accommodation

Flagship Uniqueness

At this early stage, the challenge is to turn these proposals and concept into something that would actually function as a flagship attraction. To do so, it has to be something that visitors (overseas and domestic) directly associate with a visit to Dublin:

- Something that you have to see and experience as part of your visit
- One of the things that motivates you to visit Ireland

As they stand at the moment, these are proposals that might not fully achieve that status or appeal, unless they involve:

- an iconic structure or landmark (to draw people up into the mountains)
- a critical mass of interest/activities (of significant scale and mix of appeal)
- a unique theme that attracts interest and curiosity

Each of the six sites identified have a range of features, landscape characteristics and specific views as outlined in the constraints analysis. However the Hell Fire Club stands out at the most unique element within the study area. The Hell Fire Club provides a theme and stories that are key to opening up the area and generating interest, especially when associated with views out over Dublin from the top of the hill. The ruin of the actual Hellfire Club is on a prominent site with panoramic views of Dublin.

The word Hellfire when related to a location certainly stimulates curiosity and might be something that can be developed into a theme that generates a degree of uniqueness and motivation to visit. However, there are questions about its marketability and wide appeal.

However, if sanitised and to some extent trivialised, the theme and its stories could appeal to a general tourism market or a niche alternative tourism one. This has already been demonstrated by Hidden Dublin Walks and Tours who run a small Hellfire Ghost Tour up to, and in, the ruin of the former Hellfire Club twice a week, all year round (adults only).

This would appear to suggest that there is a market for the Hellfire theme. At the very least, it is something that could be incorporated into the name of the proposed new centre. There could also be some interpretive space and media within the centre that is dedicated to the theme, in a sensitive manner, especially if linked to encouraging visitors to go out and view the actual ruin and other associated sites.

The Hellfire Club, in its present form, already features as a Recreation Site in DMP's map. However, it is referred to simply as Hellfire in the Dublin Mountains Recreation Strategy.

2.2 MARKET ANALYSIS: EXISTING AND TARGETS

Existing Visitors: the Dublin Mountains area is regarded as a popular place to visit for a range of recreational activities. The latest information on DMP's recreation sites is summarised in Table x.

Existing visitors include people engaged in:

Short Leisure Walks: for fresh air, exercise, dog walking, enjoying the countryside, family trips, socialising with friends. These can be quite frequent activities starting from home (ie. the local market) or from a car park in or near the area (ie. the wider Dublin area market). Some also travel by bus.

They are of potential importance to a new centre because they could be a source of regular visits to use its facilities (eg. the catering, toilets). Good parking at the centre and direct access to attractive short walking routes will enhance their use of it.

Given the high proportion of VFR tourists (ie. those staying at least one night with friends and relatives) who come to the South Dublin area, these local visitors are also important for bringing such visitors from outside up into the Mountains. In this case, these VFR tourists would be a target for a centre interpreting the stories of the Dublin Mountains, providing panoramic views and orientation (and encouragement to go further afield).

Informal Touring by Car: for enjoyment of the route(s), scenery, stopping places, picnic areas and viewpoints. These visits are probably mainly from the Dublin catchment (eg. weekend drives and family outings). However, some are from further afield on longer days out, on short breaks in the Dublin area and on part of a longer tour of parts or all of Ireland.

In terms of volume and potential income, this is likely to be a significant market for the new centre. It includes day visitors, as well as tourists from domestic and out-of-state sources. It is also a broad market sector ranging from family groups to older couples. The centre's interpretation, orientation, catering and retailing functions, as well as the viewpoint, will appeal to this market group.

The new centre has the potential to increase the number of visits to the Dublin Mountains by this market if it achieves flagship status. To do so, it must offer uniqueness, captivating appeal and quality – often referred to as the "wow" factor or "must see".

Organised Excursions: into and around the Mountains, usually by coach from central Dublin or a cruise terminal. Currently, these mainly involve taking tourists to the Wicklow Mountains/Glendalough and rural Pub Tours. However, in the case of the Hellfire Club, a ghost tour is on offer.

The latter operates all year round for 2 nights per week, with 13 places per trip, giving a capacity for 1,350 visits per year. Evidence from other more frequently held Dublin ghost tours suggests that they can average 10,000 customers per year, with 60-70% from outside Ireland. This, therefore, is an important activity that could help to attract more visitors into the Mountains (especially those from overseas).

Excursions are important to the growth of visits to the Dublin Mountains because they bring people who do not have access to a car or do not use public transport. While 44% of overseas visitors to Ireland as a whole use their own car or hire one as part of their stay, the equivalent figure for overseas visitors to the Dublin area is around 30%. This demonstrates the importance of having excursions available. Similar information on domestic markets is not available.

In a sense, excursions will provide an important connection between the new centre (and the area) and the target markets. Development of the new centre will provide a new destination for these excursions, helping to draw them further into the Mountain area. For that reason, it must be able to offer an experience and reputation that is of significant appeal to excursion customers. This includes cruise ship visitors.

Site name	County	Visits pa approx	Car Park Spaces	Walking Trails	DMW or WW	MTB Trails	Permanent Orienteering	Un-Authorised MTB	Un-Authorised Equestrian	Scramblers
Hell Fire	SDCC	50000	70	Yes			Yes	Yes	Yes	Yes
Massy's Estate	SDCC	20000	0	Yes			Yes		Yes	Yes
Cruagh	SDCC	30000	35	Yes	DMW			Yes		
Featherbed	SDCC	10000	2	Yes	DMW					Yes
Commons	SDCC		0	No						
Ballinascorney	SDCC		2	No				Yes		Yes
Seahan	SDCC		4	No						Yes
Crooksling	SDCC		0	No						
Lugg	SDCC	5000	2	Yes						
Slievethoul	SDCC	5000	2	Yes				Yes	Yes	
Tibradden	DLRCC	50000	50	Yes	Both	Yes		Yes		
Kilmashogue	DLRCC	incl in Tiknock	40	Yes	WW	Yes		Yes	Yes	Yes
Tiknock	DLRCC	100000	100+	Yes	Both	Yes	Yes	Yes	Yes	Yes
Ballyedmunduff	DLRCC	incl in Tiknock	0	Yes	DMW			Yes	Yes	Yes
Barnaslingan	DLRCC	20000	20	Yes	DMW		Yes *	Yes	Yes	
Carrickgollogan	DLRCC	30000	10	Yes	DMW		Yes	Yes	Yes	
Kiltipper Park	SDCC			Yes	DMW					
Sean Walsh Park	SDCC			Yes	DMW					
Bohernabreena	Dublin City			Yes	DMW					
Marlay Park	DLRCC			Yes	WW					
Rathmichael Wood	DLRCC			Yes	DMW					
		320000	237				* including site for Wheel-O: wheelchair orienteering			

Source: DMP
September 2015

Fig. 89 DMP Recreation Sites

Hill Walking/Rambling: including people on long walks like the Dublin Mountains Way, the Wicklow Way, other mountain walks and many others on shorter waymarked ways, forest walks and tracks.

While this is predominantly a day visit (at least 3 hours away from home) market from the local Dublin catchment, it is also likely to include some visitors who are staying at least one night in overnight accommodation.

Some walk alone, some as couples or small groups of friends and others in larger groups, as an organised outing for club members or as a guided walk or part of an event. DMP offers regular free guided walks led by volunteer rangers.

Depending on its location, a new centre could be attractive to some of these walkers, as a starting or assembly point but also (depending on the route) as a stopping point for rest, refreshment, information, interpretation display or as an end to the walk.

Mountain Biking: as individuals, small groups and club outings. There are currently 3 official mountain biking sites in the Dublin Mountains, with Ticknock as the main centre, attracting around 100,000 visits per year.

Mountain biking is not permitted on any other DMP or Coilte land. This does not mean, however, that it does not happen elsewhere unofficially. The Dublin Mountain Recreation Strategy listed 25 known sites in 2007 where un-authorised mountain biking was taking place. The latest information from DMP (Fig. 89) identifies 10 such sites.

Mountain Biking is likely to attract a mainly local and regional market but visitors from a wider area are known to come for events.

With Ticknock as the existing main centre, it is unlikely that the proposed flagship centre under consideration would be able to play much of a role in mountain biking in the area, other than providing information on where the activity is allowed to take place and where visitors would be able to hire bikes.

Road Cycling: as individuals, groups and clubs taking part in casual rides, club spins, hill climbs and training runs, mainly from the Dublin catchment. However, some are likely to be long-distance tourers from outside the area.

As discussed under car touring, depending on the routes used, road cyclists may be attracted to the new centre as a place to stop for refreshment en route or as a place of assembly for group outings. Some secure bike parking would be a requirement.

Mountain Running: involving organised races and training runs. The Dublin Mountains Strategic Plan for the Development of Outdoor Recreation (2007) lists13 summits/areas in the whole Dublin Mountains that are used for races.

This might be regarded as a niche market, compared with others, but the above strategy shows that in 2007 there were 13 Leincester League Races, averaging 200 runners and 20-25 spectators. This implies around 3,000 visits in that year.

There may be a role for the new centre as an assembly point for some of these races. It should also be able to alleviate the car parking problems they experience by having sufficient parking and providing shuttle services to and from starting points. The centre could also support this activity with its catering, toilets and possibly changing facilities.

Orienteering: primarily as a club member, in training and competition. Most forests in the Dublin Mountains are mapped for orienteering. The Recreation Strategy found no evidence of events generating overnight stays in the area. The latest information from DMP (Table x) identifies 5 permanent orienteering sites and one for Wheel-O (wheelchair orienteering).

Again, the new centre could act as an assembly point for orientation events in its immediate area. Participants could park there and be shuttled out to the competition zone (as in the case of mountain runners). Available support from the centre could also include catering, toilets and possibly changing facilities.

Motorcycling: The roads in the area have the characteristics that are attractive to on-road motorcyclists, who might stop at some points to look at the view but this is not regarded as a major market group. However, the centre could meet their parking, assembly, catering and orientation requirements.

In contrast, off-road motorcycling (scrambling and trials) in the Dublin Mountains is a popular activity, officially and unofficially (casual). The Dublin Mountains Recreation Strategy lists four main areas used for official events in 2007:

- The Slade of Saggart – competitions mainly on Sundays in winter
- Butter Mountain (near Brittas) – competitions, training and coaching all year round
- Glassmucky - competitions, training and coaching all year round
- Cruagh Wood – important national competitions on winter Sundays

If these four locations stage around 100 events in a year, averaging 40-70 competitors and 100 officials and spectators (source: Dublin Mountains Recreation Strategy) then organised mountain biking events attract around 15,500 visits per year. Some of these participants may use the new centre for refreshments and assembly.

This excludes unofficial scramblers who are also regular visitors. DMP has identified 8 un-authorised scrambling sites in 2015.

Off-Road Driving: which is basically a specialist market participating in a few events each year (7 in 2007). As above, it is unlikely to generate much interest in the new centre.

Horse Riding: with the main participants being the operators and customers of 5 centres within or adjacent to the Dublin Mountains area. Horse riding in the forests is by permit only. While the majority of participants who ride on a regular basis come from the Dublin area, there may be a role for the centre as an information and booking point for visitors wishing to take part. There are 8 areas where DMP has identified un-authorised equestrian use in 2015.

Adventure Activities: Other than those already mentioned, the main ones in the area are Zipit Tibradden and Paintball (Kilternan). Neither are likely to have any direct relevance to the proposed new centre, apart from perhaps as a source of information and booking. However, in order to establish its appeal to family groups, there will be a requirement for some form of adventure experience in or close to the new centre. A close association with Tibradden would help to achieve this, given that an estimated 50,000 visits are made to the area in a year.

Angling: within the Mountains area, the main fishing locations are the Bohernabreena Reservoirs. These are unlikely to have much of an association with the new centre but will feature as part of its orientation function.

Special Interest Groups: visiting the area for birdwatching, wildlife study, archaeology, etc. They come as couples, small groups, field trips and families enjoying the nature trails.

Although coming mainly from the local/Dublin catchment, such groups have the potential to become important users of the proposed new centre where interpretation displays, educational spaces and catering will be available.

Target Markets

The Greater Dublin Taskforce (GDT) report “Destination Dublin – A Collective Strategy for Growth to 2020” (2014) described the marketing position that creates Dublin’s unique appeal to visitors as:

“Dublin is the vibrant capital city bursting with a variety of surprising experiences – where city living thrives side by side with the natural outdoors.”

To function as a flagship attraction in these natural outdoors, the proposed new Dublin Mountains flagship project must add to that vibrancy, variety and surprise. To do so, it must stimulate and achieve a substantial uplift in the Mountain area’s existing visit levels and roles that have been described above.

The GDT report identifies Dublin’s key overseas market sectors for the development of tourism over the next 5 years as:

- Holidaymakers identified as “Social Energisers”
- Holidaymakers identified as “Cuturally Curious”
- Business Tourism
- Cruise Tourism
- Event Tourism

In recognition of these key target market sectors for the wider Dublin region, the South Dublin Tourism Strategy (2015), after analysis of the area’s market position and potential, recommended that future tourism development in the County should be focussed on three principal forms:

- Business tourism, capitalising on present strong visitor base for commercial and industrial activity
- Outdoor activities, exploiting the County’s key natural assets of Dublin Mountains, the many waterways, cultural resources and parks
- Sports, expanding the range of facilities in the County and targeting both participants and spectators

With respect to the development of the proposed flagship orientation/ interpretation centre in the Dublin Mountains, the strategy elaborates on the primary market opportunities as shown in Table Y, which includes GDT, Failte Ireland and TDI definitions:

Table Y: Target Markets for Proposed Flagship Centre

From Overseas Sources
Social Energisers "Young couples/adult groups looking for excitement, new experiences, and fun, social holidays in somewhere new and different." "Travellers with a passion for new 'wow' experiences, who are seeking fun and excitement, immersing themselves in the destination"
Great Escapers "Younger couples, some with babies and young children. They are interested in active & exciting exploration of countryside particularly and really experiencing an off the beaten track 'wow' factor." "Adventurous and committed to spending quality time in a breath-taking place. They are on holiday to take time out, get physical with nature and reconnect with their partner."
Culturally Curious "Mostly older couples with time to spend. They are independent 'active sightseers' looking to explore new places and broaden their minds. They want to "do a place", both its culture and the beauty of its landscape." "Independent thinkers with a craving for culture and history. They are out to broaden their minds and expand their experiences by exploring new landscapes, history and culture."
Nature Lovers "This is the oldest group (many 55+) they are looking for simple rural retreat where they can enjoy the beauty and peace and do a bit of sightseeing and gentle exploration"
VFR People who have come to Ireland to visit and spend time with friends and relatives, while at the same time enjoying visits to the area's attractions. These will come from all of the above market segments, but more likely from the Culturally Curious
From Domestic Sources
Connected Families "Are families with young children. As very active planners their core motivation is to spend quality time together and grow as a family"
Footloose Socialisers "Tend to travel as a group of friends, for them holidays are about sharing experiences with people who are of the same mindset."
Indulgent Romantics "Are couples seeking a romantic getaway through which they can reconnect while enjoying wonderful surroundings"
VFR People who have come from elsewhere in Ireland to visit and spend time with friends and relatives, while at the same time enjoying visits to the area's attractions. These could include younger and older generations
Sports Participants and spectators, involved with the range of activities and specific events taking place in the mountains.
Business People who are in the area for conferences, meetings and other business reasons who are looking for places to experience during time-off.

These are identified by the strategy as the key markets towards which the new centre in the Dublin Mountains should be targeted. Having further considered the existing markets (ie. existing users of the Mountains) and their potential, the requirements from the new centre can be summarised as follows:

Existing Users/Markets	**Requirements from the Centre**
Short Leisure Walking	Good parking Access to attractive walking routes Catering/toilets
VFR Short Walkers	Above + Interpretation/Orientation
Car Touring	**Wow – must see – unique appeal** Good parking Interpretation/Orientation Catering/toilets Retail Short walks Family/Play activities
Organised Excursions	**Wow – must see – unique appeal** Coach parking Tailored welcome and hospitality Interpretation/Orientation Catering/toilets Retail
Hill Walking/Rambling	Car parking Assembly point Information/Orientation Interpretation Links to walks and tracks Catering/toilets
Mountain Biking	Information (Ticknock the centre)
Road Cycling	Secure bike parking Assembly point Information/Orientation Catering/toilets
Mountain Running	Parking/shuttle Assembly Catering/toilets/changing facilities
Orienteering	Parking/shuttle Assembly Catering/toilets/changing facilities
Motorcycling (incl tourers)	**Wow – must see – unique appeal** Parking Assembly Orientation/Interpretation Catering/toilets
Horse Riding	Information and booking point
Adventure Activities	New provision as part of the centre Information and booking point for others
Special Interest Groups	Wow – must see – unique appeal Interpretation/Orientation Education spaces Catering/toilets

Target Markets	Requirements from the Centre
From Overseas	
Social Energisers: "Young couples/adult groups looking for excitement, new experiences, and fun, social holidays in somewhere new and different."	**Wow – must see – unique appeal** Interpretation/entertainment Group activities Guided walks Activity booking Catering/toilets Retail
Great Escapers: "Younger couples, some with babies and young children. They are interested in active & exciting exploration of countryside particularly and really experiencing an off the beaten track 'wow' factor."	**Wow – must see – unique appeal** Interpretation Family fun/adventure Short country walks Guided walks Catering/toilets Retail
Culturally Curious: "Mostly older couples with time to spend. They are independent 'active sightseers' looking to explore new places and broaden their minds. They want to "do a place", both its culture and the beauty of its landscape."	**Wow – must see – unique appeal** Viewpoint Interpretation/Orientation Access to walks Guided walks and talks Catering/toilets Retail
Nature Lovers: "This is the oldest group (many 55+) they are looking for simple rural retreat where they can enjoy the beauty and peace and do a bit of sightseeing and gentle exploration"	Viewpoint Interpretation Access to gentle walks Catering/toilets Retail
VFR: People who have come to Ireland to visit and spend time with friends and relatives, while at the same time enjoying visits to the area's attractions (mainly Culturally Curious)	**Wow – must see – unique appeal** Viewpoint Interpretation/Orientation Access to activities (depending on age-group) Catering/toilets Retail
From Domestic	
Connected Families: "Are families with young children. As very active planners their core motivation is to spend quality time together and grow as a family"	**Wow – must see – unique appeal** Interpretation Family fun/adventure Short country walks Guided walks Catering/toilets Retail
Footloose Socialisers: "Tend to travel as a group of friends, for them holidays are about sharing experiences with people who are of the same mindset."	**Wow – must see – unique appeal** Interpretation/entertainment Group activities Guided walks Activity booking Catering/toilets Retail
Indulgent Romantics: "Are couples seeking a romantic getaway through which they can reconnect while enjoying wonderful surroundings"	**Wow – must see – unique appeal** Viewpoint Interpretation Access to country walks Catering/toilets Retail
VFR: People who have come from elsewhere in Ireland to visit and spend time with friends and relatives, while at the same time enjoying visits to the area's attractions (could include younger and older generations)	**Wow – must see – unique appeal** Viewpoint Interpretation/Orientation Access to activities (depending on age-group) Catering/toilets Retail
Sports: Participants and spectators, involved with the range of activities and specific events taking place in the mountains.	Parking/shuttle/assembly Orientation Catering/toilets Retail
Business: People who are in the area for conferences, meetings and other business reasons who are looking for places to experience during time-off.	**Wow – must see – unique appeal** Viewpoint Orientation/Interpretation Access to country walks Catering/toilets Retail

In conclusion, this section has analysed the existing users of the Dublin Mountains and the target markets that have been identified as having greatest potential to increase visits to the area. Their characteristics have been used to identify the main requirements that they would place upon the proposed new centre to make it capable of performing as a flagship attraction.

In particular, it is shown that the centre must become part of the vibrancy, variety and surprise associated with Dublin tourism. It must do so if it is to meet the requirement of the main target markets.

2.3. CASE STUDIES (full report Appendix 1C)

Case Studies: Summary of Most Relevant Findings

Nine case studies were carried out by Tourism Development International to help to inform aspects of the emerging tourism facilities for the proposed Dublin Mountains Flagship Visitor Attraction. They are:

- **Connemara National Park Visitor Centre** – near Letterfrack, Co. Galway – which was chosen as a case study because it is a visitor centre in a forest/parkland area which is strongly associated with outdoor pursuits, especially walking
- **Kylemore Abbey and Victorian Walled Garden** – also near Letterfrack, Co. Galway – which was chosen because it is one of Ireland's top tourist attractions, in spite of being in a remote area. It is also a good example of an attraction with strong commercial components.
- **Malahide Castle and Gardens** – North Dublin – which has benefited from investment in major upgrade in recent years, including the development of a new visitor centre. It is also operated by a management company on behalf of the Council.
- **Grizedale Forest Visitor Centre** – near Hawkshead, central Lake District, Cumbria, England – has also been re-developed in recent years, is located in a Forest Park and acts as a focus for outdoor activities.
- **Giant's Causeway Visitor Centre** – near Bushmills, north coast of Northern Ireland – a modern new-build visitor centre opened in 2012, serving visitors to a World Heritage Site
- **Stonehenge Visitor Centre** – Amesbury, Wiltshire, England - a modern new-build visitor centre opened in 2013, serving visitors to a World Heritage Site
- **Brockhole: The Lake District National Park Visitor Centre** – near Windermere Village, Cumbria, England – in the process of gradual upgrade and transition in line with a 2013 Master Plan
- **Fota House, Arboretum and Gardens** - Fota Island, Co. Cork – open to the public after major refurbishment in 2009, now run on a self-funding basis
- **Airfield Estate** – Dundrum, South Dublin – re-opened in 2014 after 3 year redevelopment programme

The main statistical characteristics of these case studies are summarised in the table below:

Type of Use:

Attraction	Visits per Year	Open Months	Parking Spaces	Shop Size	Café/Restaurant
Connemara National Park Visitor Centre	170,000 in 2014	March - October	Cars: 75 approx Coaches: 4 All free	NK	NK Franchised out
Kylemore Abbey & Victorian Walled Garden	440,000 in 2014, including 264,000 paying admission	AYR – 7 days per week	Cars: 350 Coaches: 45 Motor-homes etc: 16 All free More planned	600sqm approx	200 seats inside and 150 outside 750sqm approx
Malahide Castle & Gardens	117,109 in 2014 to the castle but many more visit the 250 acre parkland and woodland	AYR (362 days)	Cars: 800 approx for whole area in 7 car parks Coaches: 7 next to new visitor centre All free	650sqm approx Run by Avoca	750-950sqm approx Run by Avoca
Grizedale Forest Visitor Centre	220,000 in 2014	AYR (364 days)	Cars: 100 approx Coaches: mini 8 Pay on exit	200sqm approx	200sqm approx
Giant's Causeway Visitor Centre	788,000 in 2014	AYR	Over 500 in 4 locations	360sqm approx	270sqm approx
Stonehenge Visitor Centre	1,346,177 in 2014	AYR (363 days)	Cars: 500 Coaches: 30 More planned	275sqm	302sqm, incl. kitchen
Brockhole Lake District Visitor Centre	230,000 in 2014	AYR (364 days)	Cars: 265 Coaches: 6 Pay on exit	150sqm	380sqm, incl. Orangey
Fota House, Arboretum and Gardens	45,000 in 2014	April – September for tours Events & Gardens also outwith these months	Cars : 170 approx Coaches: Unlimited Pay on exit	NK	NK
Airfield Estate	200,000 in 2014 projected	AYR	NK All free	NK	NK

The main lessons or guidance that have been drawn from this case study analysis are:

1) In terms of **annual visit numbers**, the three iconic attractions – Stonehenge, the Giant's Causeway and Kylemore Abbey – attract by far the most people

2) Grizedale and Brockhole, in the very popular English Lake District, attract over 200,000 to a mix of outdoor activities and pursuits.

3) Airfield Estate, close to the Dublin Mountains site, has a projected total of 200,000 visits per year.

4) Subject to reference to other local comparators (later), it would appear from this information that a flagship attraction in the Dublin Mountains, if conceived, planned, developed, operated and marketed properly, should be expected to attract at least 200,000 - 300,000 visits per year

5) All but one of the nine case study attractions have an **admission charge**, in the form of payment directly at the gate, or as a car parking charge and/or as payment for specific attractions run on a concession basis. The one that does not charge admission is funded directly by a Government department:

Visitor Centre/Attraction	Admission/Parking Charges
Connemara National Park	No charges
Kylemore Abbey & Victorian Walled Garden	Adult €13; Seniors €10; Students €9; Family €26 or €35
Malahide Castle	For Castle Tours: Adult €12; Child €6; Students €8; Seniors €7.50; Families from €26
Grizedale Forest (£ converted to € approx.)	Parking charge from €2.60 to max. €9.90 Payment for bike hire, GoApe
Giant's Causeway (£ converted to € approx.)	Adults €12.75; Child €6.40; Families (2+3); €31.20
Stonehenge (£ converted to € approx.)	Adults €20.50; Child €12.30; Concessions €18.40; Families (2+3); €63.40
Brockhole (£ converted to € approx.)	Parking charge from €1.40 to max. €11.30 Payment for bike hire, boat hire, mini golf, swimming, pony rides, Treetop nets/trek
Fota House, Arboretum & Gardens	All day parking €3.00 House: Adults €6.00; OAPs/Students €4.00; Child €3.00; Families €15.00; Groups (15+) €4
Airfield Estate	Adults €10; Child €5; Senior/Student €8; Families (2+2); €28

6) Adult admission charges of between €10 and €13 are most common (Kylemore Abbey, Malahide Castle, Giant's Causeway; and Airfield Estate).

7) Some demonstrate the importance of **coach tours, excursion trips and organised groups** in providing annual visits, especially Kylemore (50%), Giant's Causeway (32%), Stonehenge (60%) and Fota House (to a lesser extent)

8) It is shown that a common feature is to **welcome and orientate visitors** as early as possible on arrival, often with large map boards in the car park and a reception area.

9) In the same way, the need to locate **readily accessible toilets** close to the point of arrival is also shown.

10) The common feature of available **guides and guided tours** is also evident, including hand-held devices in some cases.

11) The same applies to **interpretive displays.** All nine have areas dedicated to interpretation of stories etc to visitors, including some with AV or similar shows.

12) Examples of the use of **shuttle vehicles** as an integral part of the experience are given (ie. Kylemore, Stonehenge and Giant's Causeway), while easing movement from one part of the attraction to another.

13) Shuttle vehicles or small coaches are shown to play a part in offering an alternative access to the site from outside, such as the mini buses used in the narrow road to Grizedale; Toot the train that drops visitors off at Malahide; and the park & ride and train connections to the Giant's Causeway.

14) While attractions like Stonehenge and the Giant's Causeway have main focal points of interest or activity, others like Grizedale and Brockhole demonstrate how a **wide range of activities** can boost the appeal and generate income.

15) All have a space dedicated to **retailing**, ranging from very little at Connemara to a substantial shop at Kylemore. The data on shop floor space and visit numbers can be summarised as follows:

Visitor Centre/Attraction	Retail Floorspace sqm	Visits in 2014
Connemara	limited	170,000
Kylemore (broad estimate)	600	440,000
Malahide (broad estimate)	650	117,00
Grizedale	200	220,000
Giant's Causeway (broad estimate)	360	788,000
Stonehenge	275	1.35m
Brockhole	150	230,000
Fota House	NK	45,000
Airfield Estate	NK	200,000

16) This shows that the two that are run on a strong commercial basis (Kylemore and Malahide) have retail space of an estimated 600-650sqm. Given its number of visits, Stonehenge has a surprisingly small retail space at 275sqm. This may be because visitors have a restricted length of stay at the visitor centre itself. The main attraction is outside and many are on tours, with tight timetables.

17) If the agreed target annual visit numbers for the Dublin Mountains Flagship Centre is around 200,000 and 300,000, and there is a commitment to generate significant income from retailing, then a shop space of at least 250 sqm will be required.

18) The case studies provided similar information on **café/restaurant** spaces:

Visitor Centre/Attraction	Café/Restaurant Floorspace sqm	Visits in 2014
Connemara	NK	170,000
Kylemore (broad estimate)	750	440,000
Malahide (broad estimate)	750-950	117,00
Grizedale	270	220,000
Giant's Causeway (broad estimate)	270	788,000
Stonehenge (incl. kitchen)	275	1.35m
Brockhole	150	230,000
Fota House	NK	45,000
Airfield Estate	NK	200,000

19) Again, the Kylemore and Malahide spaces, which are run as substantial food & beverage facilities, are larger than the rest and Stonehenge has lower provision than would be expected. The size for the Dublin Mountains Centre will depend on the annual visits and the number of covers/tables provided. These case studies suggest a target of at least 300sqm.

20) The case studies have a range of different **operation profiles**:

- Connemara: Office of Public Works
- Kylemore: Kylemore Trust
- Malahide: operated by Shannon Heritage on behalf of Fingal County Council
- Grizedale: Forestry Commission
- Giant's Causeway: National Trust
- Stonehenge: English Heritage
- Brockhole: Lake District National Park Authority
- Fota House: Irish Heritage Trust
- Airfield: Overend family trust

21) In spite of this range of organisations, it would appear that the majority are committed, in this day and age, to operating their visitor centre and associated facilities on a self-funding basis.

2.3 POTENTIAL VISITOR NUMBERS AND ECONOMIC IMPACT

Potential Visit Numbers

At this early stage, without much detail on the form and content of the proposed new Flagship Centre in South Dublin, it is only possible to provide indicative estimates of potential visits per year.

Comparators

Normally, the estimate of potential visit or user numbers would take account of the experience of comparator attractions. However, in this case, the proposal is for a unique attraction. This implies that there will be no direct comparators. However, some indications can be inferred from the performance of key attractions in Ireland, Dublin and elsewhere.

Failte Ireland's latest information on the top ten admission charging and free attractions is summarised below:

Attraction	County	Visits in 2014
Admission Charging:		
Guinness Storehouse	Dublin	1,269,371
Cliffs of Moher Visitor Experience	Clare	1,080,501
Dublin Zoo	Dublin	1,076,876
National Aquatic Centre	Dublin	931,074
Book of Kells	Dublin	650,476
St Patrick's Cathedral	Dublin	457,277
Tayto Park	Meath	450,000
Fota Wildlife Park	Cork	438,000
Blarney Castle	Cork	390,000
Rock of Cashel	Tipperary	372,503
Free Admission		
The National Gallery of Ireland	Dublin	593,183
National Botanic Gardens	Dublin	541,946
Doneraile Wildlife Park	Cork	460,000
National Museum of Ireland – Archaeology, Kildare St	Dublin	447,137
Science Gallery at Trinity College Dublin	Dublin	406,982
Farmleigh	Dublin	402.773
Newbridge Silverware Museum of Style Icons	Kildare	350,000
Irish Museum of Modern Art	Dublin	306,662
Chester Beatty Library	Dublin	304,000
National Museum of Ireland – Natural History, Merrion St	Dublin	300,272

The following observations can be made from these data:

- All of the 20 have visit numbers in excess of 300,000
- 13 of the 20 are located in Dublin
- 12 can be classified as built heritage, museums or arts-related
- 6 are in the natural environment
- 5 or 6 are attractive to the family market

In terms of their appeal to the tourism markets, the top 10 charging attractions can be described as follows:

Guinnness Storehouse – based on a well-known global brand and attracting a high proportion of visits from overseas; also appealing to domestic markets; popular with people on short breaks and longer tours (organised and independent); popular with groups.

Cliffs of Moher – a spectacular natural site which is geared up strongly t attraction of visitors, especially coach tours from overseas and domestic ma also with independent tourers.

Dublin Zoo – probably mainly visited by the domestic day visit and short-break markets, many in family groups.

National Aquatic Centre – an outstanding leisure and fun facility, mostly used by the domestic day visit and short-break markets, in family and other groups.

Book of Kells – a unique historic display, with international and domestic appeal; definite attraction for the “culturally curious” on city breaks and tours.

St Patrick’s Cathedral – dedicated to Ireland’s patron saint and of interest as an iconic building as well as place of worship, with international and domestic appeal; again of main interest to the “culturally curious” and religious groups on city breaks and tours.

Tayto Park – a theme park and zoo named after a well-known Irish brand of crisps (also known in other parts of the world); likely to appeal most to families and young persons from the domestic market, and some people of Irish origins living abroad.

Fota Wildlife Park – a zoo/animal park attracting people, mainly from the domestic day trip market on a family day out.

Blarney Castle – a well-known historic building but mainly an attraction for visitors to kiss the Blarney Stone; popular with overseas tourists many of whom visit as part of an organised tour or are travelling independently

Rock of Cashel – another impressive historic site that attracts overseas and domestic tourists in groups and independently.

Not included in the top 10 charging attractions is Powerscourt Estate, in the Wicklow Mountains, which according to an announcement earlier this year had 380,000 visits in 2014, made up of 233,000 to the House and Gardens and 147,000 to the Waterfall. Only the House and Garden feature in the Failte Ireland table, in 17th place.

Another not covered by these figures is Kylemore Abbey, Estate & Historic Walled Gardens, the most popular built attraction in Connemara which attracts around 400,000 visits per year, 60% paying for admission and 40% only visiting the catering and retail facilities.

Attractions Elsewhere

Two iconic attractions opened in Northern Ireland in 2012:

Attraction	Visit Numbers 000s 2012	2013	2014
Giants Causeway Visitor Centre	524	754	788
Titanic Belfast	665	604	634

Source: Visit Northern Ireland

These annual figures are lower for 2012 because the attractions were only open for part of that year. In fact, in its full year of opening, Titanic Belfast attracted 800,000 visits.

Conclusion from Information Available

If the proposed new centre in the Dublin Mountains is to be in the same league as those top 10 or 20 in Ireland listed earlier, attracting at least 300,000 visits per year, it has to have unique appeal, differentiating itself from them.

Given its location adjacent to a heavily populated urban area which attracts a high proportion of tourists and the proposal to erect an iconic building that is highly visible from below, then an attraction of the mix and appeal proposed should expect to attract at least 300,000 visits in a normal operating year.

Recent information from DMP on the estimated number of visits to its recreation sites shows a total of 320,000 for12 sites (no estimate is given for the other 9 sites). So this level of visitation already exists within the Mountains as a whole.

Subject to further analysis and discussion, it is concluded that future planning for the “Hellfire Mountain Experience” (or similar), should be based, at this stage, on at least 300,000 visits per year. This would include those who pay for admission charging elements and those who visit for information, retail, catering and toilets.

To some, this may be regarded as erring on the cautious side, but the impact of higher or lower figures can be considered later by sensitivity analysis.

It must be stressed that such estimates of visit and use levels are for indicative purposes as part of the business planning process. Visit figures, ultimately, will depend upon the quality and appeal of what is on offer and the adoption of effective management and marketing procedures to attract visitors/users.

Economic Impact

Full analysis of the income and expenditure implications for the proposed centre will be carried out as part of the final project planning stage. This will also include consideration of potential levels of economic impact within the local and wider economies.

At this stage, with only outline details of the form and functions of the centre, it is only possible to give a broad indication of potential levels of income generation, based on an assumed 300,000 visits per year:

Source	Avge spend per visit €	Total Income €	Cost of Sales %	Gross Profit
Admissions	5.00	750,000		750,000
Retail	3.70	1,100,000	60	440,000
Catering	2.00	600,000	35	390,000
Other Sources	Not possible to do yet			
		2,460,000		1,584,000

Admissions Income: This could come from a charge for parking, a charge for entry into the special exhibition/AV experience or both. It is not possible to envisage a charging structure and rates at this stage, but based on information on a range of attractions, an average admission income of €5 per paying visitor can be assumed, excluding VAT.

This is an average that takes account of full, concession and discounted charges. Subject to further consideration of the form of charging (eg whether parking is charged), it is assumed that 50% of the 300,000 would pay admission to parts of the centre. This would yield €750,000 per year.

Retail Income: This will depend a great deal on the range and quality of goods available to visitors. A typical average for visitor centres is around €3.70 per visit (excluding VAT), covering all visitors, including those who spent nothing. This is not a per transaction average.

These assumptions suggest direct expenditure of €1.1m and potential gross profit of €440k.

Catering Income: Based on visitor centre averages, this has been assumed at €2.00 per visit, again including people who spend nothing. This average depends a lot on the type of food and beverage offered. Averages in excess of €3.50 are known to exist.

Thus, perhaps conservatively, it is estimated that catering could generate direct expenditure of €600k and gross profit of €390k.

Overall Income: These assumptions suggest total direct income from admissions, retail and catering in a regular year from 300,000 visits could be almost €2.5m, yielding almost €1.6m of gross profit from which all operating costs would have to be covered. The annual income would actually be higher because it has not been possible to estimate the likely levels of income from concessions, sponsorship, advertising and other ancillary sources.

3.0 OVERVIEW AND CONCLUSIONS

3.1. OVERVIEW OF THE SIX SITES

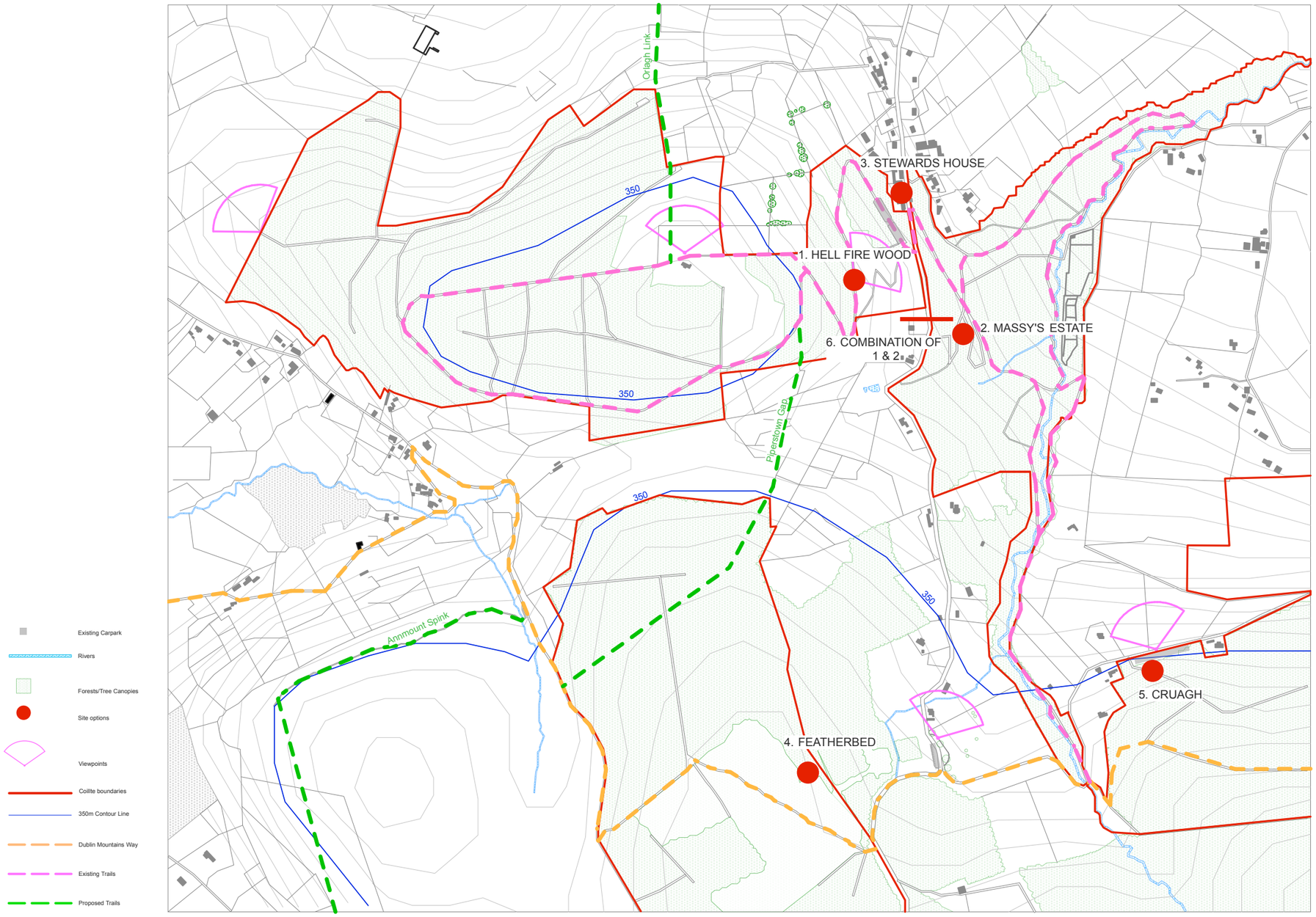

Fig. 89 Site Location of the Six Sites

OPTION 1: HELL FIRE WOOD
Location: North East Flank of Montpelier Hill

The Hell Fire Wood is an existing tourist destination attracting 50,000 visitors a year. It has destination appeal with the iconic Hell Fire Club at the summit of Montpelier Hill, and Megalithic archaeology. The existing walks through the woods offer 'wow' views of Dublin Bay, and from the summit a panaromic view of Dublin City and the bay.

It offers an elevated mountain experience which is accessible by car and public transport and their is existing parking for 90 cars. Visitors enjoy a range of activities at this location including walking, rambling, picnicing and equestrian.

The Hell Fire Club is an 18th Century hunting lodge built from the plundered stones of a megalithic passage grave and is the focus of many legends and myths. It is thought to be designed by Edward Lovett Pearce, the architects of Castletown House and the Bank of Ireland College Green. The structure is an imposing 2 storey stone building with vaulted roof and symetrical wings, and addresses the landscape of Dublin City and the bay.

The site's existing 90 car parking spaces are screened by trees at the base of Montpelier Hill. We propose that there is an opportunity to expand the carparking at this site with sensitive landscaping. This would not impact adversely on views of the mountains from Dublin City.

The site can accomodate structures below 350 meters high and can be utilised to create a stopping point for visitors that satisfies day visitors and car drivers looking for a mountain experience.

The Hell Fire Wood/Montpelier Hill also lends itself as a destination from festivals and events such as July 31st Celtic Festival of Lughnasa.

The sies connection ot existing trails and proposed trails from Dublin and into the Dublin Mountains Ranges are excellent.

- Connects with proposed Owendoher Greenway leading to Ballyboden.
- Connects with Orlagh Lane to Hell Fire Wood Trail.
- Connects with Piperstown Gap Trail
- It's at the beginning of the Dublin Mountains Way if appraoching from Dublin.

The site can be serviced with gas, water, and electricity. It will require the percolation areas of the neighbouring Massey's Wood to service a building at the site.

In terms of the key planning and environmental considerations identified

1. The site is below the 350m contour and would require a new building. Land uses open for consideration include car-parking, recreational facilities/sports clubs and rural industry–cottage. Restaurants, rural industry–food and shop-local are not currently open for consideration. The Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy.
2. It is not in conflict with the open character of the mountains (above 350m contour).
3. A landscape assessment / rationale will be required.
4. There is capacity in the landscape to mitigate impacts on protected views and prospects.
5. There is capacity in the landscape to mitigate impacts on protected scenic routes
6. The site is sufficiently large to accommodate a low rise building and ensure sensitive design of the building, parking and environs.
7. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

Impacts on local built, cultural and natural heritage will need site specific assessment and consideration at the next stage of feasibility and design.

OPTION 2: MASSEY'S WOOD
Location: R115 opposite Hell Fire Wood/Montpelier Hill

Massey's Woods is an existing destination, with existing visitor numbers of 20,000 a year. The wood is a place of natural beauty, a deciduous/broadleaf forest with a rich variety of trees, including specimans such as; Irish Sessil Oak, Giant Seqquora, Irish Yew, West Himmlayan Spruce and Mounterey Pine. It also contains vast ecological resources of flora, wildlife and geological interest.

There are many paths and trails through the wood but it also a place for children to run wild and explore the natural environment. It also has strong heritage appeal, witth the exposed original stone faces military road, ice pit, stone bridges, stone workshop and megalithic wedge tomb.

Running through the site is the fast flowing Owendoher stream, the 'river of gold', which winds through the wood, features waterfalls and shimmers gold from the stone of (gold?) of the Dublin Mountains.

The walled gardens are intact and create an 'outside room' of heritage interest and a microclimate for plants.

The site is under 350 meters and any future development would not impact on any views from the city. However, the delicate nature of this site could be in danger of being damaged by excessive development.

Car parking fro this site may damage the environment. At present car parking is either on the road or at Hell Fire Wood. This would need to be examined in more detail.

Development proposals could include the following;

- Sculpture garden/ garden porjects within the walled gardens.
- Woodland cafe

The extent of the development would need to be examined in more detail.

Massey's Wood has the potential to be linked directly from the city via a car free trail – the proposed Owendoher Greenway. Numerous existing trails through the estate, along streams, through the walled garden connect to the trail to Cruagh and to the proposed featherbed trail.

The site is owned by Coillte and is a working forest, future plans include thinning the wood and general maintenance.

In terms of the key planning and environmental considerations identified:

1. The site is below the 350m contour and would require a new building.
   For part of the site in zone H (south west adjacent the R115), land uses open for consideration include car-parking, recreational facilities/sports clubs and rural industry–cottage. Restaurants, rural industry–food and shop-local are not currently open for consideration. If located in this part of the site the Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy.
   A larger part of the site to the east and north is in zone B. Relevant permitted uses include Caravan Park-Holiday, Rural Industry – Cottage and Rural Industry –Food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant
2. It is not in conflict with the open character of the mountains (above 350m contour).
3. A landscape assessment / rationale will be required.
4. There is capacity in the landscape to mitigate impacts on protected views and prospects.
5. The site is constrained by natural heritage considerations (trees and woodland) and areas of built heritage, and the resulting distinctive character, limiting its capacity to accommodate a low rise structure and ancillary elements.
6. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

Impacts on local built, cultural and natural heritage will need site specific assessment and consideration at the next stage of feasibility and design.

OPTION 3: STEWARD'S HOUSE AND BELFRY
Location: R115 beside Hell Fire Wood/Montpelier Hill

This site contains a range of existing buildings with a large courtyard space. Killakee House is protected structure and the stone facades of the old Belfry/Stables are intact but require restoration, they have restoration potential.

The development of a visitor's attraction in this location would revitalise and reivigorate these protected structures. The main stables building is large enough to have a large public space with heritage appeal.

They are constrianed by their close proximity to the road. Therefore the entrance would be from the rear; this may impact negatively on the visitor numbers as it would be turning its back on the road.

The existing Kilakee House was a restaurant, currently closed. These buildings are currently in private ownership.

The buildings lend themsleves to being a 'good practice example' of sustainable tourism development but there is a a doubt in regard to achieving a wow factor on this site.

The potential of this site may be better suited to refurbishment as a hostel/retail/pub, in private ownership.

In terms of the key planning and environmental considerations identified:

1. The site is below the 350m contour and is an existing structure.
   However Stewards House is in zone B. Relevant permitted uses include Caravan Park-Holiday, Rural Industry – Cottage and Rural Industry –food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant
2. It is not in conflict with the open character of the mountains (above 350m contour).
3. A landscape assessment / rationale will be required.
4. There is capacity in the landscape to mitigate impacts on protected views and prospects.
5. The site has capacity through the reuse of an existing structure which is supported by Planning Policy. However it is a protected structure and its planning history suggests constraints in its redevelopment potential.
6. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

There is a planning history on the site for tourism related development including an existing extant permission for three holiday homes within the stable block. Issues which have previously arisen on the site include impacts on the protected structures, access and road safety concerns.

OPTION 4: FEATHERBED
Location: Featherbed/Killakee

This is a large open site owned by Coillte in the Dublin Mountains. It is above 350m high. It has an elevated mountain feel and has views of the sky, but currently does not have any views beyond the coniferous tree line. At present it has car parking fro 2 cars.

The appeal of this site is that it is large and relatively flat and will not impact on views from the city. It could facilitate an architectural design statement building with curtyards and large rooms. However, it has little on-site heritage appeal. It is also constrained by its existing service provision.

The potential for this site may be for an outdoor persuits activity, zip-wire, boot camp, etc.

In terms of the key planning and environmental considerations identified:

1. The site is above the 350m contour and would require a new building. None of the likely land uses required including car-parking, recreational facilities/sports clubs and rural industry–cottage, restaurants, rural industry–food and shop-local are currently open for consideration. The Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy.

2. It is potentially in conflict with the open character of the mountains (above 350m contour) – as forest harvesting takes place around it.
3. A landscape assessment / rationale will be required.
4. Capacity in the landscape to mitigate impacts on protected views and prospects is dependent on the retention of the surrounding forest, some of which is in private ownership.
5. The site is sufficiently large to accommodate a low rise building and ensure sensitive design of the building, parking and environs
6. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

Impacts on local built, cultural and natural heritage will need site specific assessment and consideration at the next stage of feasibility and design.

OPTION 5: CRUAGH
Location: Cruagh Mountain

This si an elevated mountain site and has a view over North Dublin City. The view is limited by trees in the foreground on private land.

The appeal of this site is that it is a mountain experience. However, it does not have on-site heritage appeal; it is above 350m; and it is one a sloping site with limited services. It has low 'wow' factor appeal.

The potential for this site is to increase the parking facilities (screened) and to create a good quality viewing platform/terrace.

In terms of the key planning and environmental considerations identified:

1. The site is above the 350m contour and would require a new building. None of the likely land uses required including car-parking, recreational facilities/sports clubs and rural industry–cottage, restaurants, rural industry–food and shop-local are currently open for consideration. The Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy.
2. It is potentially in conflict with the open character of the mountains (above 350m contour) – as forest harvesting takes place around it.
3. A landscape assessment / rationale will be required.
4. Capacity in the landscape to mitigate impacts on protected views and prospects is dependent on the retention of the surrounding forest, however this is in Coillte ownership.
5. The site is sufficiently large to accommodate a low rise building and ensure sensitive design of the building, parking and environs.
6. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

Impacts on local built, cultural and natural heritage will need site specific assessment and consideration at the next stage of feasibility and design.

OPTION 6: HELL FIRE WOOD AND MASSEY'S WOOD + CONNECTION
Location: Hell Fire Wood and Massey's Wood

By combining the two sites of Hell Fire and Massey's, the offer and opportunies multiply. The two sites compliment each other; the mountain experience, with it's elevated views, and the valley experience, with its mature deciduous forests, streams and waterfalls. They are both rich in archeaology + heritage, with numerous megalithic tombs and protected stuctures.

The existing link between the two sites is dangerous as it requires visitors to walk along a narrow road obstructued by parked cars. The proposal is to create a safe link between the two sites to unite the sites with a unqiue landscape experience – a tree top walk at a gradual gradient.

This would create a 'wow' factor in itself and combine the two contrasting landscape experiences of the mountain and the forest. The combination of the attributes of the Hell Fire Club and Massey's Woods has the potential to create a flagship project of regional significance, with the treetop canopy defining the gateway to the Dublin Mountains, the Wicklow Mountains and Beyond.

In terms of the key planning and environmental considerations identified:

1. The site combination is below the 350m contour and would require a new building.
   The site includes a combination of lands Zoned H – all of the Hell Fire Wood and part of Massey's Wood – and Zoned B – north and eastern part of Masseys Wood - providing flexibility in acceptable land uses.
   In Zone H Land uses open for consideration include car-parking, recreational facilities/sports clubs and rural industry–cottage. Restaurants, rural industry–food and shop-local are not currently open for consideration. In this Zone the Draft Development Plan 2016-2022 will need to ensure that potential uses located in the new visitor facility (supported by the draft plan ref ET5 Objective 3) are regarded as ancillary uses to that facility for the purposes of development plan policy.
   In Zone B relevant permitted uses include Caravan Park-Holiday, Rural Industry–Cottage and Rural Industry–Food, uses open for consideration, include car-park, cultural, recreational facilities/sports club, restaurant
2. It is not in conflict with the open character of the mountains (above 350m contour).
3. A landscape assessment / rationale will be required.
4. There is capacity in the landscape to mitigate impacts on protected views and prospects.
5. The site combination is sufficiently large to accommodate a low rise building and ensure sensitive design of the building, parking and environs.
6. There are no adverse impacts on Natura 2000 sites nor the Wicklow National Park.

Impacts on local built, cultural and natural heritage will need site specific assessment and consideration at the next stage of feasibility and design, however the site combination provides more opportunity to locate uses in the optimum locations.

3.2. MATRIX OF THE SIX SITES

1. Site Appraisal

	1. Hell Fire	2. Massy's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Option 1+2
Archaeology/ Heritage	1	1	3	5	6	1
Views	1	6	6	6	3	1
Connection to Existing Trails	3	2	6	2	2	2
Connection to New Proposed Trails	1	1	6	2	2	1
Overall Site Appraisal	1.5	2.5	5.2	3.7	3.2	1.2

2. Transport

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Elevation	250m	220m	240m	400m	360m	220-250m
Public Transport Distance to Nearest Frequent Service	2.5km	2.5km	2.5km	5km	4.5km	2.5km
Water Supply Rank:	1	1	1	6	5	1
Cycling Distance from City Cycle Tracks Height Gain (from 80m at Ballyboden)	2km 170m	2km 170m	2km 170m	4.5km 320m	4.5km 280m	2km 170m
Cycling Rank:	1	1	1	6	5	1
Walking Route from City: All from Ballyboden via Owendoher Greenway & Massey's Wood	4km	3.5km	4km	5.5km	5km	3.5km
Walking Rank:	2	1	2	6	5	1.5
Car Access Distance on narrow minor road	2km	2km	2km	4.5km	4.5km	2km
Car Rank:	1	1	1	5	5	1
Overall Transport	1.2	1.0	1.2	5.7	5.0	1.1

3. Services

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Elevation	300m	270m	260m	400m	360m	270-300m
Water Supply Distance to Nearest Public Supply at Stocking Lane Reservoir (100m OD)	3.5km	3.5km	3km	5km	5.5km	3.5km
Pumping Height	200m	170m	160m	300m	260m	200m
Water Supply Rank:	3	2	1	5	4	2.5
Foul Drainage Site suitability for local treatment and infiltration	Very Poor (Use Site 2)	Poor	Poor	Very Poor	Poor	Poor for Site 2
Foul Drainage Rank:	1 (Use Site 2)	1	1	5	1	1
Electricity Distance to 3 Phase sub-station	<50m	250m	<50m	700m	100m	250m
Electricity Rank:	1	3	1	5	2	2
Gas Distance to Supply	3.5km	3.5km	3km	5km	5.5km	3.5km
Gas Rank:	1	1	1	6	5	1
Overall Services	1.2	1.7	1.0	5.2	3.0	1.6

4. Air, Soil & Water

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Air Quality Impact Higher vehicle Emissions to higher elevation sites	1	1	1	5	5	1
Water Quality Impact Suitability for surface water drainage discharge	1	1	1	2	2	1
Soils Impact All sites are similar on land managed for forestry	1	1	1	2 (Some Peat)	1	1
Overall Air, Soil & Water	1.0	1.0	1.0	3.0	2.5	1.0

5. Tourism Criteria

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Attributes To accommodate a flagship 'must see' attraction	1	3	6	1	1	1
Visibility For tourers/ walkers	2	4	2	2	1	2
Nodal Point Good location for orientation and service facilities	2	2	2	2	2	2
Views	1	6	6	2	2	1
Visibility from City	1	6	6	2	1	1
Potential to generate economic benefit	2	2	4	2	1	1
Tourism Ranking:	1.5	3.8	4.3	1.8	1.3	1.2

6. Planning / Environmental Constraints/Visual Impact

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Zoning *(Current policy favours dev. below 350m, Draft Dev Plan would negate this preference. Land uses open for consideration vary)*	2	2	1	6	4	2
Open Character of the Mountains *(above 350m)*	1	1	1	5	4	1
Impact on protected views from the City	2	1	1	1	3	1.5
Impact on scenic routes and drives	2	1	2	3	3	1.5
Site Capacity *(to accommodate low rise building)*	1	3	2 (Reuse of existing protected buildings)	1	3	2

6. Planning / Environmental Constraints/Visual Impact Cont.

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Natura 2000 Sites *(none affected, site specific assessment of preferred options required)*	1	1	1	1	1	1
Impact on Landscape Character	1	1	1	2	3	1
Land Ownership Coillte/Private	1	1	6	1	1	1
Within SDCC Land (none)	-	-	-	-	-	-
Forestry/ Woodland	2	4	1	4	4	3
Total Planning/ Environmental Ranking	1	3	4	5	6	2

7. Total Rankings

	1. Hell Fire	2. Massey's Estate	3. Steward's House	4. Featherbed	5. Cruagh	6. Combined Options 1-2
Site Appraisal	1.5	2.5	5.2	3.7	3.2	1.2
Transport	1.2	1.0	1.2	5.7	5.0	1.1
Services	1.2	1.7	1.0	5.2	3.0	1.6
Air/Soil/Water	1.0	1.0	1.0	3.0	2.5	1.0
Planning/ Environmental	1.0	3.0	4.0	5.0	6.0	2.0
Tourism	1.5	3.8	4.3	1.8	1.3	1.2
Total Ranking:	1.3	1.9	2.4	3.7	3.0	1.2

3.3. THREE SELECTED OPTIONS

Conclusion

The rational and logical outcome of our findings by our multii-disciplinary team, has resulted in the following selection of sites to be developed in more detail:

1. Hell Fire Wood

2. Massey's Wood

3. Hell Fire Wood + Massey's Wood Combined (with physical connection)

Hell Fire Wood

Hell Fire Wood / Montpellier hill has many interesting and curious attractions including 3 views from its elevated site. It is in a very defined location and is a well-known landmark close to the city. It has the potential of being connected to the city via a proposed car free route. It has the capacity to expand its visitor numbers from the existing 50, 000 a year. It is rich in heritage with megalithic archaeology and numerous protected structure / national monuments. It is also rich in myths, legends and folklore and stimulates stories, poetry and music in contemporary life.

Massey's Wood

Massey's Wood is a beautiful natural woodland landscape with unique character, natural features and habitat including the Owendoher – River of Gold. It is well connected and has huge potential to develop a unique woodland experience maximising on the potential of outside rooms of the walled gardens and the revelation of the historic military road.

Hell Fire and Massey's Wood combined with a unique connection

Massey's Wood is currently disconnected from Hell Fire Wood by the road R115, by creating a safe link/ connection the two sites can become one, and the overall attraction is intensified and creates a diverse and rich offering to a wide range of people. It combines mountain terrain and valley terrain and offers s range of landscape experiences. The connection between the sites offers an additional opportunity to design a stimulating experience appropriate to its surroundings, ideas of walking through the trees can be considered and this could also create a defined gateway /landmark to the mountains.

Fig. 90. Natural Trail between The Hell Fire Club and Carpark

Fig. 91 Forest Road between The Hell Fire Club and Carpark

Fig. 92 The Hell Fire Club

Fig. 93 Massy's Walled Gardens

Fig. 94 Massy's Woods

Fig. 95 Massy's Woods

FEASIBILITY STUDY AND MASTERPLAN FOR A FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS

STAGE 2: MASTERPLAN AND RELATED REPORT AND MATRIX FOR THREE OPTIONS – DRAFT

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1.4.1.b Schedule of Accommodation

1.5. Indicative Landscaping Proposals

1.5. Access and Trails

2.0. INDICATIVE FLAGSHIP CHARACTERISTICS

2.1. Emerging Concept

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3.1. Analysis of Receiving Environment

3.2. Landscape Proposals

4.0. MATRIX FOR 3 OPTIONS

INTRODUCTION

This Stage 2 Report Masterplan and Related Report and Matrix For Three Options, is in response to the 2015 South Dublin Tourism Strategy proposal in which the principle recommendation was the creation of a Dublin Mountains Flagship Project, this followed the 2007 report Dublin Mountains Strategic Development Plan for Outdoor Recreation in which a flagship welcome and orientation point was proposed.

This Stage 2 report follows from the Stage 1 report, which identified 3 site options:

1. Montpelier Hill
2. Massey's Estate
3. Combined Montpellier Hill and Massey's Estate site

These sites have been analysed in detail and outline proposals have been developed for each of the sites that respond to the brief to provide facilities that can rise to the challenge of creating a flagship project of regional importance that addresses the key issues of the character of the sites - archeology and heritage, activity types, best views to the city, protection of views from the city, target markets, potential economic impact, planning constraints land ownership constraints, orientation, ecology, access, services, connection to existing trails, protection of the wider landscape, fulfilling user needs, sustainability – (transport, resources, energy) access, services, connection to existing trails, and connection to the city, user needs sustainability – (transport, resources, energy), site capacity and design opportunity.

Particular attention has been given to the appropriate scale of the facilities with regards to their location, mix of facilities, and access to the sites. This further developed design study has confirmed the quality of our locations selected at Stage 1. However, with regards to access and site capacity, new opportunities and limitations have arisen. This report outlines 3 Masterplan options, which utilise the sites selected in stage 1, but focus more on the appropriate mixture of venues and activities, that will achieve a flagship tourism facility required by the brief.

This stage 2 report shall outline the following Masterplans for the Dublin Mountains Visitor Centre:

1. Montpelier Hill
2. Montpelier Hill, Massey's Estate and Treetop Connection
3. Montpelier Hill, Massey's Estate, Treetop Connection and Dublin Mountains Arrival Promenade

The original option 3 - combined site - has been extended to deal with access issues and proposes to review the entrance to the sites together with the possible future inclusion of the original stewards house and stables of masses estate as part of the entrance promenade sequence.

The original option 2 – Massey's estate – was determined to be too sensitive an environment to handle the capacity of the Dublin Mountain's Visitor Centre as a stand alone entity, and would be better suited as an element within the Masterplan.

A large part of this study is the integration of new routes and trails and this will be examined in further detail together with public access and service provision and access.

The Masterplans offer a rich diversity of activities and venues suitable for a Flagship Tourism Facility for the Dublin Mountains.

1.0. LAYOUTS AND MASTERPLAN DRAWINGS

Overview of the 3 Options

Option 1:

- Presentation/intervention around the Hell Fire Club
- Dublin Mountains Visitor Centre
    - Cafe
    - Rambler's Lounge / Guiding Orientation Centre
    - AV Room
    - Outdoor Terraces
- Upgraded car park
- Bicycle hire facility
- R115 Crossing
- Renovated Walled Gardens
- Coach Park at Stocking Lane

Option 2:

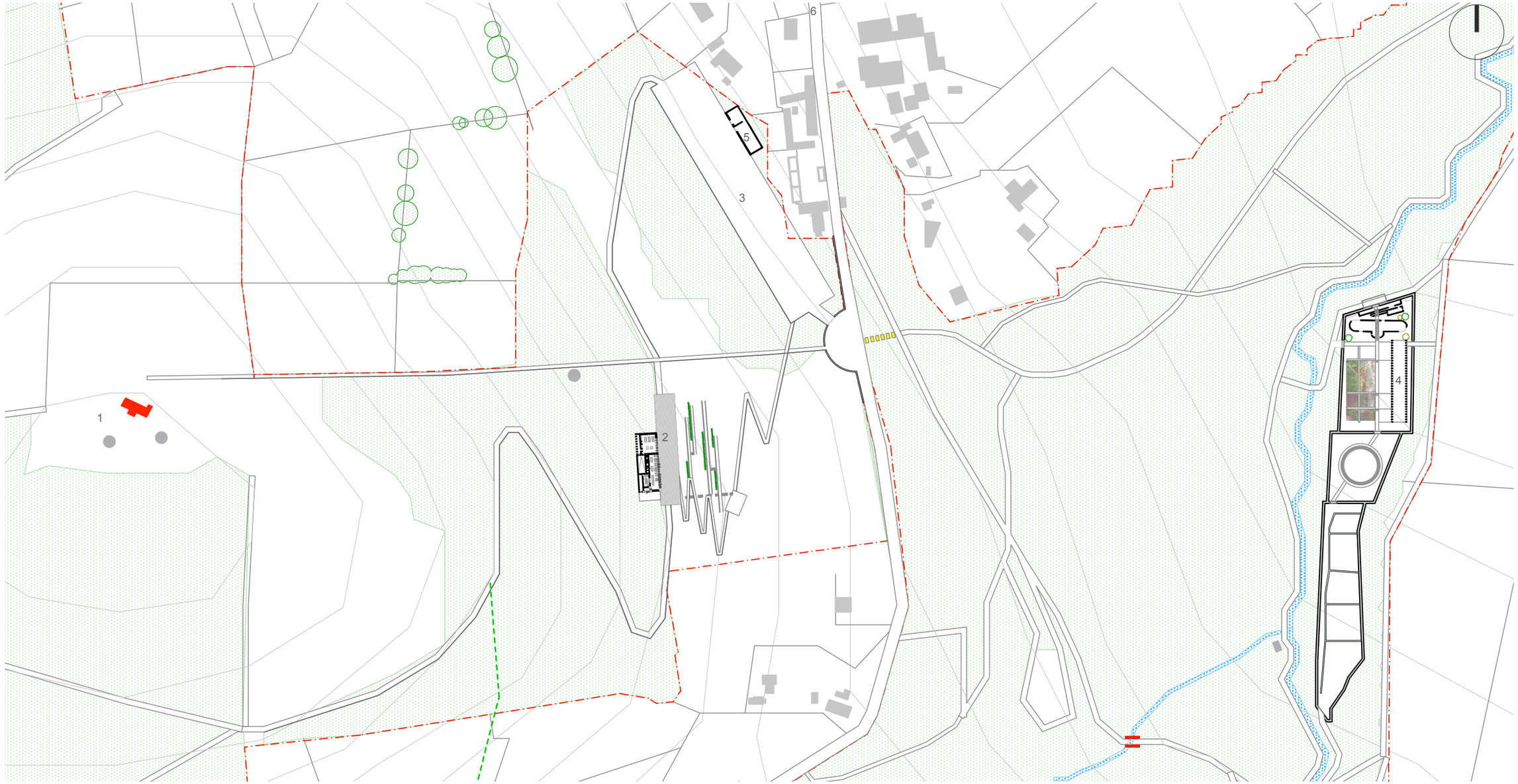
- Presentation/intervention around the Hell Fire Club
- Dublin Mountains Visitor Centre
    - Cafe
    - Rambler's Lounge / Guiding Orientation Centre
    - AV Room
    - Outdoor Terraces
- Upgraded car park
- Bicycle hire facility
- **Treetop Footbridge**
- Renovated Walled Garden
- **Massey's Garden Visitor Centre**
- Coach Park at Stocking Lane

Option 3:

- Presentation/intervention around the Hell Fire Club
- Dublin Mountains Visitor Centre
    - Cafe
    - Rambler's Lounge / Guiding Orientation Centre
    - AV Room
    - Outdoor Terraces
    - **Exhibition**
- Upgraded car park
- Bicycle hire facility
- **R115 Crossing**
- **Treetop Footbridge**
- Renovated Walled Garden
- **Massey's Garden Visitor Centre**
- **Arrval Promenade**
- **Steward's House Complex**
- Coach Park at Stocking Lane

1.1. OPTION 1 MASTERPLAN

Drawing: Option 1 Masterplan
Drawing Number: 1545 / SD / 001 / A
Page Number: 69



1 HELL FIRE CLUB

2 DUBLIN MOUNTAINS VISITOR CENTRE

3 UPGRADED CARPARK

4 MASSEY'S GARDEN

5 BICYCLE HIRE

6 TO STOCKING LANE COACH PARK

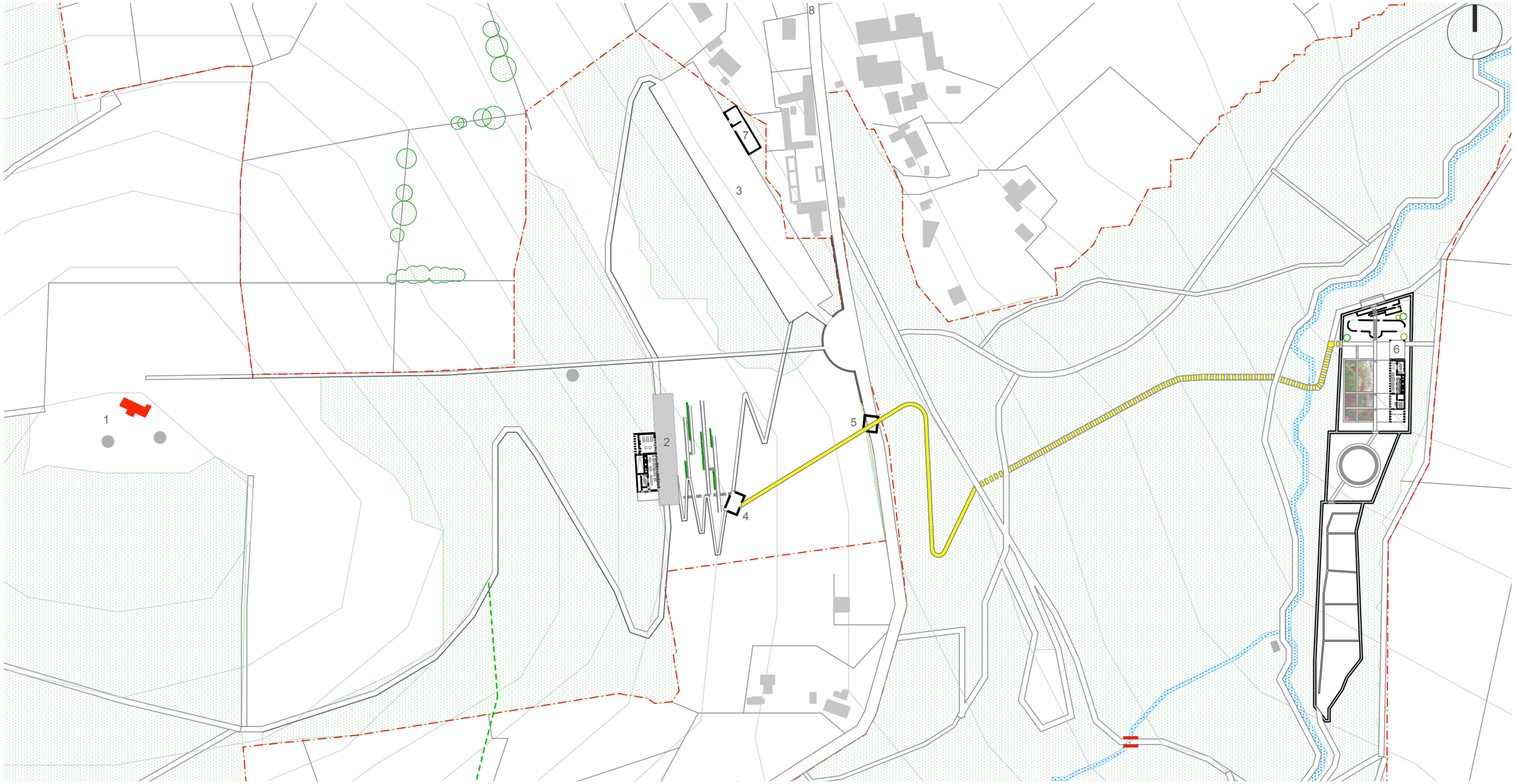
DRAWING: OPTION 1 MASTERPLAN

SCALE: 1: 3500 **DRAWING NO. :** 1545 / SD / 001 / A

PKA PAUL KEOGH ARCHITECTS

1.2. OPTION 2 MASTERPLAN

Drawing: Option 2 Masterplan
Drawing Number: 1545 / SD / 002 / A
Page Number: 71



1 HELL FIRE CLUB

2 DUBLIN MOUNTAINS VISITOR CENTRE

3 UPGRADED CARPARK

4 BRIDGE HOUSE

5 TREETOP FOOTBRIDGE

6 MASSEY'S GARDEN

7 BICYCLE HIRE

8 TO STOCKING LANE COACH PARK

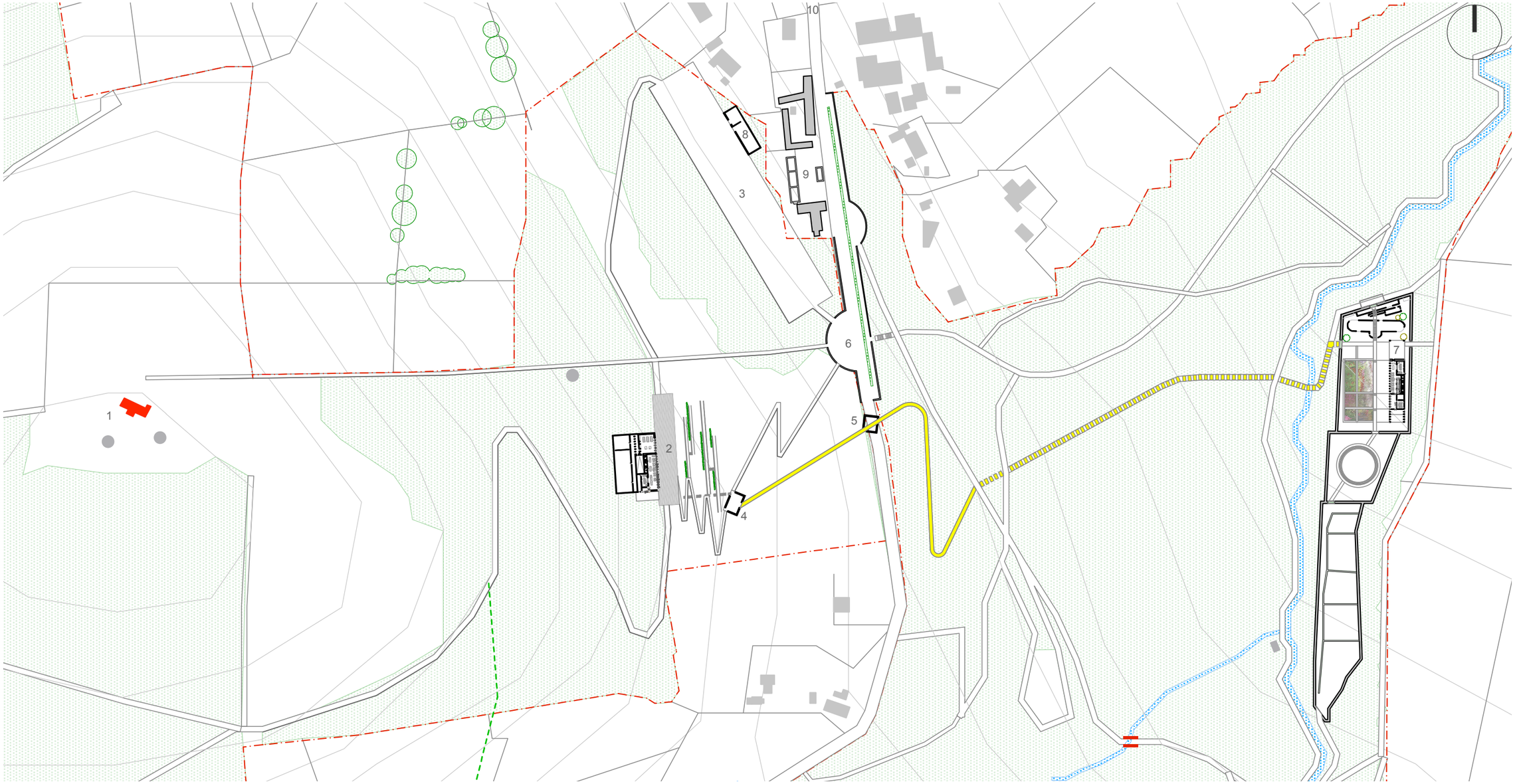
DRAWING: OPTION 2 MASTERPLAN

SCALE: 1: 3500 **DRAWING NO. :** 1545 / SD / 002 / A

PKA PAUL KEOGH ARCHITECTS

1.3. OPTION 3 MASTERPLAN

Drawing: Option 3 Masterplan
Drawing Number: 1545 / SD / 003 / A
Page Number: 73



1 HELL FIRE CLUB

2 DUBLIN MOUNTAINS VISITOR CENTRE

3 UPGRADED CARPARK

4 BRIDGE HOUSE

5 TREETOP FOOTBRIDGE

6 ARRIVAL PROMENADE

7 MASSEY'S GARDEN

8 BICYCLE HIRE

9 STEWARD'S HOUSE COMPLEX

10 TO STOCKING LANE COACH PARK

DRAWING: OPTION 3 MASTERPLAN

SCALE: 1: 3500 **DRAWING NO. :** 1545 / SD / 003 / A

PKA PAUL KEOGH ARCHITECTS

1.4. INDICATIVE FACILITY DESIGNS

1.4.1. Design Drawings

Drawing: Visitor Centre: Ground Floor
Drawing Number: 1545 / SD / 005 / A
Page Number: 75

Drawing: Visitor Centre: Ground Floor
Drawing Number: 1545 / SD / 005 / B
Page Number: 76

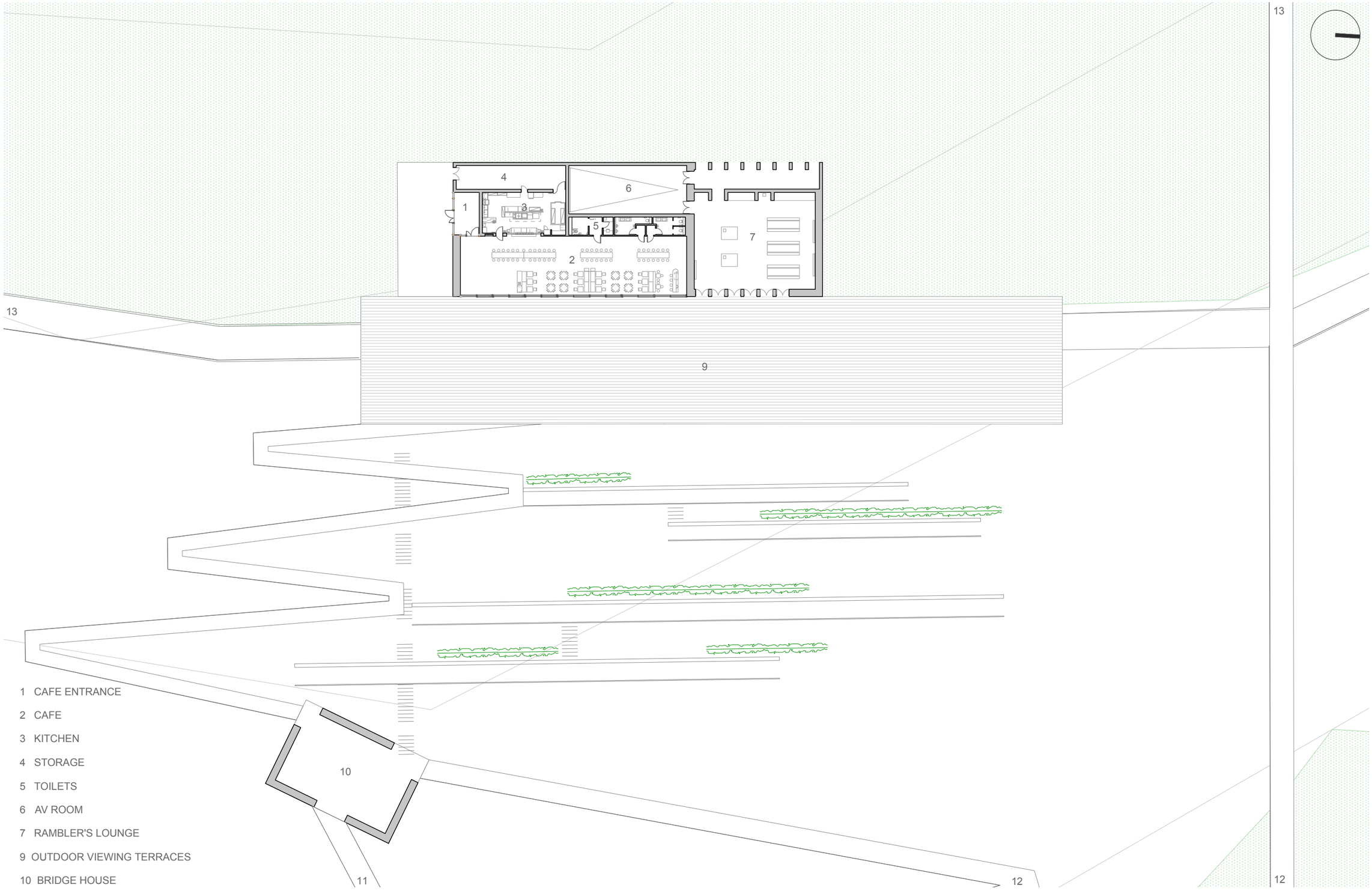
Drawing: Visitor Centre: Lower Ground Floor
Drawing Number: 1545 / SD / 006 / A
Page Number: 77

Drawing: Visitor Centre: Section
Drawing Number: 1545 / SD / 007 / A
Page Number: 78

Drawing: Visitor Centre: Section
Drawing Number: 1545 / SD / 007 / B
Page Number: 79

Drawing: Visitor Centre: Elevation
Drawing Number: 1545 / SD / 008 / A
Page Number: 80

Drawing: Massy's Gardens: Floor Plan
Drawing Number: 1545 / SD / 009 / A
Page Number: 81

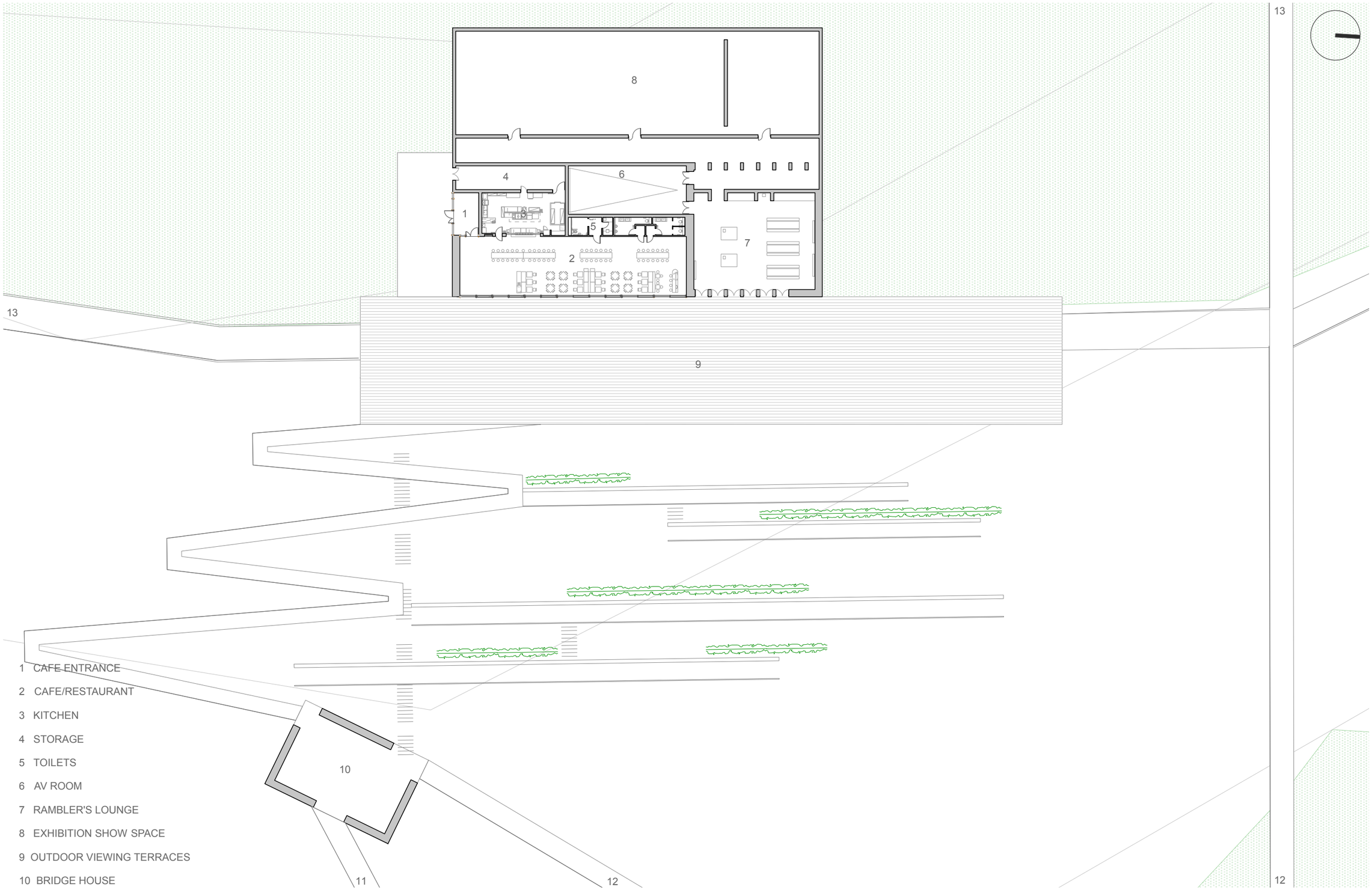


1 CAFE ENTRANCE
2 CAFE
3 KITCHEN
4 STORAGE
5 TOILETS
6 AV ROOM
7 RAMBLER'S LOUNGE
9 OUTDOOR VIEWING TERRACES
10 BRIDGE HOUSE
11 TREETOP FOOTBRIDGE
12 TO ARRIVAL/ENTRANCE POINT
13 TO HELL FIRE CLUB

DRAWING: VISITOR CENTRE: GROUND FLOOR PLAN

SCALE: 1:500 **DRAWING NO. :** 1545 / SD / 005 / A

PKA PAUL KEOGH ARCHITECTS

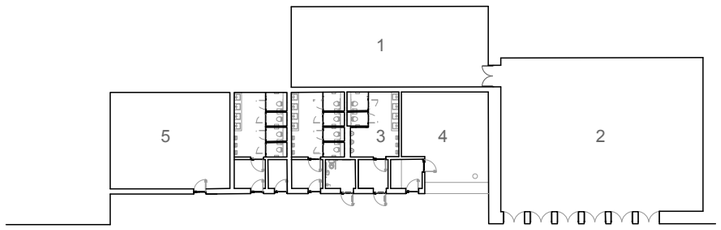


1 CAFE ENTRANCE
2 CAFE/RESTAURANT
3 KITCHEN
4 STORAGE
5 TOILETS
6 AV ROOM
7 RAMBLER'S LOUNGE
8 EXHIBITION SHOW SPACE
9 OUTDOOR VIEWING TERRACES
10 BRIDGE HOUSE
11 TREETOP FOOTBRIDGE
12 TO ARRIVAL/ENTRANCE POINT
13 TO HELL FIRE CLUB

DRAWING: VISITOR CENTRE: GROUND FLOOR PLAN

SCALE: 1:500 **DRAWING NO. :** 1545 / SD / 005 / B

PKA PAUL KEOGH ARCHITECTS



1 AV ROOM

2 RAMBLER'S LOUNGE

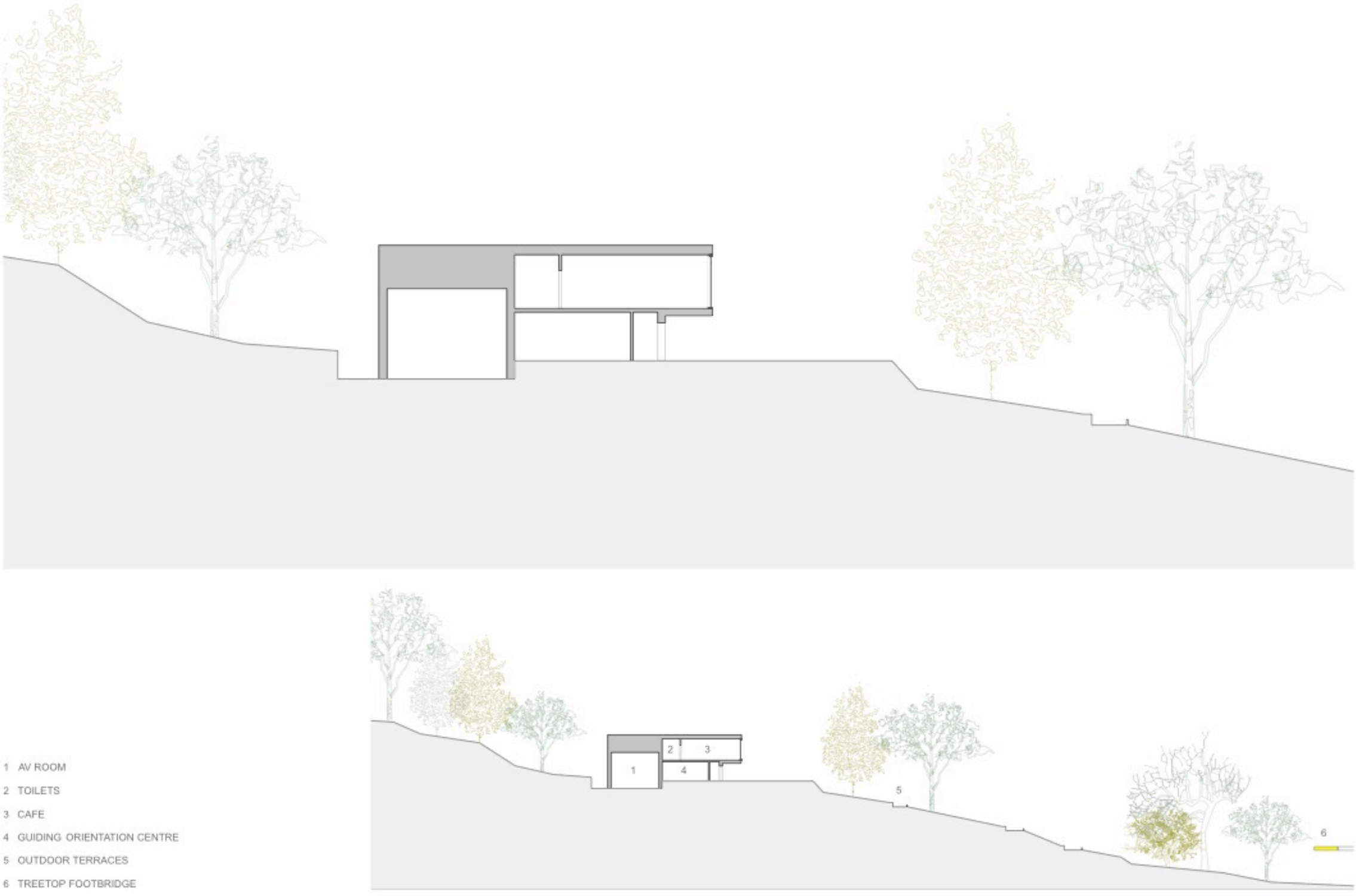
3 GUIDING ORIENTATION CENTRE

4 TOILETS

5 STORAGE/OFFICES

DRAWING: VISITOR CENTRE: LOWER GROUND FLOOR

SCALE: 1:500 **DRAWING NO. :** 1545 / SD / 006 / A



1 AV ROOM

2 TOILETS

3 CAFE

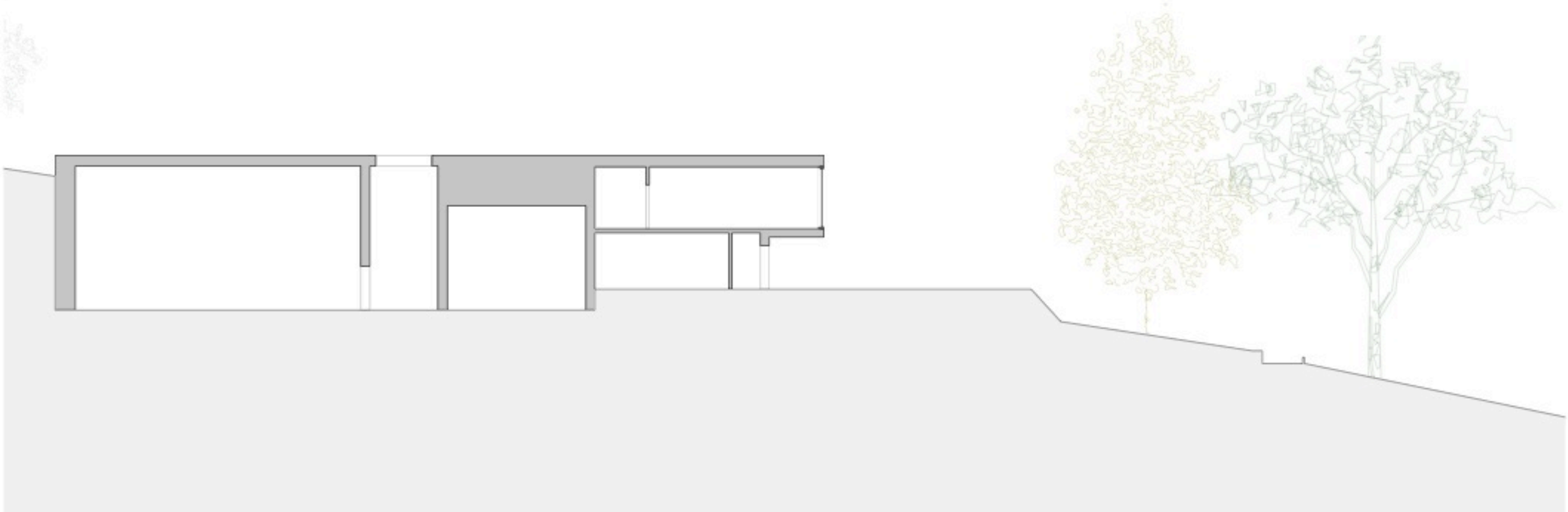
4 GUIDING ORIENTATION CENTRE

5 OUTDOOR TERRACES

6 TREETOP FOOTBRIDGE

DRAWING: VISITOR CENTRE: SECTION

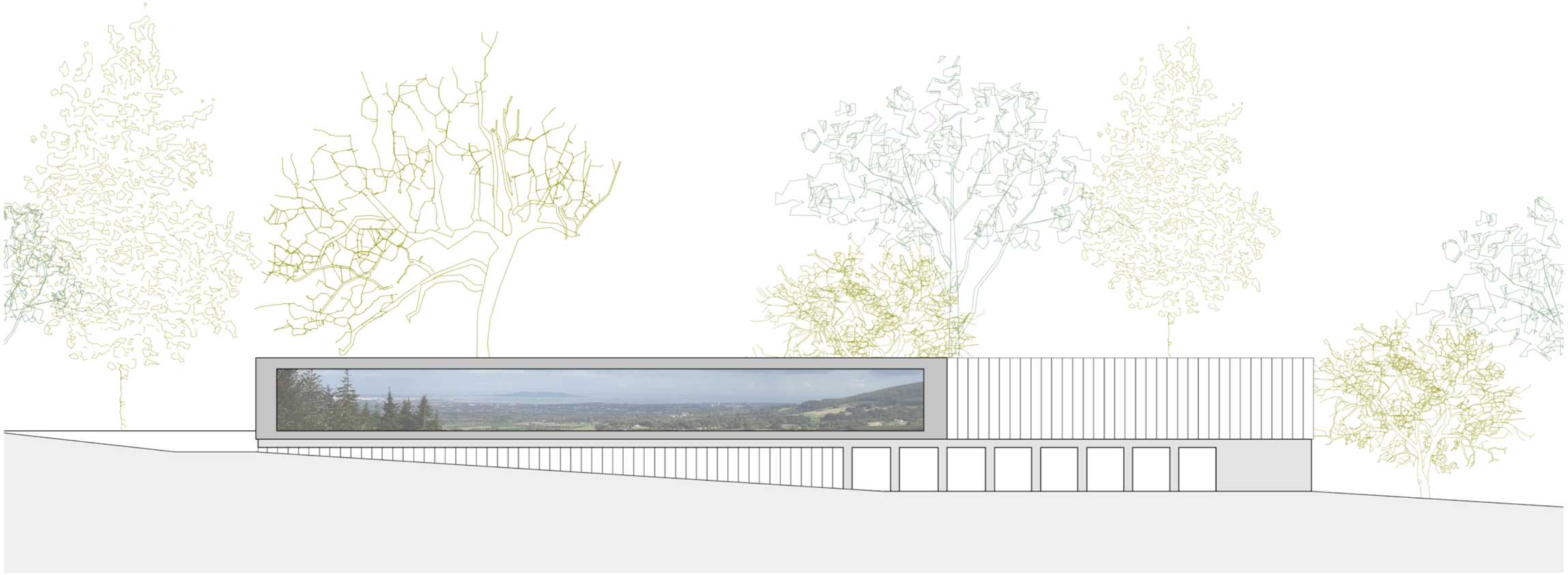
SCALE: 1:200,1:500 **DRAWING NO. :** 1545 / SD / 007 / A



1 EXHIBITION
2 AV ROOM
3 TOILETS
4 CAFE
5 GUIDING ORIENTATION CENTRE
6 OUTDOOR TERRACES
7 TREETOP FOOTBRIDGE

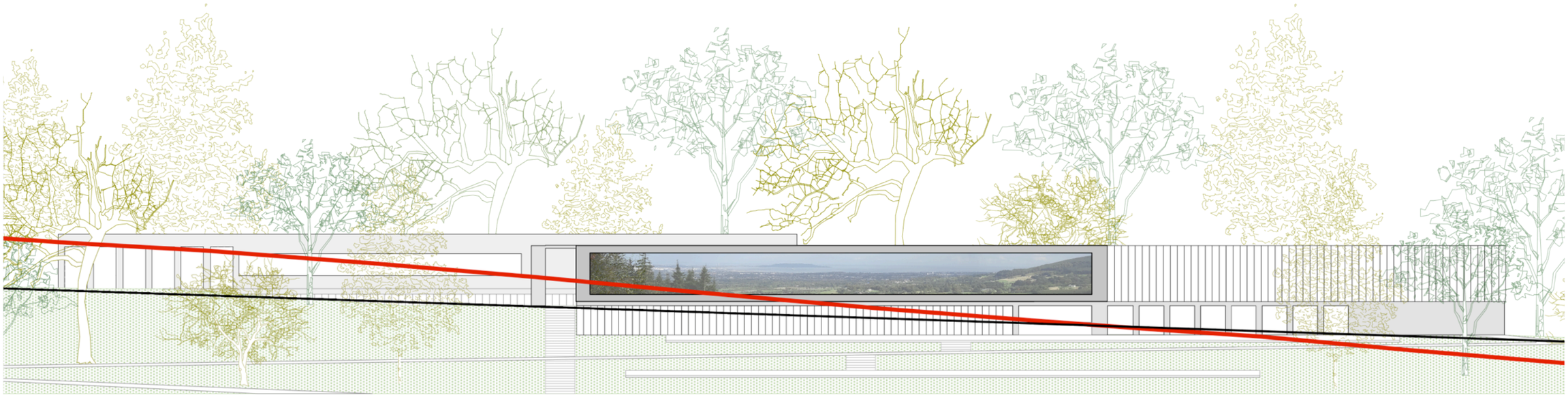
DRAWING: VISITOR CENTRE: SECTION

SCALE: 1:200,1:500 **DRAWING NO. :** 1545 / SD / 007 / B



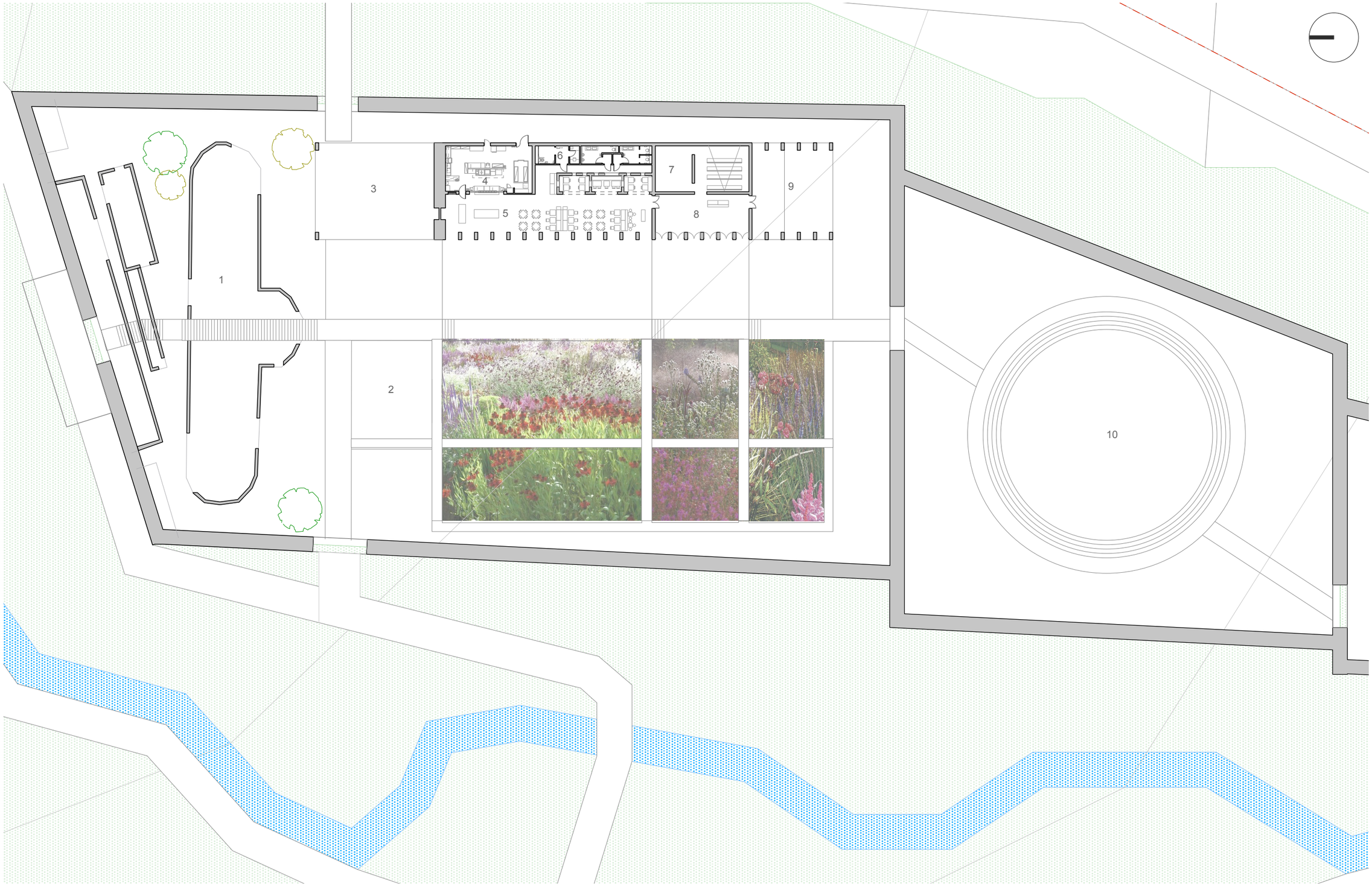
DRAWING: VISITOR CENTRE: ELEVATION

SCALE: 1:200 **DRAWING NO. :** 1545 / SD / 008 / A



DRAWING: ELEVATION

SCALE: 1:300 **DRAWING NO. :** 1545 / PO / 004 / B



1 TURNER CONSERVATORY FOUNDATIONS
2 LANDSCAPED GARDENS
3 BBQ AREA
4 KITCHEN
5 CAFE
6 TOILETS
7 EXHIBITION AND AV ROOM
8 RETAIL
9 OUTDOOR PERFORMACE LANDSCAPE

DRAWING: MASSY'S GARDEN: FLOOR PLAN

SCALE: 1:500 **DRAWING NO. :** 1545 / SD / 009 / B

1.4.2. Schedule of Accommodation

Program	Target Area (m2)	Montpellier Hill (m2)	Montpellier Hill Exhibition and Show Space (m2)	Montpellier Hill + Montpellier Hill Exhibition and Show Space (m2)	Massy's (m2)	Montpellier Hill + Massy's (m2)	Montpellier Hill + Montpellier Hill Exhibition and Show Space + Massy's (m2)
Foyer and Reception	100	100		100	78	178	178
Toilets	100	100		100	58	158	158
Café/Restaurant	300	264		264	220	484	484
Kitchen and Storage	200	150		150	76	226	226
Retail Space	200	80		80	145	225	225
Flexible Exhibition Space	500	106	698	804	80	186	884
Orientation & Hire/Booking Space	200	129		129		129	129
Seminar/Meeting/Education Rooms	200		220	220			220
Offices and Storage	100	61		61		61	61
Plant & Storage	50	50		50	50	100	100
Total Area:	**1950**	**1040**	**918**	**1958**	**707**	**1747**	**2665**

1.5. INDICATIVE LANDSCAPING PROPOSAL

1.6. ACCESS AND TRAILS

Please refer to the previous Stage 1 Feasibility Study Report for a general review of the background and context for access to the various site location options considered for the proposed visitor centre that were assessed prior to selection of a shortlist of preferred sites at Hell Fire Wood and/or Massey's Wood.

Possible Main Visitor Centre at Massey's Wood

The option of developing the main visitor centre in the old walled garden at the lower end of Massey's Wood is not considered to be feasible for the following reasons of access:

a) The road access from Rockbrook via Cruagh Lane is unsuitable due to the very narrow width of the road over a 0.5km distance. Widening of this road would be required with acquisition of private lands, which is not consistent with the Brief that requires use of existing state owned lands only. In addition the residents of 20 houses, several farms and a riding stables are likely to have strong objections to provision of access to a major tourism facility along this route which is a quiet cul-de-sac at present.

b) The steep terrain and narrow land area in the ravine of the Glendoo Brook at the north-eastern end of Massey's Wood precludes provision of a car park of the required scale with 200+ spaces. Alternative car park locations could perhaps be found at Rockbrook, but these would be at least 0.5km from the Massey's Wood site and would entail acquisition of private lands.

c) The access route via Rockbrook and Cruagh Lane has been proposed as best suited to cyclists and walkers approaching from Dublin via a greenway along the Owendoher River. Provision of the main traffic access route along this narrow road would clash with that proposal.

This short report summarises the recommendations for access provisions within the combined sites at Hell Fire Wood and Massey's Wood at the Masterplan stage of this study.

Fig. 96 Example of a 4m wide Greenway in Leopardstown, Dublin

Proposed Visitor Centre at Hell Fire Wood

The studies to date have identified the most suitable place for the main Visitor Centre Building to be on the eastern side of Montpelier Hill within the Hell Fire Wood at an altitude of approximately 320m above Ordnance Datum. This site is easily accessible from the public road and will provide high quality views across the northern edge of the Dublin Mountains and to the city with Dublin Bay in the distance.

Vehicular Access and Car Parking at Hell Fire Wood

g) The existing vehicular access from Killakee Road to Hell Fire Wood will provide the main access to the proposed visitor centre for all modes of transport.

h) The existing car park provides approximately 80 car parking spaces over an area of 0.22 Hectares in a single aisle arrangement that is 16m wide and 140m long.

i) Additional car parking at the site will be provided to increase the capacity to 250 car spaces and 10 coach spaces. This will require an additional land area of about 0.5 Hectares, configured in a triple array on either side of the existing car park over the same length, but widened to about 60m in total.

j) Due to the sloping terrain, the car park aisles will be terraced into the hillside with 6m wide landscape strips in between.

k) The existing stand of mature pine trees along the western edge of the existing car park will be felled for forestry management reasons before they are knocked naturally by wind. This will enable expansion of the car park on the western side.

l) On the eastern side, the existing car park is bounded by scrub and bushes, with the privately owned Stewards House adjoining.

m) An overflow car park area may be provided immediately to the south of the entrance gate, with perhaps a further 50 spaces, in an area of 0.14 Hectares.

The expanded car park is shown in yellow in the following aerial photograph.

Bicycle Access and Parking

There will be two access points for cyclists:

a) From Rockbrook via Cruagh Lane to Massey's Wood lower gate, as linked from the city via the proposed *Owendoher Greenway*;

b) From Killakee Road though the main car park entrance.

Bicycle parking facilities should be provided at both access points so that cyclists may proceed on foot if they wish to go for a walk. The quantum of cycle parking suggested is as follows:

- 50 spaces at the Massey's lower gate;
- 100 spaces at Hell Fire Wood.

It would be attractive for cyclists to traverse through Massey's Wood from Rockbrook so as to be able to continue southward along Killakee Road into the higher mountains if they wish. It is proposed therefore that the core network of universal access trails through the site should be available for shared use by cyclists in accordance with the usual greenway principles of priority for pedestrians. To comfortably accommodate a mix of users on these shared routes it is recommended that they by 4m wide, which will enable cyclists to pass small groups of walkers without difficulty for either party.

The Military Road link through Massey's Wood should be included as part of the limited cycle route network within the site to provide the link towards Rockbrook.

A suitable grit surface will be required on these main tracks for use by bicycles as well as wheelchairs and buggies on the core network.

Each of the visitor centre buildings should be accessible by bicycle with some parking by the entrance to each.

Universal Access Trails?

Provision of universal access to some extent within this site is both a legal and moral obligation. At the very least the main visitor centre building should be suitably accessible for all regardless of their mobility. It is also highly desirable to develop some universally accessible trails in accordance with the *Guide to Planning and Developing Recreational Trails in Ireland* published by the *National Trails Office*, with the relevant extract below:

1.2 Trail User Needs

When planning a trail a fundamental aim should be to ensure that the intended users of the trail have a good quality recreational experience and the trail provided suits their abilities and expectations. To do this it will be necessary to determine what type of users the planned trail is intended to attract.

Users can range from those who have limited experience and/or ability to very proficient and expert users seeking a very challenging outdoor experience. For example a casual walker who wants to go for an easy walk on fairly level ground with no hills, will want a trail very different in nature from an experienced hiker who is looking for a trail which will challenge his/her physical abilities.

For each category of trail (walking, cycling, horse riding and canoeing) users can generally be segmented into different types as follows:

1. Reduced Mobility /Disabled Users
2. Family Groups
3. Casual/Novice Users
4. Enthusiasts (interested but not experienced users)
5. Experienced Users

It is important to understand the needs and expectations of the range of users and then to decide which segment or segments of potential users the trail being planned is intended to satisfy. This will affect the **Classification and Grading** of the trail (Ref 1.11 & 1.12)

It will be very challenging to provide for universal access in the location of the proposed visitor centre due to the mountainous topography at the site. A maximum gradient of 5% is desirable for wheelchair users and people with buggies. (Refer to Appendix 2 of the *Classification and Grading of Recreational Trails* published by the *National Trails Office*).

Appendix 2: Multi-Access Trail Requirements[5]

5	**SLOPES OR RAMPS**	Gradient - Desirable: 1:20 (5%) and maximum 1:12 (8%). Width - Desirable: up to 1200mm and minimum: 1000mm Turning width at top or bottom of ramp - Desirable: up to 1700mm and minimum: 1500mm If gradient is greater than 1:20 (5%) a level landing (resting place) 1700m long must be provided. The max acceptable height rise between landings is 950mm. Multiple landings must be provided if necessary to maintain this requirement. A maximum distance of no more than 9m between resting areas is recommended. If gradient is greater than 1:20 (5%) handrails must be provided on ramps/ slopes. Where handrails are provided, the top rail must be 90 cm from the ground, to facilitate a person walking and the lower rail situated for persons in wheelchairs and for children at 75 cm from the ground. The surface of handrails must be smooth so persons do not scrape their hands (e.g. no projecting bolts or nail heads).

The terrain is highest at the summit of Montpelier Hill at an altitude of 390m OD, and lowest at 190m at the north-eastern corner of Massey's Wood at the bridge over the Glendoo Brook where the old Military Road departs from Cruagh Lane. This fall of 200m occurs over a distance of 1.5km, with an average gradient of 13%.

Due to the convex shape of the hillside the natural gradient of the terrain is typically 15% falling from west to east across the two sites of Hell Fire Wood and Massey's Wood. The steepest terrain is towards the lower end of the site at the Glendoo Brook which flows in a shallow ravine near the eastern edge of Massey's Wood.

Hell Fire Summit Trail

At the upper part of Hell Fire Wood the gradient flattens off nearing the summit. The existing forest road in Hell Fire Wood takes a traversing route across the slope with a number of zig-zags to climb at a maximum gradient of 8%. This road is too steep at the lower end for universal access. However, in the upper reaches this road is gently graded and extends in a loop around Montpelier Hill over a distance of 2km.

Massey's Wood Main Trails

Within Massey's Wood there is a limited network of forest roads:

- Road 1 enters the site from Killakee Road at the north-western corner at an altitude of 270m OD. It traverses south-eastwards on a very shallow gradient for a distance of 0.7km to a bridge over the Glendoo Brook at a level a little lower than 260m OD. This road is suitably graded for universal access.
- Road 2 is the old *Military Road* which branches off Road 1 at about 300m in from the entrance. This road descends to a bridge over the Glendoo Brook at an altitude of 190m OD, thus dropping a height of 75m over a distance of 0.8km at an average gradient of nearly 10%. This road is too steep and not suitable for universal access.

Core Network of Universal Access Trails

Sections of new purpose built trails may be considered in a few places to provide a suitable degree of universal within the sites served by the proposed visitor centre as follows:

a) Access from the car park up the hill to the visitor centre building with a bypass of the existing steep forest road that is too steep: 40m height gain over 800m distance;
b) Hell Fire Club and Montpelier Hill Summit Loop access from the visitor centre: 40m height gain over 800m distance + 2km loop trail with little gradient;
c) Massey's Wood Link Trail: Descent of 50m elevation from visitor centre over Killakee Road on a bridge to join the main avenue in Massey's Wood over a distance of 1km + 0.7km of existing trail within the forest.

To provide universal access within a wider extent of Massey's Wood down as far as the lower level at the suggested location for a *Garden Cafe* in the lower enclosure of the old walled garden would require a new track through the woods on the western side of the Glendoo Brook to provide a suitably lower

gradient than the existing tracks which have sections at 10% or steeper. This track would descend from 260m OD near the main avenue bridge over the Glendoo Brook to 220m OD at the lower level over a distance of up to 1km. Such a trail could have a fair degree of impact within the existing woodland setting, although at a width of 2m and with suitably sensitive design, it could be well integrated into the existing landscape.

In summary, it is suggested that a length of 3.6km of universally accessible trail (1.6km new and 2km existing) could be provided within Hell Fire Wood, from the car park to the proposed visitor centre half-way up the hill, and onward to the summit and around a loop on the western side. A further length of between 1.7km and 2.7km of fully accessible trail could be provided within Massey's Wood, of which 0.7km would consist of the existing main avenue.

Pedestrian Access to the Visitor Centre Building

The car park is located at an elevation of 280m OD, from which the climb up to the visitor centre building will rise by 40m. At a gradient of 5% for universal access by wheelchairs and buggies, the required length is 800m. The existing forest track from the northern end of the car park is 450m long, with an average gradient of over 8%, which is suitable for forestry machinery but a good deal steeper than desirable for universal access. A new path with zig-zags will be required to replace the first 200m of the forest track to achieve the required gradient. From the mid-way point onwards, the existing track slackens off in gradient and should be suitable. The proposed access track is shown indicatively in red on the following aerial photograph, with the visitor centre also shown in red.

In the aerial photograph can also be seen is a more direct footpath that climbs southward from the car park towards the proposed visitor centre. This path is on the desire line and is much shorter at about 330m, with an average gradient of about 14%. The path is fairly eroded, and should be properly paved with rough rock steps similar to those provided on the Wicklow Way at Kilmashogue and elsewhere.

Central Link and Bridge from Hell Fire Wood to Massey's Wood

A combination of potential uses has been identified for a central link between Hell Fire Wood and Massey's Wood, including universal access, fully mobile walkers and some visiting cyclists connecting from Rockbrook to Killakee. The key element of this central link will be a bridge over Killakee Road, which will be about 250m long so as to address the gradient along the route. To accommodate the expected volume and mix of users on this route, a width of 4m is recommended.

Full Trail Network and Quality Audit

There are numerous footpaths and informal tracks within the existing forest areas at Hell Fire Wood and Massey's Wood. as follows:

a) Historic paths associated with the old demesne of Killakee House in Massey's Wood along the Glendoo Brook River;
b) The main avenue into Massey's Wood from Killakee Road
c) A 0.7km long section of the original Military Road in Massey's Wood linking to Cruagh Lane and Rockbrook;
d) Riverside path along the Glendoo Brook towards Cruagh Wood to the south as part of the Dublin Mountain Way;
e) Eastern boundary track at Massey's Wood;
f) Various minor footpaths, including orienteering trails in both forests;
g) Forestry roads in Hell Fire Wood with gravel surfaces some of which are on the existing way-marked walking trails;
h) Other un-surfaced forestry tracks and fire breaks within Hell Fire Wood.

All of these various trails amount to quite a dense network of potential walking routes that could be arranged in an extensive system of way-marked ways to provide a significant resource for visitors within the sites surrounding the proposed Dublin Mountains Visitor Centre.

Equestrian Trails

There are no official equestrian trails in either Massey's Wood or Hell Fire Wood. However, with a small riding stable on Cruagh Lane located very close to Massey's Wood, it is no surprise that there are some sections of trail within Massey's Wood that appear to be used unofficially by equestrians. The extent of this use is difficult to gauge, but site inspections will identify obvious signs such as horse droppings and hoof marks.

It may be desirable to facilitate some degree of formal equestrian activity in Massey's Wood, either through shared use of trails where they are wide enough and not too heavily used by pedestrians, or with separate trails, such as are provided in Killarney National Park with a narrow equestrian track alongside a footpath but separated by a grass strip 1m wide or more.

At the north-eastern end of Massey's Wood the space available for walkers and equestrians is quite restricted and there may be difficulties in managing user conflicts on some of the existing trails. The existing riverside trail on the western bank is too narrow for shared use by horses and pedestrians. Restricted visibility due to heavy undergrowth also compounds the issue. It would be better to permit equestrians to follow a loop of suitable 3m wide tracks consisting of the Military Road up to the main avenue, a separate track through the trees alongside the main avenue (which has been suggested for inclusion in the network of universally accessible trails) and back along the eastern boundary track (which is little used by pedestrians due to the other trails through the adjoining walled gardens nearby), over a combined distance of about 2km. Warning signs can be provided to alert users to expect equestrians along this route, and the shared use of the tracks.

Mountain Biking Trails

Unofficial Mountain-Biking does not appear to take place to any significant extent within either Hell Fire Wood or Massey's Wood, and there is no intention by Coillte to develop formal facilities for mountain-biking at these locations at this stage. The nearest formal mountain-biking centre is at Ticknock, 6km to the east of Hell Fire Wood. There may be a suppressed demand for mountain biking facilities in the central and western sectors of the Dublin Mountains, and consideration could be given to meeting this desire at some stage. However, both Hell Fire Wood and Massey's Wood are fairly small in area and unsuited to mixing of fast mountain biking with slow pedestrian activity that will become much more intensive when the visitor centre is developed. Cruagh Wood, just 2km to the southeast would provide a more suitable location with a wider area for trail development and much less pedestrian activity to conflict with.

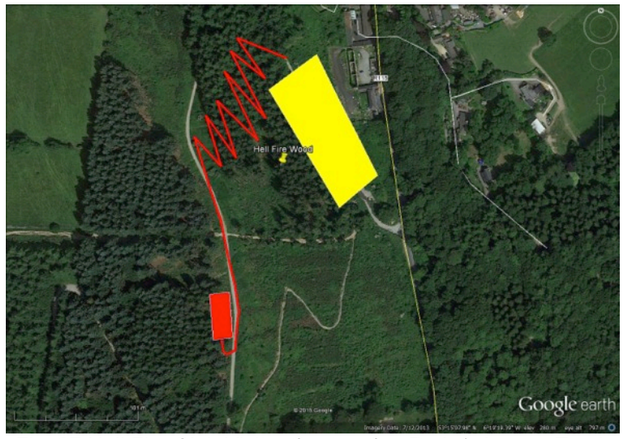


Fig. 97 Hell Fire Club Visitor Centre, Car Park & Access Track

Comprehensive Trails Map

There are various existing maps that show some or all of the existing paths in Massey's Wood and Hell Fire Wood, including the walking trails map on the *Coillte Outdoors* website and orienteering maps for both forests. These mapping resources are to be combined (by CSR) into a single comprehensive inventory of trails.

Some trails shown on existing maps extend across private lands outside the Coillte forests, such as one shown to cross Piperstown Gap. This trail is not evident on the ground and is not publicly available. The trails map being prepared for this study will not show such routes outside of the publicly owned forest lands.

Trail Network Audit

In the later final report stage of this study all existing trails will be classified and graded in accordance with the methodology used by the *National Trails Office*. A proposed walking trail network will then be identified with a range of routes of different type, difficulty and length in accordance with the Class 1 to Class 4 grading system. (Class 5 will not be applicable within the existing forest sites as it is suitable for open mountain areas that are more remote. It may apply to some trails leading further afield from the site towards the main mountains at Killakee and beyond).

Conclusions

This report has described the proposed access arrangements for visitors to the proposed Dublin Mountains Visitor Centre and in the surrounding recreational areas. Proposals are included for universal access to a certain extent, a range of walking trails of varying difficulty, an equestrian track loop in Massey's Wood, and a cycle link through the site from Killakee Road to Rockbrook.

2.0. INDICATIVE FLAGSHIP CHARACTERISTICS

2.1. EMERGING CONCEPT

Parking

The main existing car park will be upgraded and extended to accommodate 200 cars and 6 mini-buses. When further space is required in the future, adjacent land will be used (eg. for another 150 cars).

Coaches

A coach park will be located at Higher Stocking Lane, supported by a shuttle service to the entrance of the visitor centre.

Shuttle

Shuttle vehicles (type to be agreed) will be available at the car park to take visitors up to the visitor centre, if they prefer not to walk. The same service will be available down to the car park.

Shuttle Tours

The same shuttle vehicles will provide guided tours (every 15 to 20 mins) as part of a circuit that will include a tour around Massey's Wood. This will be a hop-on hop-off tour allowing visitors to stop at places of interest en-route. The drivers and/or specialist guides will play a key role in presenting the stories and pointing out features of interest to visitors.

Dublin Mountains Visitor Centre (name to be agreed later)

This will be an iconic glass-fronted building with panoramic views over Dublin and the sea. Its functions will include:

- Operating as a Welcoming and Orientation Point for visitors to the Mountains, with its wide range of facilities
- Acting as a starting and finishing point for people who want to go out and enjoy the Mountains (including provision of a Ramblers' map lounge)
- Enabling general visitors to relax and enjoy the outstanding views of the city and beyond, in daytime and evening
- Offering innovative guided tours of Hellfire Mountain and Massey's Wood, and a unique shuttle trip
- Providing attractive food and beverage opportunities, including private functions
- Presenting exhibitions, audio-visual shows, performances and entertainment based on a range of themes, such as:
    - The Story of the Stones (atmospheric depiction of the area's rich archaeology);
    - The Mountains and their Stories;
    - Life in the Forest;
    - The Hellfire Mountain Story;
    - The Furry & Feathered Forest Folk (for the younger audience)
- Providing other facilities for visitors such as reception, toilets, retail space, specialist guides, cycle & equipment hire and information and orientation facilities.

The Multi-purpose Flexible Exhibition etc Space

Details of the form, content and functions of what might go on in this space will emerge from subsequent specialist input from researchers, interpretive planners, designers, media experts and events professionals. The remit will be to pursue themes that will add to the uniqeness and appeal of the centre.

Mountain/Forest Themed Play Area

A Mountain/Forest themed play area for children will be incorporated within the forest environment of Montpellier Hill.

The New Bridge

This will be an integral part of the enjoyment for visitors. It will provide an attractive link between Hellfire and Massey's Wood, for people on foot and in the shuttle vehicles.

Massy's Wood

A number of points of interest within the woods will be pointed out by the drivers/guides and by interpretive panels. Visitors will be encouraged to stop and look at these in more detail, including:

- the Sculpture Garden;
- the Walled Garden;
- the "river of gold";
- megalithic tomb;
- the surface & story of the military road;
- specimen trees;
- the ice house;
- water wheels; and
- other stone ruins of the estate.

The Walled Garden

Within the area of the former walled garden, there will be a garden café (with internal and external seating for c 100), a small shop, toilets and information area. All will be complemented by an attractive garden environment of high quality design, including the footprint of the original Turner glasshouses accentuated in the garden design.

Sculpture Garden

Within the woods, appropriate sculpture and installations will add interest and complement the natural beauty of the woodland landscape.

Events / Festivals

The facilities will allow for a number of festivals to take place, not large music festivals but smaller ones involving art, poetry, book readings, historical celebrations

Private functions

The buildings –Dublin Mountain Centre and the Walled Garden Café will be designed to allow for private events to take place after hours such as charity balls, Candle lit Avenue, private dinners etc.

3.0. INTEGRATION OF LANDSCAPE AND EXISTING USES

The Stage 1 Report: Feasibility Study for the flagship tourism facility for the Dublin Mountains identified three options to address the requirements of the brief.

They are:

Option 1 Hell Fire Wood – With the proposed new building located part of the way up the north east facing slope of the hill not quite mid-way to the summit.

Option 2 Masseys Wood – With the proposed new building located in the currently ruined walled garden of the former Kilakee estate adjacent the Cruagh Brook.

Option 3 Combined Hell Fire and Massey's site with a new facility as Option 1 linked via a feature walkway / tree canopy bridge over the R115 to Masseys Wood, where a smaller café or similar facility would be located in Masseys Wood.

Hell Fire Wood and Masseys Wood offer one contiguous area of land forming a popular walking area, a gateway to the Dublin mountains and, in the case of the Hell Fire Wood site, panoramic views over Dublin city. The identification of three options for the provision of the flagship facility within one connected land holding means that there is effectively one site with three options or configurations of providing the facility within that one overall site.

The combination of lands would create a unique overall site and setting for all of the options i.e. they all share the same potential landscape, heritage and related amenities, features and resources. The purpose of this report is, with reference to the earlier feasibility stage and reports by other team members, to summarise these resources and characteristics, set out the landscape proposals to support the various options, and to provide a comparative analysis of the options from an environmental planning, landscape and visual perspective as well as the opportunities presented to achieve the requirements of the brief.

3.1. ANALYSIS OF RECIEVING ENVIRONMENT

The masterplan should have regard to the integration of existing recreation and forestry uses to ensure safe management and continuity of these existing uses.

The three options are located in lands owned by Coillte comprising the Hell Fire Wood and Masseys Wood located to the west and east respectively of the R115.

Land Use and Zoning

The Hell Fire Wood is located on Montpelier Hill which rises to 388m and, as the most north westerly outlying hill of the Dublin Mountains, offers spectacular panoramic views from various locations across the city and Dublin Bay. The slopes around Montpelier Hill to the north and west comprise rural fields in pasture eventually giving way to the city suburbs at Kiltipper / Oldbawn, Ballycullen and Emondstown. Approximately 3km from Montpelier Hill lies the M50 corridor.

South of Montpelier Hill lies Killakee Mountain giving way further south, south east and south west to the extensive upland landscape of the Dublin and Wicklow mountains. Between Montpelier Hill and Killakee Mountain lies Piperstown Glen a steeply sloped valley separating the two mountains.

Masseys Wood is separated from Hell Fire Wood by the R115, a single lane carriageway from the city to the north leading south to Killake, Glencree and Sally Gap. Masseys Wood lies in a low lying area or valley falling away from the R115 and Montpelier Hill to the west and partly enclosed or formed by the slopes of Cruagh Mountain to the east.

A cluster of buildings can be found just north of the entrances to both sites. These include some significant heritage buildings as well as potentially complementary services - Stewards House, Timbertrove and Montpelier Farm. Further north at Rockbrook can be found the demesne of Mount Venus, the DSPCA grounds and Mount Venus cemetery. Other residential clusters can be found to the west and east ends of Piperstown Glen and east of Masseys Wood. Other heritage sites of note include the prominent Hell Fire Club itself and adjacent Passage Graves on the summit of Montpelier Hill and Carthys Castle/ Dollymount House just north of the forest on Montpelier near Orlagh.

Masseys Wood contains a number of significant upstanding artefacts that contribute to its character, most notably the walled garden complex to the eastern boundary and its remnant Turner glasshouse foundations; the ruined cottage, watermill and bridge; the icehouse and various other historic features including the Military Road.

The Hell Fire Wood is accessed direct from the R115 which leads to a car-park. Masseys Wood has no parking facilities and is accessed from Montpelier by crossing the road or parking on the R115.

In terms of Zoning, all of the Hell Fire Wood is located in the Zone Objective H – to protect and enhance the outstanding natural character of the Dublin Mountain Area. Approximately half of Masseys Wood is located in Zone Object H, the rest is located in Objective B - to protect and improve rural amenity and to provide for the development of agriculture.
(See Appendix 1, Figure 1.)

Trails, Forest Roads and Open Areas

Figure 2, Appendix 1 illustrates many of the roads, trails and walks through Hell Fire Wood and Masseys Wood. These are commented on in terms of their interconnection with the Dublin Mountains way and other trails and Greenways in Roughan &O'Donovan's report as part of this stage. In terms of amenity and character the routes provide an established framework for access along easy gradient roads potentially suitable for vehicles – forest roads in HFC and wide drives / rides in Masseys Wood and steeper walks and narrower trails which may need enhancement physically and in terms of gradient to optimise access (where feasible) around the two woods for all.
It is intended to prepare a detailed condition audit of routes and issues as the project evolves and in order to feed into the finalised masterplan.

As well as trails and roads through the woods there are a small number of open spaces which are areas of importance to the project in formulating a design strategy. They include the environs of the Hell Fire Club on the summit of Montpelier Hill, part of the north eastern slopes of Montpelier Hill – currently regenerating forest and scrub but low enough to allow open views - and the partly overgrown walled garden in Masseys Wood. These are key spaces along the necklace of trails for locating amenities and experiences.

Vegetation and Forestry

Figure 3 Appendix 1 illustrates the mix of forestry throughout the two land holdings and can be read with the Stage 1 Forestry overview by FEL consultants.

Hell Fire Wood is almost entirely coniferous with a range of ages present including areas recently clear-felled and replanted, areas of mature forest due for harvesting/clear-felling in the near future and middle aged forest in management. Adjacent the car-park some mature trees have been retained for aesthetic reasons and screening of the car-park, however their retention may not be feasible into the future due to the potential of the conifers to become over – tall and prone to wind throw. A number of middle aged broad leafed trees are found at Hell Fire as well as some mature trees which pre-date the forest and clearly grew in open ground in the past. Hell Fire Wood is a working, commercial forest and will remain so into the future. Forest works, planting, managing and harvesting are part of its story and character. With a new visitor facility and enhanced amenity function there would be a need for some localised changes in land use and management to ensure the commercial forest and the planned amenity can co-exist.

Masseys Wood, by contrast is predominantly broad leaved woodland of beech and oak. There are some areas of coniferous plantations and specimen trees from the original Killakee demesne. In places exotic invasive species are being cleared and reduced. Whilst predominantly a recreational forest with a high biodiversity function, woodland management works are ongoing with areas of beechwood planned for thinning in 2016. The management of the woodland can be adapted to accommodate the amenity value that may be required.

The coniferous forests create significant landscape features, however these are not permanent and are subject to potentially significant change as harvesting and replanting progress. There is an opportunity to tell this story to the public in a new visitor facility.

Visual Analysis: Views, Visual Barriers and Enclosure

Figure 4 Appendix 1 illustrates the key visual characteristics of the two areas. These consist of:

- Enclosing nature of the woodlands – walks and trails within Hell Fire Wood and Masseys Wood have a limited field of view. The coniferous forest of HFC are particularly enclosing and often dark, with little to invite a walker into the tree area. The broadleaved woods of Masseys whilst also enclosing in terms of views out, are by contrast, inviting to the walker to explore the woods off trail – the Beechwoods in particular having little undergrowth.

- As a hill Montpelier offers perimeter views over the surrounding landscape where trails abut the perimeter or spaces opening to the outside are found. The perimeter trails to Piperstown Glen offer views to Killakee, the direct steep trail to the HFC from the car park offers increasingly enticing panoramas over Dublin city until one reaches the open expanse around the HFC itself. There are also views south to the Dublin and Wicklow mountains from the southern perimeter. The forest roads on the north east slopes also offer spectacular views over the city in places.

- As a valley Masseys Wood offers no real external views – its visual delight being internal to the woods and characterful trees, natural features (Cruagh Brook) and atmospheric ruins and structures.

- Views in and out of the forests are generally blocked and screened by boundary vegetation.
- Views to the potential site of a building on the north east slopes of Montpelier are currently screened from the city suburbs (protected views) by trees lower down the hill adjacent the car-park. These may be removed as part of forest management and perhaps this is desirable to enhance the panoramic views from the site but will require consideration of visibility of any new development on the hill. It should be noted that the potential site is clearly visible from the east/south east e.g the car-park at Cruagh.

- A building located in the walled garden of Masseys Wood would have little or no visual impact externally

- The R115 approaching from the north or south has limited views into either woods due to the dense roadside vegetation and trees.

Synthesis: Spaces, Places & Features

Figure 5 Appendix 1 brings together the above analysis and from this is derived the masterplan and design framework. The analysis is relevant to whichever option is selected as the sites will always provide an integrated experience and amenity.

Montpelier Hill has existing parking and a potential building location on the north east slope enjoying the views of the city. The potential site has links by forest road or direct to HFC and its panoramic open space. There are potential visual conflicts and design challenges as forest harvesting and view-management opens up the slopes to views from the city. Montpelier offers the visitor a mini-mountain experience with a summit destination, forests, taster views to the mountains further south, panoramic city views and capacity to accommodate parking and other amenities in a relatively robust landscape setting. It is an uplifting and exciting place.

Masseys Wood offers a unique broadleaved woodland experience with its distinctive trees and character, sense of nature, its child friendly experience and its sense of romance, magic, fun and idyllic woodland. Whilst not universally accessible it does offer relative ease in walking. Masseys Wood is very beautiful and timeless – this characteristic enhanced by its romantic ruins and the story behind them, and the Cruagh Brook corridor. Integrating a building into this context poses challenges and potential conflict with these characteristics.

Whilst Montpelier has its distant panoramic views, Masseys Wood is more inward looking focusing on the wonderful if somewhat overgrown corridor of the Cruagh Brook. They offer a complementary experience in combination – Montpelier and HFC values are predominantly outward looking and relating directly to both the city and wider mountain area, whilst Masseys value is internal, its own unique world populated by a range of tree characters and one's imagination.

3.2. LANDSCAPE PROPOSALS

The three options proposed are briefly set out below and described in the masterplan.

Option 1 Hell Fire Wood – With the proposed new building located part of the way up the north east facing slope of the hill.

Option 2 Masseys Wood – With the proposed new building located in the currently ruined walled garden of the former Kilakee estate adjacent the Cruagh Brook.

Option 3 Combined Hell Fire and Massey's site with a new facility as Option 1 linked via a feature walkway / tree canopy bridge over the R115 to Masseys Wood, where a smaller café or similar facility would be located in Masseys Wood.

As described previously the Hell Fire Wood and Masseys Wood are a combined site with three optional configurations of the flagship visitor facility. The masterplan will address specific objectives for each of the areas of the site however specific landscape proposals are set out for Options 1 and 2. These can be found in Appendix 2.

Option 1 at Hell Fire Wood illustrates a number of approaches to the surrounding landscape:

The overall intention is to maintain the upland working forest and character of this area with adjustments and variations to the new areas of recreation / visitor infrastructure including:

- Localised amenity landscape, non-working forest.
- Management of key areas of trees to enhance panoramic views
- Enhanced / upgraded tracks and trails where appropriate including stylised interventions at viewing points etc.

It would be important to create reception / approach routes allowing orientation to key features, the centre and trails / routes. Such routes can include both steep and more easy gradient (universal) access.

Sufficient tree and hedgerow cover needs to be maintained to screen the car-park from views to the north (downhill) and introduce new landscape planting to soften / green views from the south / uphill and the centre itself. Landscape planting should be managed to maintain open panoramic views from the new centre – in this regard much of the tree cover growing 20m lower than the viewing areas can probably be maintained without impinging on the panoramas

An activity play or outdoor area is proposed to provide family friendly fun and attraction slightly away from the main field of view.

The remaining landscape will be managed to reflect upland grass and wildflowers with regenerating groups of native shrubs and trees characteristic of the area. The character will reflect a gradual transitional change from broadleaved to upland forestry.

Option 2 illustrates the intention to restore the legibility of a "lost" garden with Masseys Wood, accommodating a potential building, incorporating new amenities whilst seeking to retain the romantic and atmospheric character of the gardens as a discovered ruin.

Rather than reinstating the original features and ornamental pleasure garden character, the framework spaces will be opened up to ensure their legibility and a series of garden spaces created which are of the woodland – native and trees, shrubs and herbaceous grassy species managed to create their own ornament and delight in a robust way that is perfectly in character with their now natural setting. A series of gardens are proposed:

- The Walled garden with a potential building, café. Paved terrace, a possible performance area on the glasshouse foundations and terraced grassy meadows.
- A meadow garden with patterns of mown lawns and wildflower meadows and pollarded trees in rows.
- A Native Tree nursery as an educational project
- A traditional orchard in meadow
- A series of exhibition gardens using flowery lawns, meadows, formal boxed trees and both traditional and contemporary forms.
- Improved garden path lined with pruned cubed or pleached trees leading to the feature large space.

The overall intention is for the plant material and surface materials to be similar to what is found in the woodland – the way the material is used: form, layout and management is what creates the garden. This would be quite a unique response to a unique setting and a different approach to the traditional ornamental planting design.

This approach offers the opportunity for both intensification and/or less management / intervention depending on the selected option whilst acknowledging that something must be done with the walled garden and to respond to the opportunity it presents.

3.3. COMPARISON AGAINST 3 SITES

	Hell Fire	Massey's Estate	Combined Options 1-2
Zoning	2	1	1.5
Open Character of the Mountains (above 350m)	1	1	1
Impact on protected views from the City	2	1	1.5
Impact on scenic routes and drives	2	1	1.5
Site Capacity (to accommodate low rise building)	2	3	2.5
Natura 2000 Sites (none affected, site specific assessment of preferred options required)	1	1	1
Impact on Landscape Character	1	4	2.5
Forestry/Woodland	2	1	1.5
Total Landscape Ranking	1.6	1.6	1.6

The above matrix reflects the matrix used in Stage 1 excluding criteria no longer relevant e.g. Land Ownership. With more focused analysis scoring has changed in places. From an Environmental Planning, Visual and Landscape perspective the overall ranking is equal for all options however it should be noted that Masseys Wood has a more significant impact on its landscape character which is a key component of the tourism offer. Whilst Options 1 and 3 may be more visible, and pose design challenges, their landscape setting is regarded as more robust to accommodate such development.

Options 1 and 3 also offer the distinctive panoramic views of the city without excluding the potential combination with Option 2 and Masseys Wood. Option 2 offers no unique panoramic views, and is isolated from its mountain context, which is not the objective of the brief, although it does offer a high quality experience of its own.

4.0 COMPARITIVE MATRIX FOR 3 OPTIONS

	1. OPTION 1 Hell Fire Club	2. OPTION 2 Hell Fire Club + Massey's + Bridge	3. OPTION 3 Hell Fire Club + Massey's + Bridge + Arrival Promenade
Indicative Flagship Characteristics	3	2	1
Economic Analysis	3	2	1
Constraints Analysis	1	1	1
Environmental Landscape Analysis	1	1	1
Integration Of Existing Uses	2	2	1
Totals	3	2	1

Conclusion

The outline proposals describe an emerging concept that maximises the opportunities presented by these unique sites.

To develop the emerging concept to the next stage we will require to do further detailed analysis in regard to access, economic projections, architectural planning and environmental studies together with consultations with stakeholders, primarily Coillte and DMP.

We see this as work in progress; other ideas may emerge through further detail work. We have committed to presenting an outline strategy that responds to the brief and invites further client and design team inputs.

FEASIBILITY STUDY AND MASTERPLAN FOR A FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS

STAGE 3 PREFERRED OPTION REPORT

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INTRODUCTION

The preferred option agreed at stage 2 by the steering committee is the combined Option of Montpellier Hill, the treetop connection and Massy's wood including the integration of new routes and trails.

This has now been developed in parallel with examining existing best practice case studies in Ireland and the UK.

Further to stage 2 the uses and activities have been reviewed and re-balanced, primarily further emphasize has been given to four areas:

1. Heritage
2. Views
3. The natural environment
4. Hell fire

1. Heritage: The interpretation of the archaeology of the immediate and wider landscape is of international importance and interest due to the prolific number of passage tombs and wedge tombs and standing stones on and close to the site

2. Views: Montpelier hill provides views that fulfill the understanding of the location of the city of Dublin and its proximity to the sea. The masterplan identifies the location of the best viewing points related to the heritage and creates routes and viewing points to enjoy the vies and to introduce the visitor to the wider landscape.

3. The natural environment can be enjoyed from this flagship facility, both as a mountain forest experienced either by foot or shuttle and a deciduous river forest experience with exceptional heritage and natural beauty.

4. The hellfire Club is the 'wild card' in the flagship project which has inherited stories and is a unique ruin at the top of Montpellier hill which excites the imagination of all generations, forms the back drop to folklore and has the potential to generate a wide range of events and activities.

The masterplan allows for and encourages primarily an outdoor experience, reflecting its location at the gateway to the Dublin Mountains and the Wicklow Mountains, Powerscourt and beyond.

The visitor approaches the facility via natural mountain paths and is welcomed into a reception area appropriate to ramblers with log fire, maps and guides. Beside is the shop, which sells the access tickets for AV experience, shuttle to hellfire and guided tours to archaeology sites and Dublin mountain tours.

Refreshments can be enjoyed from the iconic panoramic café / restaurant or from the to-go coffee kiosk. Corporate events can be catered for in the events building and this acts as a base / meeting place for large groups and provides a private dining / event space for bespoke activities.

The visitor can also opt to visit Massy's; a beautiful natural forest, this is approached from the flagship facility via the bridge house - an orientation point / signage point to the tree top walk. The tree top walk has been designed as a promenade that allows views into the canopies of the trees and their wild life inhabitants and gives safe access for children and the infirm into the deciduous forest.

The concept design of the treetop canopy walk is to create an unobtrusive structure that is like a ribbon through the trees its main beam structure forms the balustrade to one side of the timber decked boardwalk and the board walk / beam is elevated from the ground on forest like tree trunks of varying widths.

Massy's Forest contains a range of natural features including streams and waterfalls, an idyllic children's natural play environment, historic artifacts, specimen trees and archaeology of local and international interest.

A potting shed is included in the walled garden to facilitate the encouragement of children to enjoy and appreciate nature. The walled garden will be cleared of plants that have a negative impact on the stone walls and structures, in order to preserve them and following further analysis and a deeper understanding of the existing planting a future plan for the walled gardens will be made on a phased basis in consultation with stakeholders.

In the meantime the potting shed is included in the orchard of the walled garden to provide a simple resources to facilitate and encourage children to enjoy and appreciate the plants and wild life.

The existing car park has been extended in terraces towards the flagship facility, this provides 300 car spaces and allows for closer access to the main buildings. A coach park at Stocking lane is included in the masterplan and further consultations with public transport bodies to improve public transport to and from the site is envisaged at a later stage.

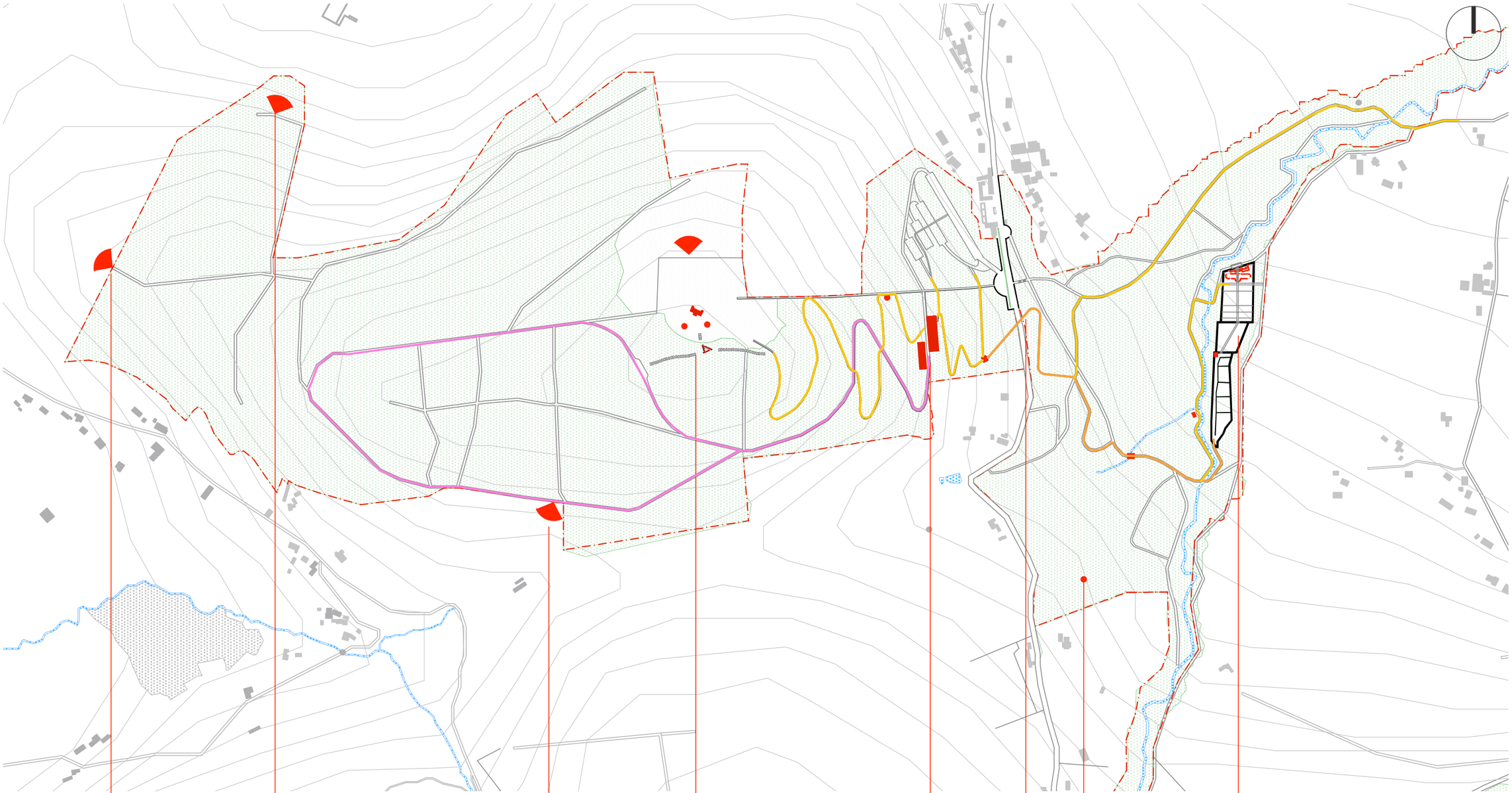
1.0. PREFERRED OPTION

1.1. EMERGING MASTERPLAN

Drawing: Destination Masterplan
Drawing Number: 1545 / PO / 901 / A
Page Number: 98

Drawing: Primary Routes Masterplan
Drawing Number: 1545 / PO / 902 / A
Page Number: 99

Drawing: Primary Routes Masterplan
Drawing Number: 1545 / PO / 902 / B
Page Number: 100



Destination:	Viewpoint	Viewpoint	Viewpoint	Hell Fire Club Passage Tomb Wedge Enclosure Viewpoint	Dublin Mountains' Visitor Centre Panoramic Cafe Events Venue	Bridge House Treetop Bridge	Wedge Tomb	Massy's Walled Gardens Conservatory Foundations Potting Shed
Tours:	Hell Fire Club Walking Tour						Massy's Woodland Walking Tour	
Access:		Shuttle Service / Tour between Hell Fire Club and Visitor Centre			Shuttle Service to Stocking Lane Vehicular via R115 Cyclist via R115			Pedestrian via R116 Cyclist via R116

DRAWING: DESTINATION MASTERPLAN

SCALE: 1:8000 **DRAWING NO. :** 1545 / PO / 901 / A

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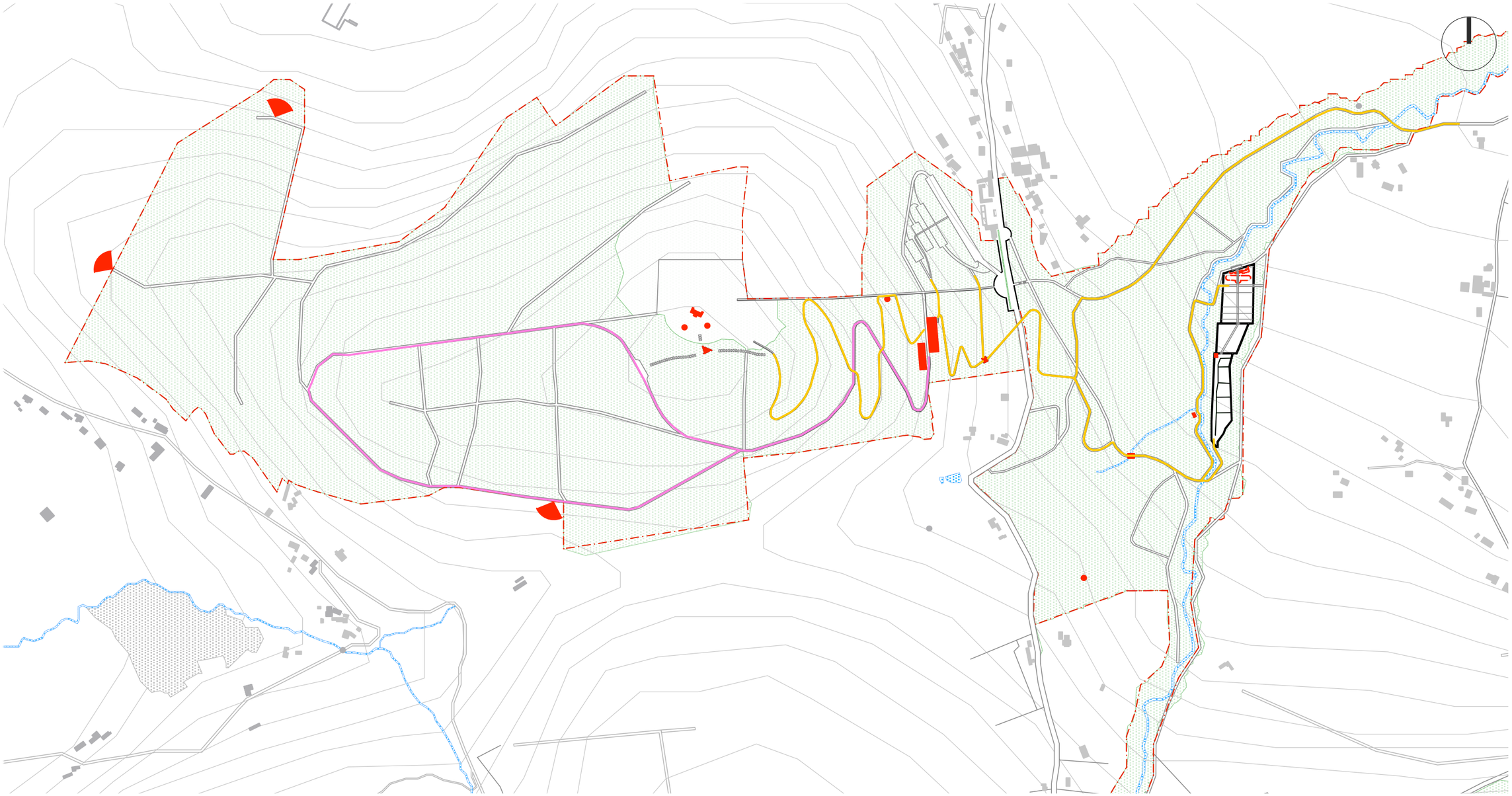

Primary Routes:

Shuttle

Pedestrian

DRAWING: PRIMARY ROUTES MASTERPLAN

SCALE: 1:8000 **DRAWING NO. :** 1545 / PO / 902 / A

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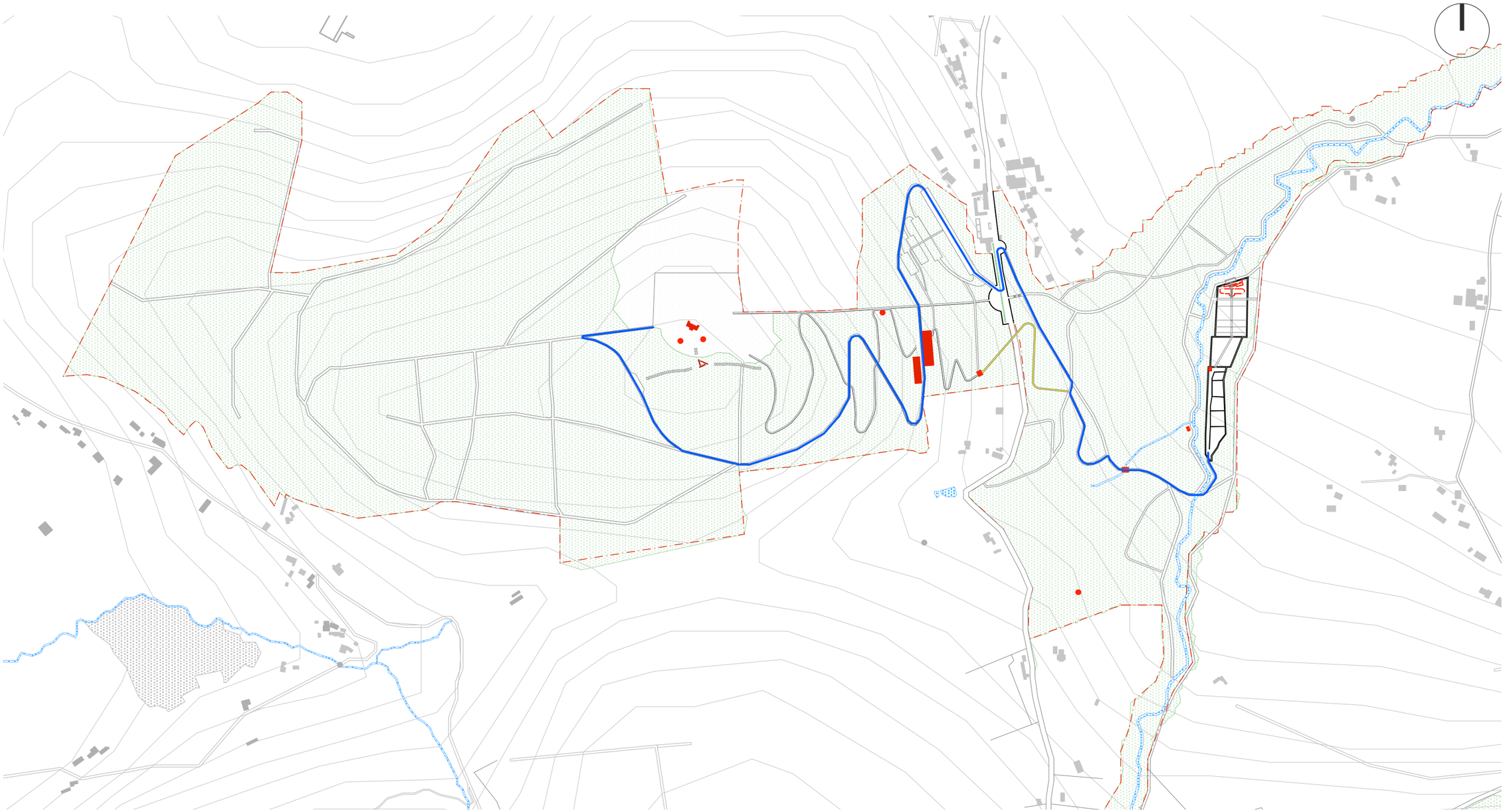


Primary Routes:

Servicing

DRAWING: SERVICING ROUTES MASTERPLAN

SCALE: 1:8000 **DRAWING NO. :** 1545 / PO / 902 / B

1.2. EMERGING CONCEPT

Arrival

There will be a striking early feature that will provide a welcome to visitors as they enter the site off Stocking Lane. This will be in the form of an attractive entrance area, with shelter and with good orientation signage, especially a large map of the area.

Parking

The main existing car park will be upgraded, landscaped and extended to accommodate more than 300 cars. When further space is required in the future, adjacent land will be used (eg. for another 150 cars). Parking will be free.

Coaches

A coach park will be located at Higher Stocking Lane, supported by a shuttle service to the entrance of the visitor centre (if required). There will be a coach drop-off and pick-up point close to the entrance

Dublin Mountains Visitor Centre (name to be agreed later)

This will be an iconic glass-fronted building with panoramic views over Dublin and the sea. Its components will include:

- A prominent and striking Reception Area inside the main entrance, operating as a Welcoming and Orientation Point for visitors to the Mountains. It will also serve as the ticket office for the AV shows, the guided shuttle tours and the guided walking tours.

- Readily accessible Toilets, including baby changing facilities.

- A welcome area will be themed as the **Ramblers' Lounge**, with an appropriate environment, such an open log fire, and with orientation information available (eg. maps, guides). This will help the centre to function as a starting and finishing point for people who want to go out and enjoy the Mountains.

- The **Panorama Cafe / Restaurant** will provide attractive food and beverage opportunities throughout the day. This space will be designed and operated in a way that allows it to function as a service for general visitors during the day and as a venue for scenic-view dining and private functions in the evening. Seating will be provided for 150-200 people.

- A high quality **AV/Movie Theatre** showing a range of specially commissioned shows relating to the Mountains, such as, The Story of the Stones; The Mountains and their Stories; the Hunting Lodge and Hellfire; Life in the Forest. The emphasis will be on entertainment, education and the use of state-of-the-art technology. The priority will be to pursue themes that will add to the uniqueness and appeal of the centre. There will be an admission charge for this part. The AV Show will be outstanding on a par with the AV show for Titanic and The Cliffs of Moher

- **The Events and Exhibition Venue** which will be primarily a space for corporate events, such as small conferences, meetings, exhibitions, training, overseas conference / incentive events, receptions and product launches. Space for 150 diners and 200 theatre-style seats will be provided. It will also be available for musical and theatrical performance events, arts and crafts exhibitions, educational events and other temporary uses. It will have its own food and drink servery spaces and toilets.

- The Hellfire Shop which will be located as part of, or as close as possible to, the point where visitors leave the centre. It will offer a wide range of souvenirs and gifts, especially those associated with the Mountains and their activities. Stocking will need to be careful and creative because of strong competition from other attractions and the City itself. It will be an important source of revenue for the centre.

- A small Kiosk on the lower level of the Visitor Centre will sell branded Hellfire Picnic Box's / Coffee to go!

Hell Fire Club

The location of the Hell Fire Club at the top of Montpellier Hill gives it a prominence to the surrounding landscape and the view from the Hell Fire Club is outstanding as it provides a panoramic vista of Dublin City, Dublin Bay and the Mourne Mountains.

Consideration can be given to three possible approaches.
1. To restore to a conjectural original condition
2. To conserve in its current condition as a ruin
3. To adapt and re-use to a new function

It is desirable that the Hell Fire Ruin is not presented as being vandalised or neglected – as it is currently.

The ruin evokes mystery and its abstract quality allows peoples imagination to evolve. With subtle intervention such as lighting and a new floor and balustrade to the staircase, this structure open to the winds could be used to great effect for bespoke events including the following; story telling, poetry readings, intimate music concerts, card playing, candle-lit suppers.

These could be organised in conjunction with the event venue or programmed into city events,

The use of lights in the evening / at night would define the Hell Fire Club on the landscape and attract curiosity from further afield. Additionally some tree felling would be appropriate around the Hell Fire to open up views to the Hell Fire and allow its silhouette to be legible on the top of Montpellier Hill.

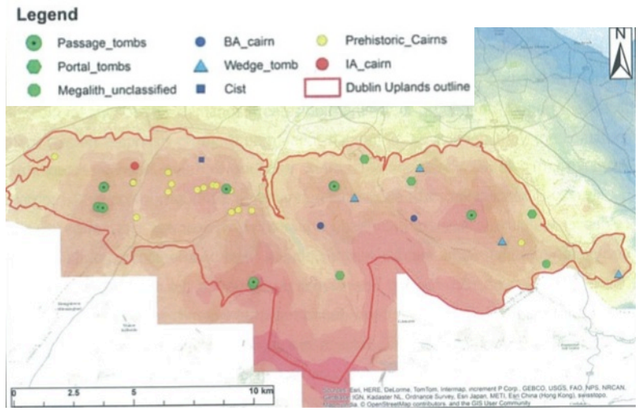


Fig. 98 Distribution of burial monuments from the Neolithic, Bronze Age, Iron Age, and general prehistoric dates.

Passage Tomb

The passage tombs are due to excavated next year, following this the passage tomb will be reviewed with consideration given to the following;

- The appropriate presentation of the materials / findings
- The protection of the archaeology
- The visibility of the passage tomb, potentially revealed under glass
- The illustration of the findings with drawings / descriptions to be exhibited at / near the site.

Wedge Enclosure

The wedge enclosure is a defined space that gathers the visitors together, providing shelter from the winds. It is an open to the sky structure with deep-rammed earth walls to enclose storyboards and artifacts to interpret the archaeology of the passage tomb and surrounding area, and the story of the Hell Fire.

Interpretation of the Hell Fire Club can be carried out in the Wedge Enclosure to the side of Hell Fire to mitigate having to clutter the Hell Fire with information.

Viewing/Interpretation Points

In order to ensure good quality on-site interpretation, viewing points will be provided between Montpellier and Piperstown. These will highlight the vast archaeological offering present in the Dublin Mountains Uplands, fig x, and offer views and articulate places of interest such as;

- Piperstown Hill and beyond; prehistroic huts, burial cairns, Corrageen enclosures, Piperstown enclosure, and Ballinascorney woods, passage tomb and cairn.
- Medieval South Dublin; Tallaght Medieval Church Tower, Gatehouse Dominican Priory, Carthy's Castle, Clondalkin Round Tower, Tully's Castle, etc.

Interpretation boards and seating will be provided, acting as passive viewing points for those exploring by foot.

The Tree Canopy Walk

This will be an integral part of the enjoyment and unique experience for visitors. It will provide an attractive and safe link between Hellfire, the visitor centre and Massy's Wood, for people on foot. It will be a 350 meter long promenade through tree canopies and includes a bridge over the R115. It will provide a unique pedestrian link from the car park to the visitor centre and Massey's Wood.

Bridge House

It will function as an orientation point with signage guiding visitors from the car park, west up to the visitor centre and Hellfire and east to Massey's Wood. It will also act as a gate to the bridge and closes the public route.

The Walled Garden

Within the area of the former walled garden, there will be an attractive space that will include the fernery, trees, stone ruins, wild/natural planting and the footprint of the original Turner glasshouses accentuated in the garden design.

Sculpture Garden

Within the woods, appropriate sculpture and installations will add interest and complement the natural beauty of the woodland landscape.

Potting Shed

Located in the vegetable garden, within the walled garden, this will provide the opportunity for children to get involved in the gardening experience.

Massy's Wood River Walk

This will follow the Owendoher River and Piperstown stream and pass various points of interest including waterfalls, stone bridges and other artifacts.

Massy's Wood Tours

Guided walking tours of Massy's Wood will be on offer from the Visitor Centre. A number of points of interest within the woods will be pointed out by the guides and by interpretive panels. Visitors will be encouraged to stop and look at these in more detail, including:

> The Sculpture Garden; the Walled Garden; the "river of gold"; megalithic wedge tomb; the surface & story of the military road; specimen trees; the ice house; water wheels; and other stone ruins of the estate.

Activities

Natural play and nature discovery will be encouraged in Massy's Wood, as will horse riding by means of routes designated for equestrian use. The unqiue woodland offers a natural playground free from traffic for children of all ages. This is an outstanding natural resource for children from neighbouring urban/suburban communities; and can be used as an educational resource for children to understand their natural environment.

Shuttle Tours

Shuttle vehicles (similar to Stonehenge type Land Rovers – see case studies) will provide innovative and unique guided tours (every 15 to 20 mins) as part of a circuit that will include a tour promoting the outstanding archaeology of the mountain leading up to the Hellfire site and around Massy's Wood. The drivers and/or specialist guides will play a key role in presenting the stories and pointing out features of interest to visitors. There will be a fee for these tours payable at Reception or to the driver.

The Dublin Mountains Flagship Visitor Attraction aim will be to deliver the best guided Tours In Ireland using highly trained guides.

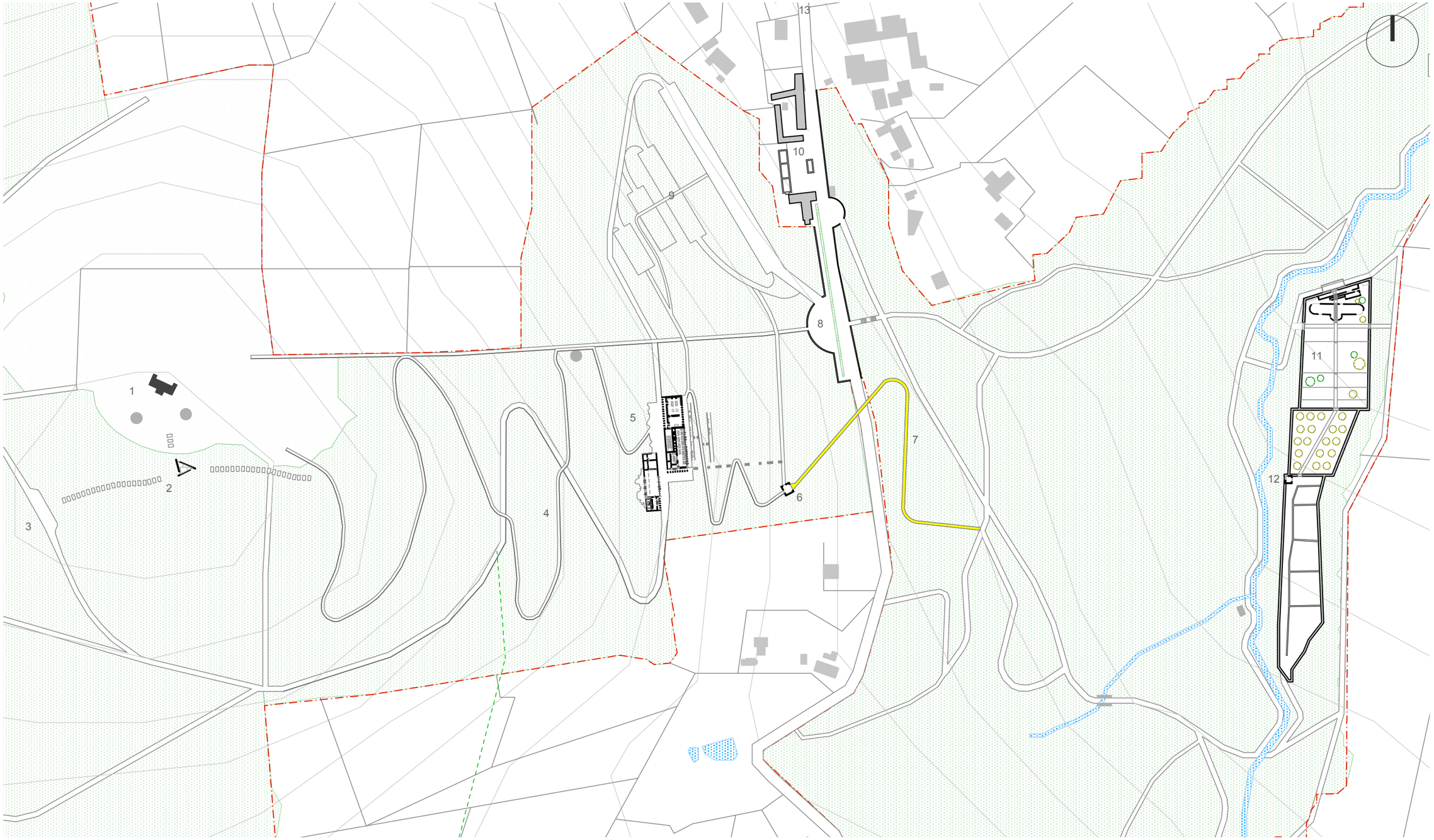
Touring Basecamp

The Visitor Centre will act as the meeting place and gateway to the Dublin Mountains. The facility will encourage visitors to explore the mountains by foot; maps and information will be available, and guides with local knowledge will be on hand to inform ramblers of popular trailsthrough the Dublin and Wicklow Mountains.

2.0. DESIGN DRAWINGS

2.1. DUBLIN MOUNTAINS VISITOR CENTRE: MASTERPLAN

Drawing: Preferred Option Masterplan
Drawing Number: 1545 / PO / 001 / A
Page Number: 103



1 HELL FIRE CLUB
2 WEDGE ENCLOSURE
3 HFC SHUTTLE DROP OFF
4 EVENTS VENUE
5 DUBLIN MOUNTAINS VISITOR CENTRE
6 BRIDGE HOUSE
7 TREETOP FOOTBRIDGE
8 ARRIVAL PROMENADE
9 UPGRADED CAR PARK
10 STEWARD'S HOUSE COMPLEX
11 MASSY'S GARDENS
12 MASSY'S POTTING SHED
13 TO STOCKING LANE COACH PARK

DRAWING: PREFERRED MASTERPLAN

SCALE: 1:3500 **DRAWING NO. :** 1545 / PO / 001 / A

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2.2. DUBLIN MOUNTAINS VISITOR CENTRE: MAIN VENUES

Drawing: Upper Ground Floor
Drawing Number: 1545 / PO / 002 / A
Page Number: 106

Drawing: Lower Ground Floor
Drawing Number: 1545 / PO / 003 / A
Page Number: 107

Drawing: Elevation
Drawing Number: 1545 / PO / 004 / A
Page Number: 108

Drawing: Sections
Drawing Number: 1545 / PO / 005 / A
Page Number: 109

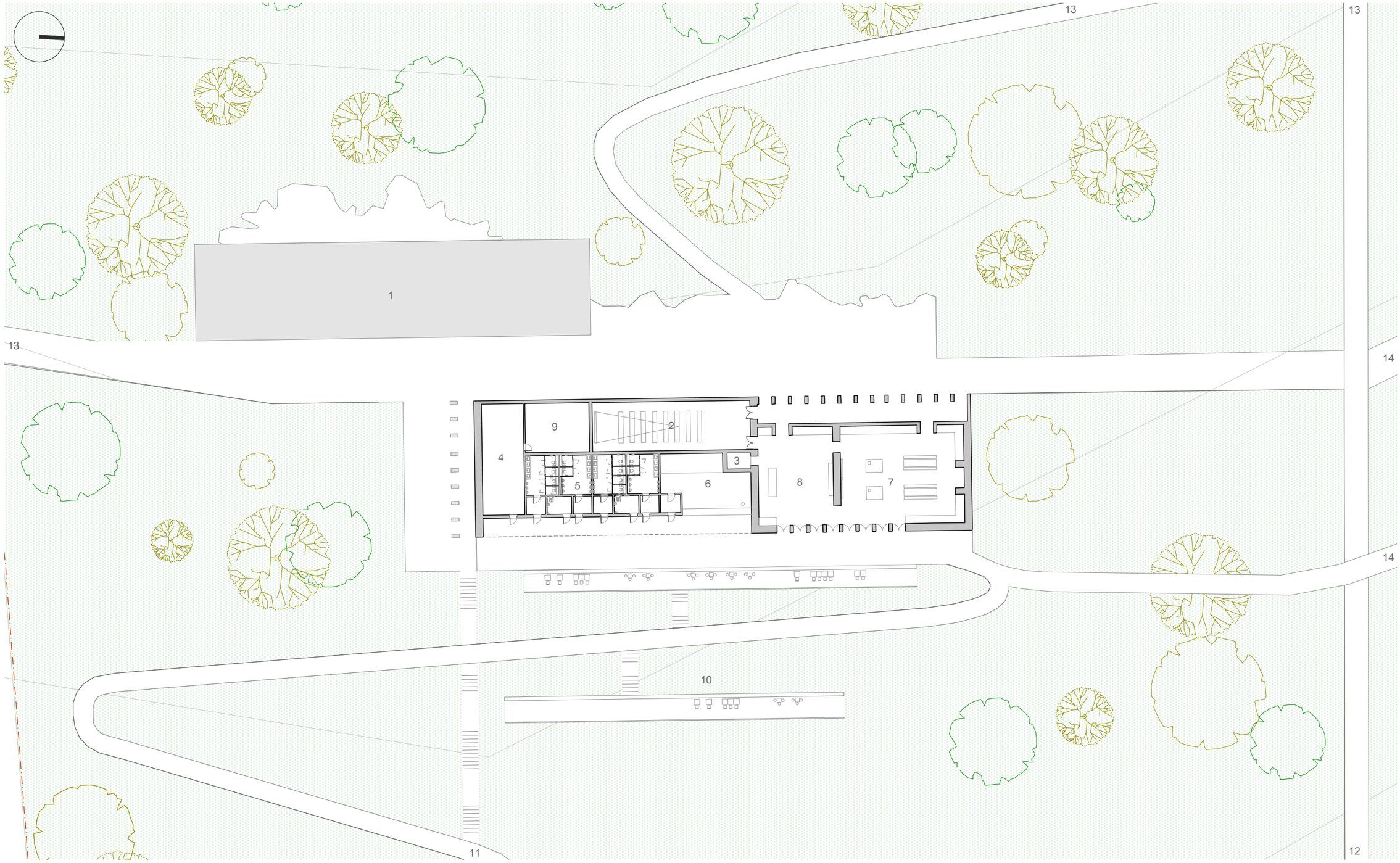
Drawing: Long Section with Treetop Canopy Walk
Drawing Number: 1545 / PO / 006 / A
Page Number: 110

1	EVENTS SPACE	449m²	6	AV ROOM / EXHIBITION	140m²	11	RAMBLER'S LOUNGE	218m²	16 TO HELL FIRE CLUB
2	KITCHEN / SERVICES	96m²	7	RESTAURANT / CAFE ENTRANCE	20m²	12	RETAIL	132m²	17 TO CAR PARK
3	DELIVERY / STORAGE	69m²	8	KITCHEN	63m²	13	VIEWING TERRACES		**TOTAL AREA:** **1571m²**
4	STORAGE	20m²	9	TOILETS	51m²	14	TO BRIDGE HOUSE / CAR PARK		
5	KITCHEN / STORAGE	28m²	10	PANORAMIC RESTAURANT / CAFE	288m²	15	TO ARRIVAL PROMENADE		

DRAWING: UPPER GROUND FLOOR PLAN

SCALE: 1:500 **DRAWING NO. :** 1545 / PO / 002 / A

PKA PAUL KEOGH ARCHITECTS

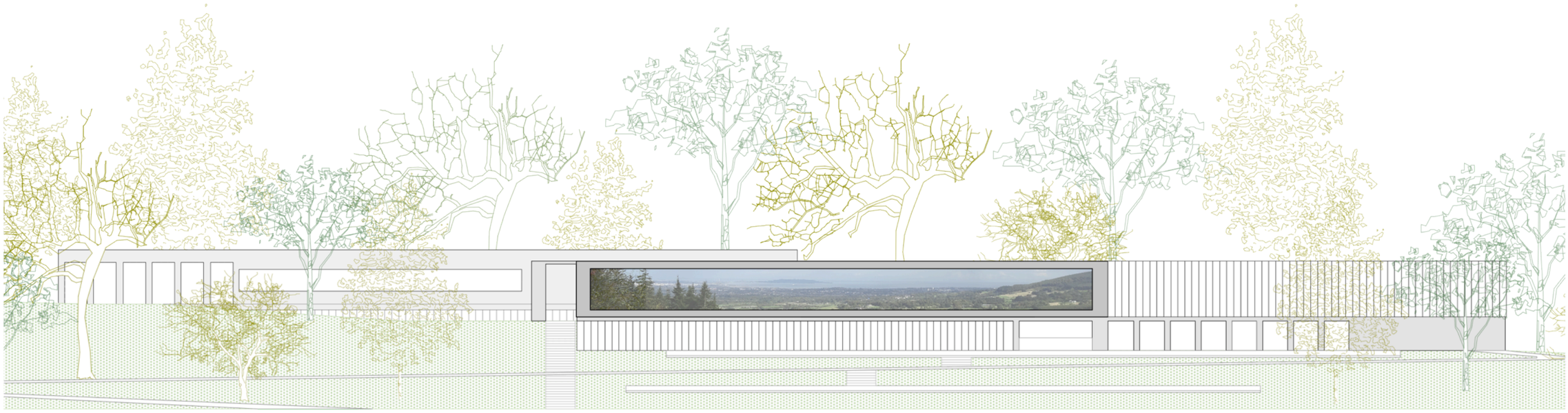


1	EVENTS SPACE	614m²	6	TO GO KIOSK / RETAIL	90m²	11	TO BRIDGE HOUSE / CAR PARK
2	AV ROOM / EXHIBITION	137m²	7	RAMBLER'S LOUNGE	218m²	12	TO ARRIVAL PROMENADE
3	LIFT TO CAFE		8	RETAIL	132m²	13	TO HELL FIRE CLUB
4	STORAGE	80m²	9	PLANT	56m²	14	TO CAR PARK
5	TOILETS	140m²	10	VIEWING TERRACES		**TOTAL AREA:**	**1467m²**

DRAWING: LOWER GROUND FLOOR PLAN

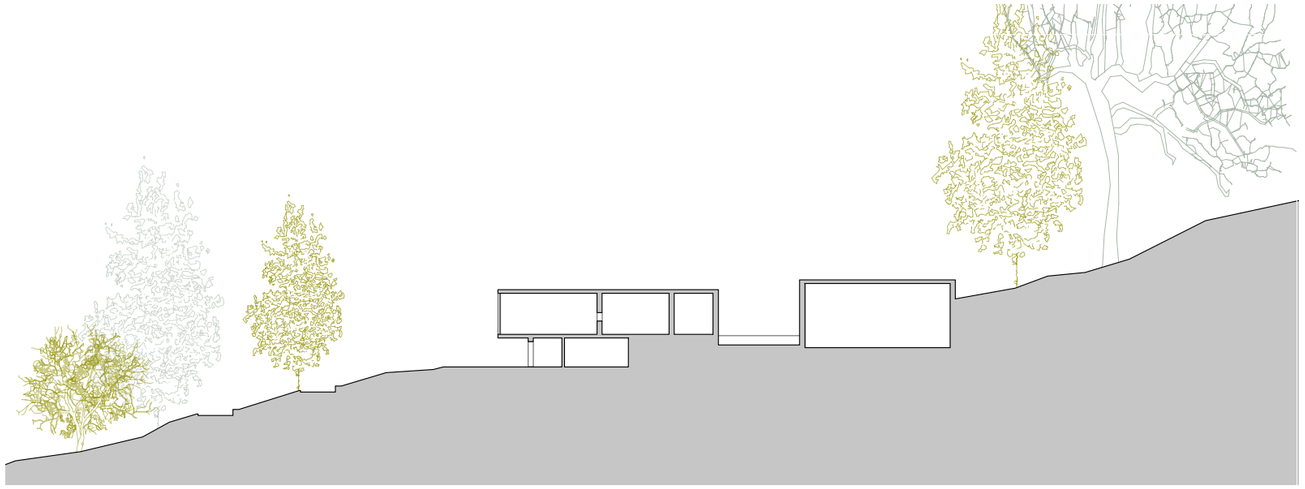
SCALE: 1:500 **DRAWING NO. :** 1545 / PO / 003 / A

PKA PAUL KEOGH ARCHITECTS

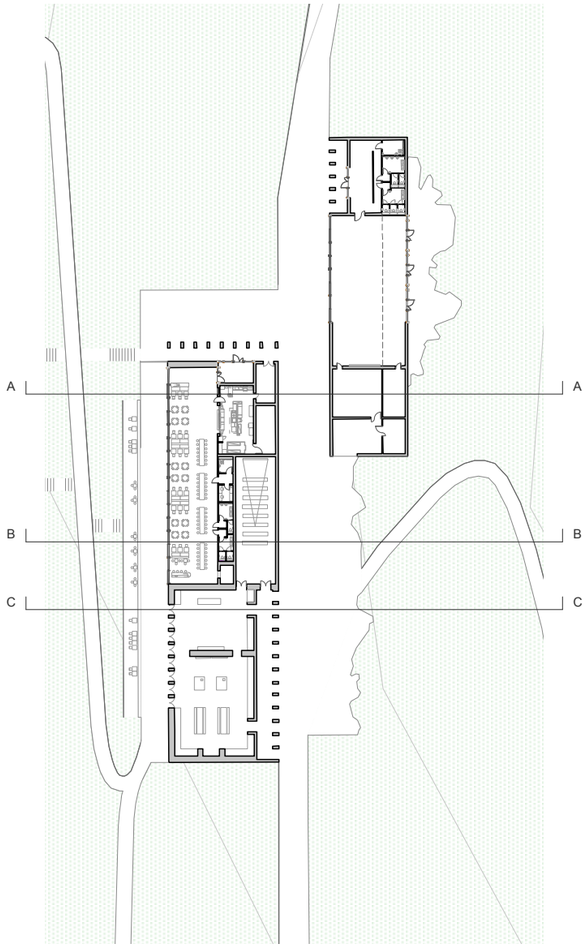


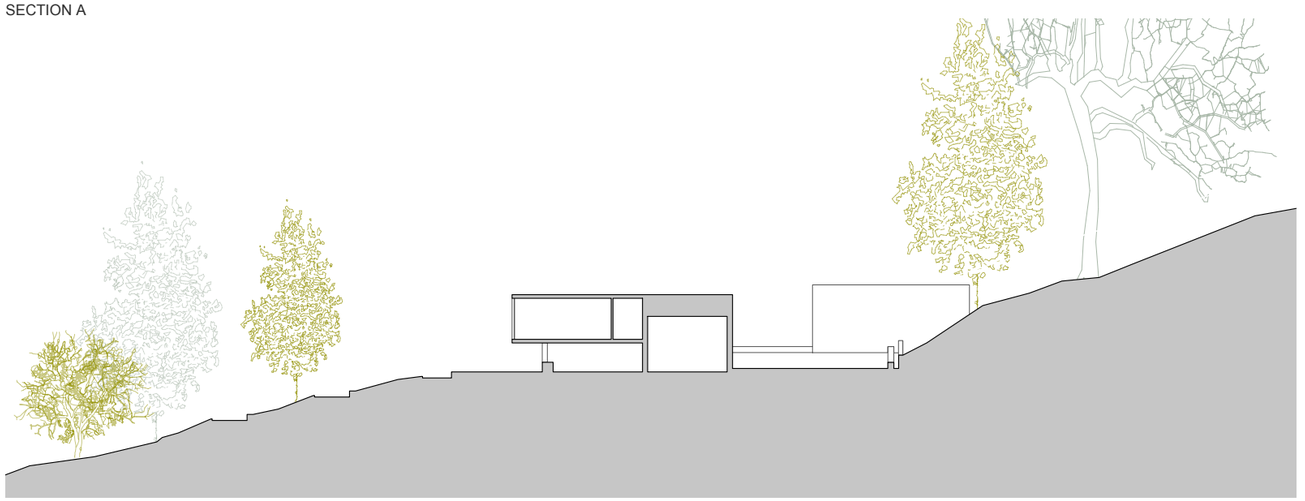
DRAWING: ELEVATION

SCALE: 1:300 **DRAWING NO. :** 1545 / PO / 004 / A

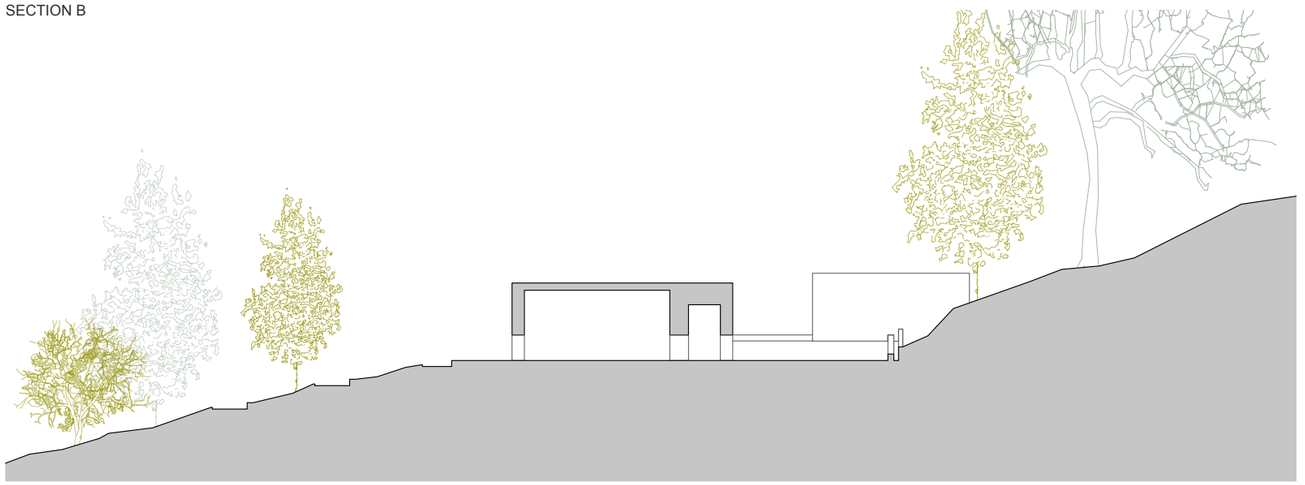


SECTION A





SECTION B



SECTION C

DRAWING: SECTIONS

SCALE: 1:500 **DRAWING NO. :** 1545 / PO / 005 / A

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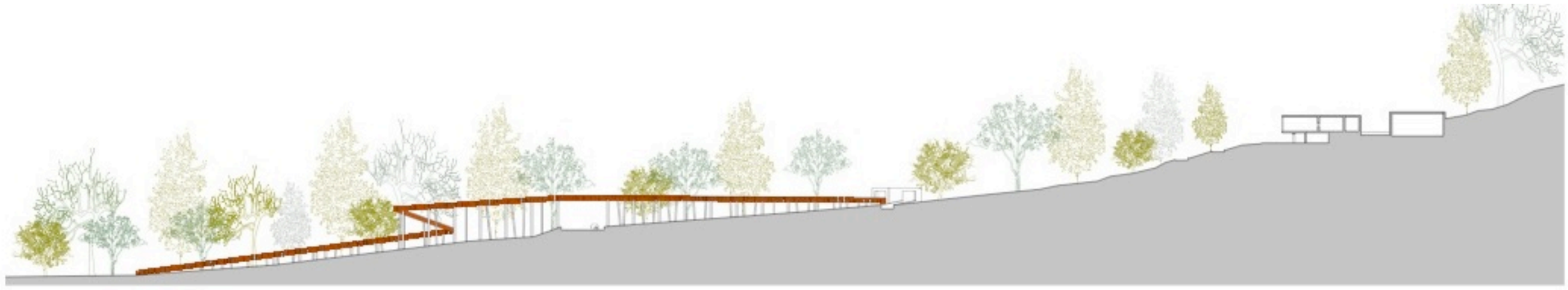
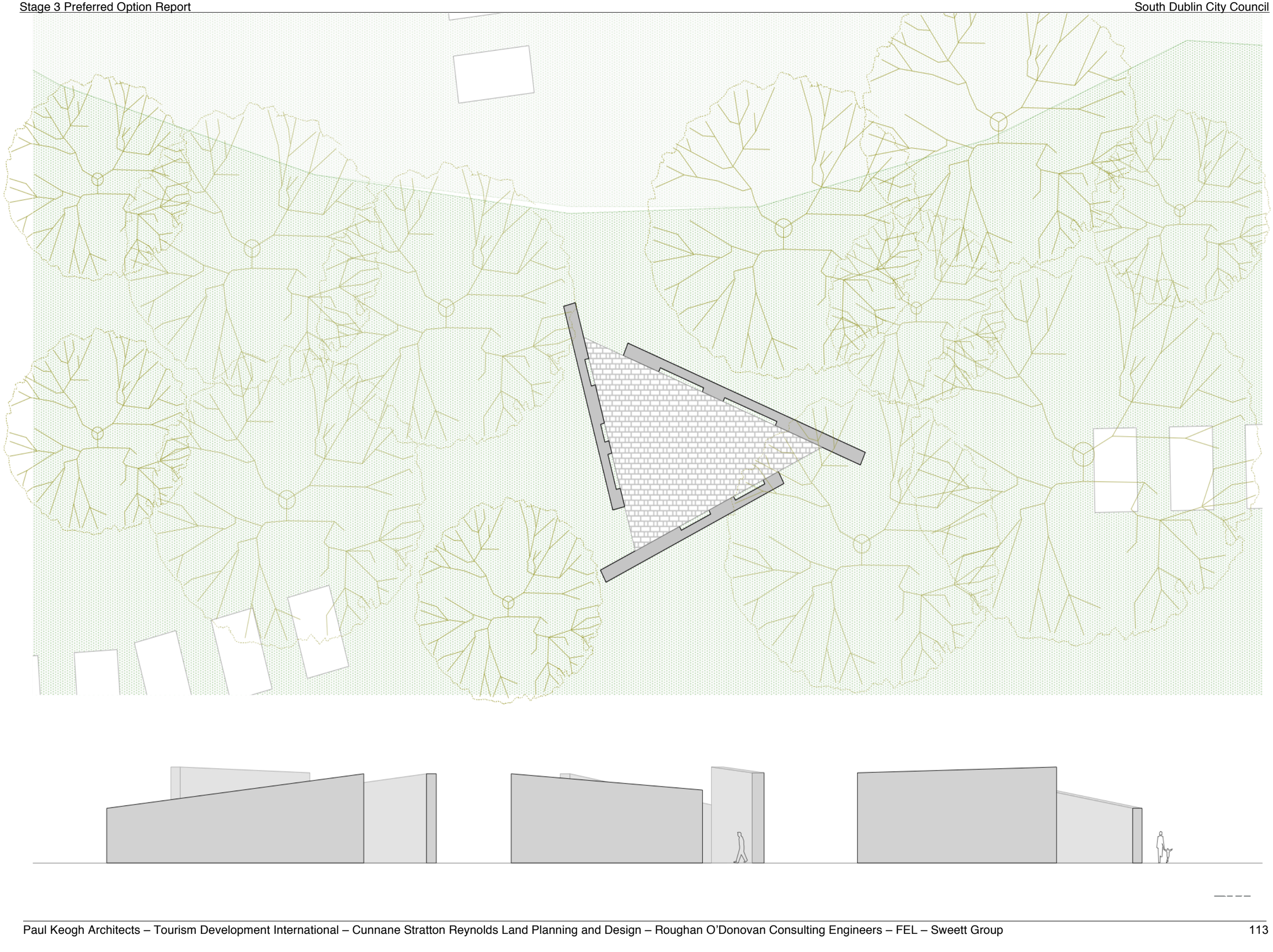


DRAWING: SECTION WITH TREETOP CANOPY WALK

SCALE: 1:1000 **DRAWING NO. :** 1545 / PO / 006 / A

2.3. DUBLIN MOUNTAINS VISITOR CENTRE: WEDGE ENCLOSURE

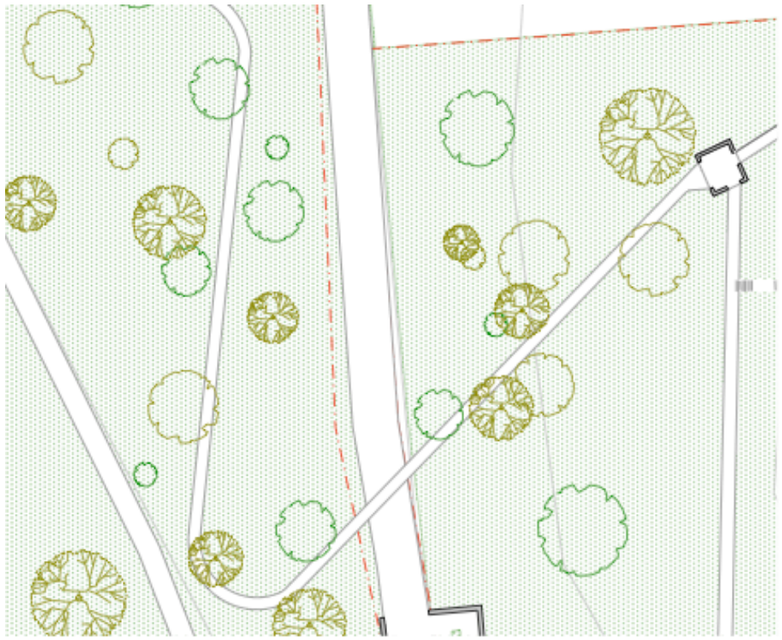
Drawing: Wedge Enclosure
Drawing Number: 1545 / PO / 007 / A
Page Number: 111



2.5. DUBLIN MOUNTAINS VISITOR CENTRE: TREETOP FOOTBRIDGE

Drawing: Treetop Canopy Walk
Drawing Number: 1545 / PO / 008 / A
Page Number: 113

Drawing: Treetop Canopy Walk
Drawing Number: 1545 / PO / 009 / A
Page Number: 114



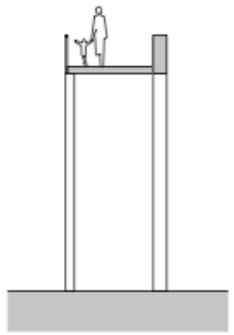


Fig. 99 Location of Stocking Lane Coach Park and shuttle service route to Visitor Centre

3.0. DESIGN STRATEGIES

3.1. ACCESS TO SITE: CAR PARKING, SHUTTLE SERVICES AND PUBLIC TRANSPORT

The Flagship Visitor Centre is located at the foothills of the Dublin Uplands, on Montpellier Hill. This is one of the closest elevated sites to the city of Dublin and will form the gateway to the wider Dublin Mountains.

Currently the local community and city residents, accessed by car, cyclists and walkers, use the Montpellier Hill site. A car park facility for 80 cars is used extensively at the weekends and this overspills onto the road R115. The masterplan proposes three strategies to access the site.

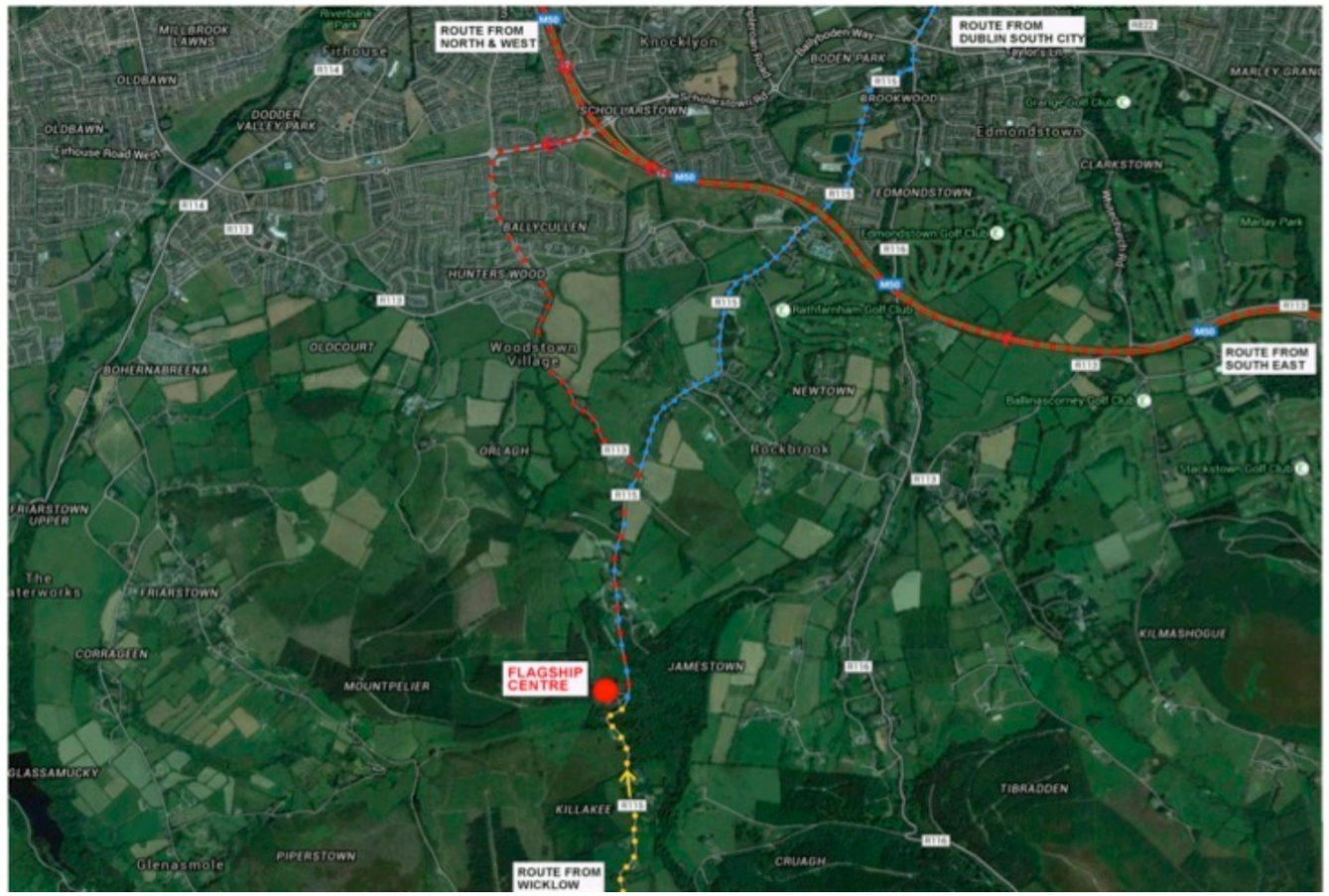


Fig. 100 Vehicular access and routes from North and West, Dublin South City, South East and Wicklow

1. Public Transport
Public Transport will be promoted as the primary means of access. For this a short 2.5 km long shuttle bus service is proposed to connect with the existing high frequency Dublin Bus Route No.15 at Woodstown Village / Stocking Avenue, from the Stocking Lane Coach/Car Park. Other services such as an increased frequency to Rockbrook, and a dedicated tourist bus from Dublin Castle should be considered.

2. Car
The masterplan proposes an extension of the existing car park at the Montpellier Hill Site to hold a capacity of 300 cars, 24 of which are disabled spaces. Pedestrian routes from the car park to the centre and to the tree canopy footbridge provides safe access to the sites.

3. Coach
Provision is made in the car park for coach drop off, and the masterplan proposes the consideration of a coach park at Stocking Lane with a shuttle service.

Vehicular Access and Routes

To maintain the rural/natural environs of the uplands and mountains it is envisaged not to upgrade or widen any of the existing public roads to the site.

Car Parking

The parking will extend in terraces up the slope alongside the main entrance along the contours to create a total 314 no car-spaces including 24 disabled spaces.

Estimated Parking Demand

Demand estimates for sites such as this can be quite tricky as a lot depends on the duration of stay and the mode of transport that is likely to be chosen by various visitor types. There are no real industry guidelines to go by and development plan standards require a site-specific demand assessment.

An assessment of the potential visitor numbers to the site has been provided by Tourism Development International. On this basis simple arithmetic may be used to estimate the parking demand as follows:

- 300,000 visitors per annum as estimated by TDi;
- March to October season = 8 months = 240 days;
- Average visitor numbers = 1,250 per day;
- Typical stay duration = 3 hours;
- Active period from 9am to 6pm = 9 hours;
- Visitors on site per hour = 1,250/9 x 3 = 420 people average on site;
- Peak Period = 50% above average = 630 people maximum.

Parking Demand Scenario 1

- 40% by car = 252 people;
- 2.5 people per car average = 100 cars;
- Seasonal peak period is 1.5 times average = 150 cars.

Fig. 101 Example: Shuttle Bus for Mount Snowdon at Pen-Y-Pass


Fig. 102 Overspill Parking on Killakee Road at Hell Fire Wood, despite double yellow lines


Fig, 103 Parking at Brockhole Lake District Visitors Centre

Parking Demand Scenario 2

- 60% by car = 378 people;
- 2.5 people per car average = 151 cars;
- Seasonal peak period is 1.5 times average = 227 cars.

Parking Demand Scenario 3

- 80% by car = 504 people;
- 2.5 people per car average = 202 cars;
- Seasonal peak period is 1.5 times average = 302 cars.

Marketing of the visitor centre for tourists in Dublin City should seek to encourage people to use public transport services to visit the site. Many will not have rental cars and it can be expected that they will use a bus service if provided. The site should attract service providers such as those that already run day tour services to places like Malahide Castle Demesne, or into the Wicklow Mountains.

On the basis that the site will be accessible by special tourist bus services from Dublin, it is reasonable to assume that Scenario 2 above will apply for car parking demand based on 60% arrival by car.

There will also be some overlap with existing visitor numbers at the Hell Fire Wood site, for which we may assume a 50% factor of existing demand.

Existing Car Parking at Hell Fire Wood

The existing car park at Hell Fire Wood can accommodate a little over 80 cars. As the spaces are not delineated the capacity depends on tidy parking to maximise the number of available spaces. From a spot check on Sunday 27th of September 2015 (at 2pm) 83 cars were counted in the car park which was full, with a further 40 cars approximately parked on the road outside. This was a particularly fine day with a lot of visitor activity in the Dublin Mountains.

- The existing peak parking demand is therefore in the order of 120 spaces.
-

Figures for existing annual visitor numbers provided by Coillte are in the order of 100,000, most of which is presumably local domestic custom This existing visitor demand is almost entirely served by car in the absence of targeted efforts to make the site conveniently accessibly by public transport, cycling and walking as proposed earlier in this report.

Combined Existing and Future Parking Demand

- Scenario 2 Future Parking Demand = 227 cars;
- Existing Demand = 120 cars x 50% overlap factor = 60 cars;
- Combined demand = 287 cars.
- + Buffer allowance of 10% = 316 cars.

Satellite Parking

As the visitor centre is intended to be a base for a cluster of sites in the vicinity, there will be satellite parking available at Killakee, Cruagh Wood, Tibradden Wood etc. Some visitors may call by the centre on their way to and from these other sites and only stay briefly. Others may park at Cruagh for example and make an extended walking trip to Massey's Wood and Hell Fire Wood.

VMS Parking Signs

An electronic monitoring system should be provided to record the occupancy rate at the Hell Fire Wood Car Park. This would link to Variable Message Signs (VMS) to the north before the junctions of Stocking Avenue on the two main approach routes from the city and M50 directions. Those signs will alert drivers to the lack of parking spaces at Hell Fire Wood and will instead direct them to an over-flow car park on SDCC land at the eastern end of Stocking Avenue.

Over-Flow Parking

There may be a greater than expected parking demand if the visitor centre is particularly successful, or if mode share by car is higher than desirable. It is not desirable to further expand the car parking capacity at Hell Fire Wood beyond 300 spaces for landscape impact reasons. Instead consideration could be given to a satellite car park further north at the edge of the urban area. South Dublin County Council has land at the junction of Stocking Avenue and Stocking Lane at about 2.5km from the visitor centre site, which would suit. The suggested shuttle bus from Woodstown could also link this car park to the visitor centre. Such an arrangement is provided at Pen-Y-Pass in Snowdonia in North Wales.

At Glendalough where there has been a severe traffic and parking problem for many years, Wicklow County Council is considering such an arrangement to relocate the main parking facility to Laragh Village with a shuttle bus service to Glendalough.

In the case of the Dublin Mountains Visitor Centre, there is no technical reason that limits traffic capacity on Killakee Road between the city and Hell Fire Wood. However, overspill parking can lead to traffic blockages as can be seen in the following photograph. It would be quite difficult to enforce parking restrictions through a warden service and possible removal of illegally parked vehicles, which would be unlikely to be practical in such a remote location. Instead a satellite car park further north could divert excess parking demand at times when the site is full. A variable message sign could indicate that the main car park is full and direct visitors to the satellite facility instead.

Parking Charges?

It is a vexed question whether parking charges should apply at a tourist attraction. Collection and enforcement costs for an isolated site can be significant, and usually drive up the parking charges so as to generate a net revenue. Some people will object in principle to the introduction of charges for a car park that was previously free, as is the case at Hell Fire Wood. There is a considerable risk of drivers choosing to park on the public road instead of in the car park. This was often the case at the Upper Lake Car Park in Glendalough until the informal parking opportunities were eliminated

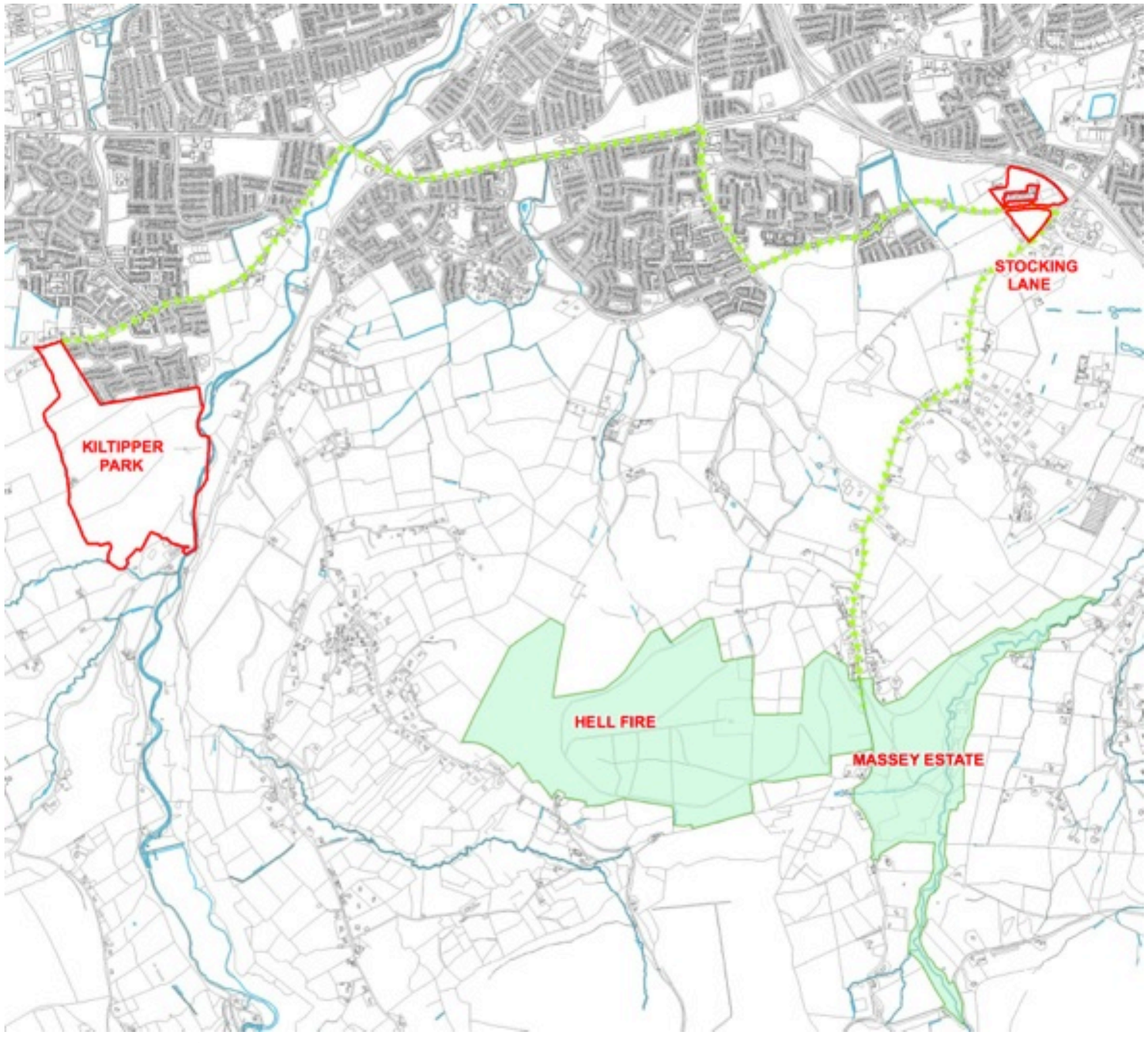


Fig. 104 Map showing Council owned lands at Kiltipper and Stocking Avenue.

and enforcement was rigorous. (Curiously the car park at the visitor centre further down the valley is free of charge).

For these reasons parking charges are rarely applied at visitor sites, with Glendalough Upper Lake and the Cliffs of Moher being rare examples with charges. (The latter has generated much negative publicity for what some people regard as extortionate charges of €6 per adult charged at the car park access). Other OPW sites generally provide free parking with charges applied instead for access to formal tours. Elective revenue such as from cafes and gift shops are often more successful ways of covering running costs for a visitor centre.

For the Dublin Mountains Visitor Centre it would be preferable for the facility to be operated on a low-cost basis without access charges. The capital cost of the infrastructure should be very little, as the site is already largely developed in terms of access, parking and walking trails. Such further investment as is necessary could be recouped through surpluses generated by an on-site cafe facility especially if land costs are excluded. The National Botanic Gardens in Glasnevin provides a suitable example of a public facility that does not charge for access or parking.

Perhaps in future if the site becomes hugely successful and is over-subscribed, there could be pay parking at Hell Fire Wood coupled with free parking at Stocking Avenue and a free shuttle bus like the example included earlier in Snowdonia? Consideration could be given to a low cost ticket-less parking system such as *Park-with-Ease* in the UK (http://www.parkwithease.co.uk/about-us.aspx) that operates like the *M50 West Link* motorway toll system and which does not require a smart-phone. This would operate with a digital camera Automatic Number-Plate Recognition (ANPR) system to identify vehicles entering the site and the duration of stay. This technology is already in use by SDCC as part of their traffic control system. The advantage for the operator is that it does not require a parking attendant or enforcement by clamping, which greatly reduces the cost and can support quite low parking charges.

Coach Parking

Relatively little coach access is expected at the visitor centre as this site would primarily appeal to different markets. However, coaches can be accommodated at the site as required, with perhaps 10 parking spaces provided, similar in scale to Glendalough. While Killakee Road is a bit too narrow for two-way coach traffic, the likelihood of two such large vehicles meeting is fairly low and can be managed. Coach tours operate on set schedules and can time their arrival and departure to avoid clashes with each other. If necessary a coach driver approaching the site can phone ahead perhaps 10 minutes in advance and request that no other coach set off down the hill back towards Dublin until they arrive.

The South Dublin County Council site at Stocking Avenue could be used as a holding place in a managed access arrangement. The southern site at Stocking Avenue would be appropriate, whilst the northern site would require major work. The usable site measures at roughly 2 hectares that could accomodate the coach parking as well as upto around 500 cars which would provide plenty of spare capacity for overflow from the Hell Fire Wood car park. Future uses could also include toilet facilities and information points.

The Kiltipper site is too far away to act as an appropriate and effective over-flow.

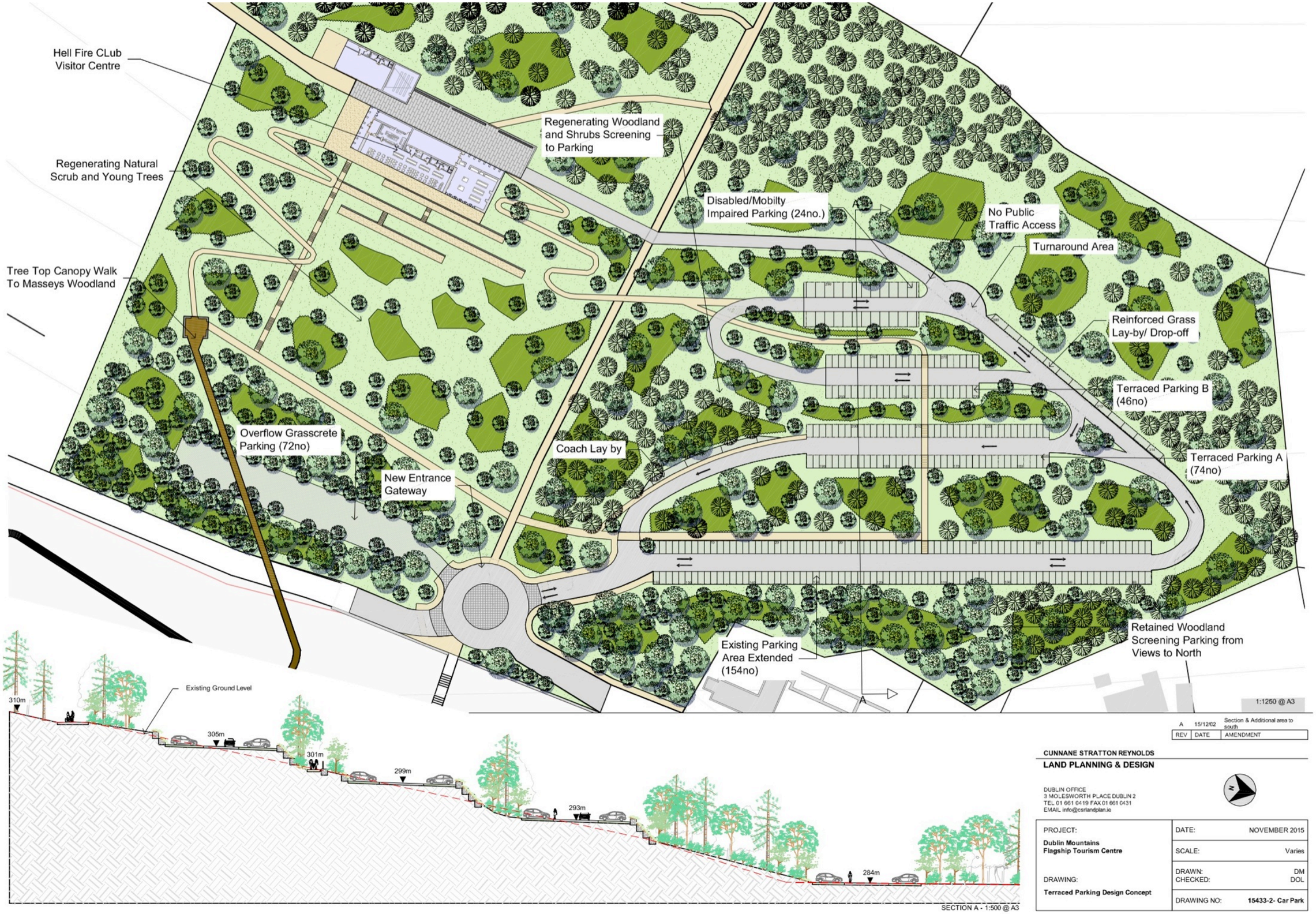

Hell Fire CLub
Visitor Centre
Regenerating Natural
Scrub and Young Trees
Tree Top Canopy Walk
To Masseys Woodland
Regenerating Woodland
and Shrubs Screening
to Parking
Disabled/Mobilty
Impaired Parking (24no.)
No Public
Traffic Access
Turnaround Area
Reinforced Grass
Lay-by/ Drop-off
Terraced Parking B
(46no)
Terraced Parking A
(74no)
Overflow Grasscrete
Parking (72no)
Coach Lay by
New Entrance
Gateway
Existing Parking
Area Extended
(154no)
Retained Woodland
Screening Parking from
Views to North
A
A
Existing Ground Level
310m
305m
301m
299m
293m
284m
SECTION A - 1:500 @ A3
1:1250 @ A3
A 15/12/02 Section & Additional area to south
REV DATE AMENDMENT
CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN
DUBLIN OFFICE
3 MOLESWORTH PLACE DUBLIN 2
TEL 01 661 0419 FAX 01 661 0431
EMAIL info@csrlandplan.ie
PROJECT:
Dublin Mountains
Flagship Tourism Centre
DRAWING:
Terraced Parking Design Concept
DATE: NOVEMBER 2015
SCALE: Varies
DRAWN: DM
CHECKED: DOL
DRAWING NO: 15433-2- Car Park



Fig. 105 Easy walking, separate bridleways

Fig. 106 The main 'ride' of Massy's


Fig. 107 Views south from Montpelier Trails

3.2. ACCESS AROUND SITE: TRAILS, ROUTING AND SHUTTLE SERVICES

A Walking Trails Report was included in Stage 2 of this study. Using a desktop and initial familiarisation survey this identified a range of trails and routes on Montpelier Hill and in Masseys Wood and applied the National Trails Office classification to them. Based on gradients and surface finishes these identified a range of routes with Class 2, 3 and 4 quality on Montpelier Hill and Class 2 and 3 in Masseys Wood.

All routes have been subsequently walked completely and their condition and quality further assessed. The resulting audit is included in the Appendices to this report.

The audit describes the routes in terms of three classifications – Primary, Secondary and Tertiary. These are site relative classifications reflecting their current size, structure and function. Specific qualities of each type of trail or site specific characteristics are set out e.g current uses, views, potential links and points of interest. The classification is also related to the National Trails Office grading system in terms of potential both quality and use.

Using the above baseline information, and the emerging needs of the flagship masterplan a proposed trails system is set out for both Montpelier / HFC and Masseys Wood. It should be noted in general that the quality of routes, the construction – design, materials and quality – should be to a very high standard as these sites become countryside / mountain parks with larger numbers as opposed to forest trails and hiking. Proposals indicate design intentions and include a need in places to:

- resolve gradients in places to optimise access
- create new routes independent of the existing trails system, particularly in relation to links to key features, to connect dead-ends creating looped routes and to provide an alternative easier gradient option.

In each site:

- A Class A route has been identified to enable access for the largest number of people to key features
- A minimum quality Class 2 route is identified enabling access to most of the site extents or experiences
- A range of more difficult – Class 3 or 4 routes and trails are identified where necessary.

These are illustrated on the Trails Proposals Map for each site. Once these routes are identified the potential uses suitable are set – these are shown on a separate Trails Uses map for clarity.

In each site:

- A shared use route is identified capable of taking vehicles, walkers and cycling. Typically these are a minimum of 3m wide with stone dust surface with build up to carry vehicles. They are generally located along existing forest roads in Hell Fire Wood with some additional links or improvements as illustrated. In Masseys they are generally located along the existing woodland drives / rides including the military road. The shared routes provide the capacity for shuttle bus tours around the sites
- A separate Pedestrian Route only typically 2m wide with stone dust surface is also proposed expanding the areas where walkers can go but with no vehicles.
- A designated Equestrian route is also shown for each woodland, these are generally around the perimeter of the sites leaving the central areas free for the general public. In places they share corridors with other uses however a separate bridleway would be provided in these instances. Equestrian routes will be generally earthen or grassed bridleways, where wear and tear proves excessive management may require topdressing with gravel or similar surfacing.

Whilst equestrian uses would not be permitted on other trails / routes, walkers would be free to use equestrian routers which in places/more remote parts of the site would be shared.

Connections to wider Trails Network

The Dublin Mountains Way is the nearest strategic trail to the proposed visitor centre. It runs from Tallaght via Glenasmole through Kilakee, to the south of Montpelier Hill, to Cruagh and eastwards across the mountains to Shankil on the coast. At Tibradden the DMW crosses the Wicklow Way the main north south long distance trail through the Dublin and Wicklow Mountains.

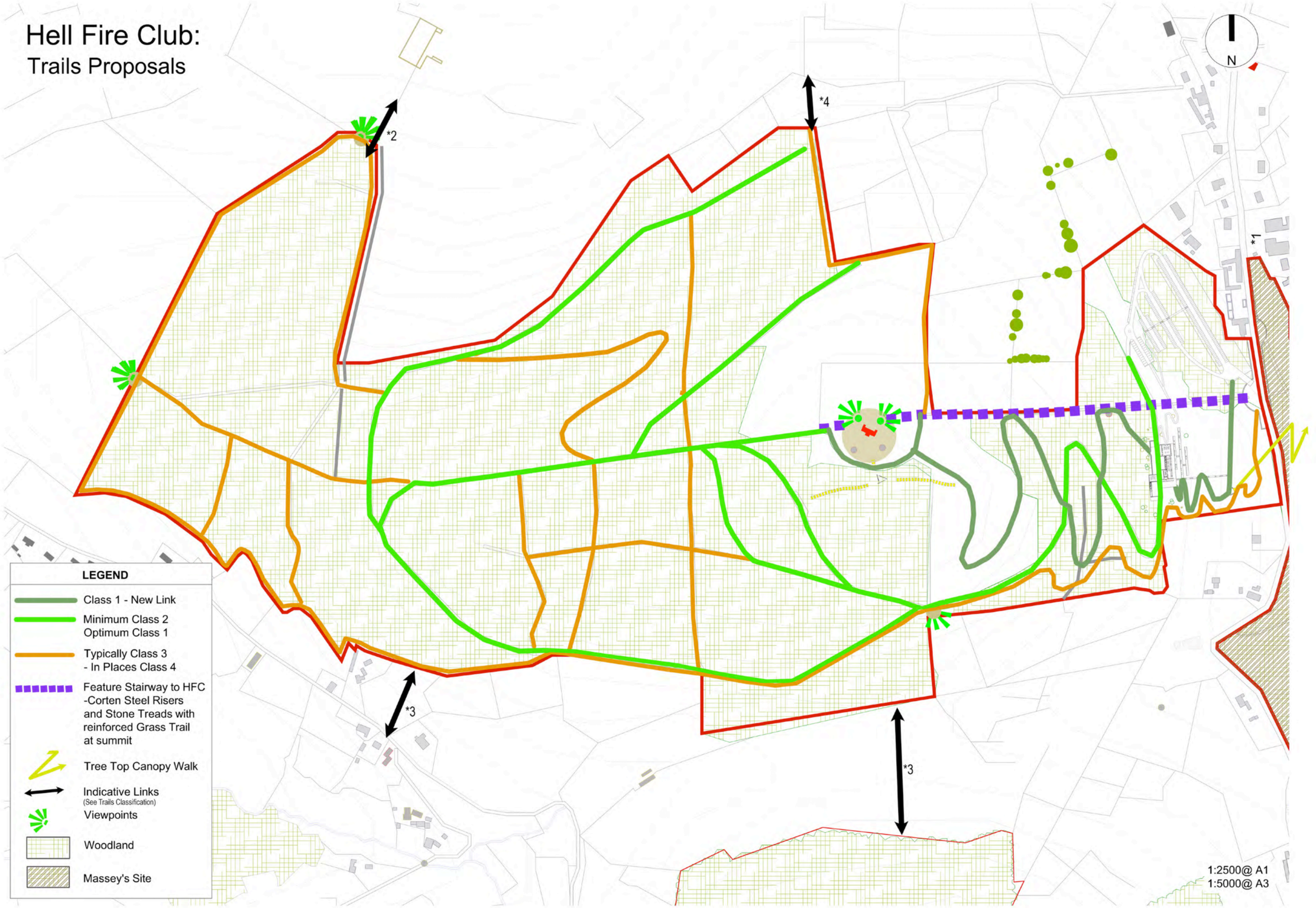
Although a spur from Cruagh now links the DMW to Massey's Wood there is no onward link recognized to Montpelier and Hell Fire Wood. Additionally there are no current links across Piperstown Glen to Kilakee/DMW from Hell Fire Wood despite proximity and some maps illustrating a connection.

It is proposed therefore to realign and extend the Massey's Wood spur from Cruagh, directly across the new canopy walk to the new visitor centre location, making a real connection with the long distance way and the new centre as a start point for the route.

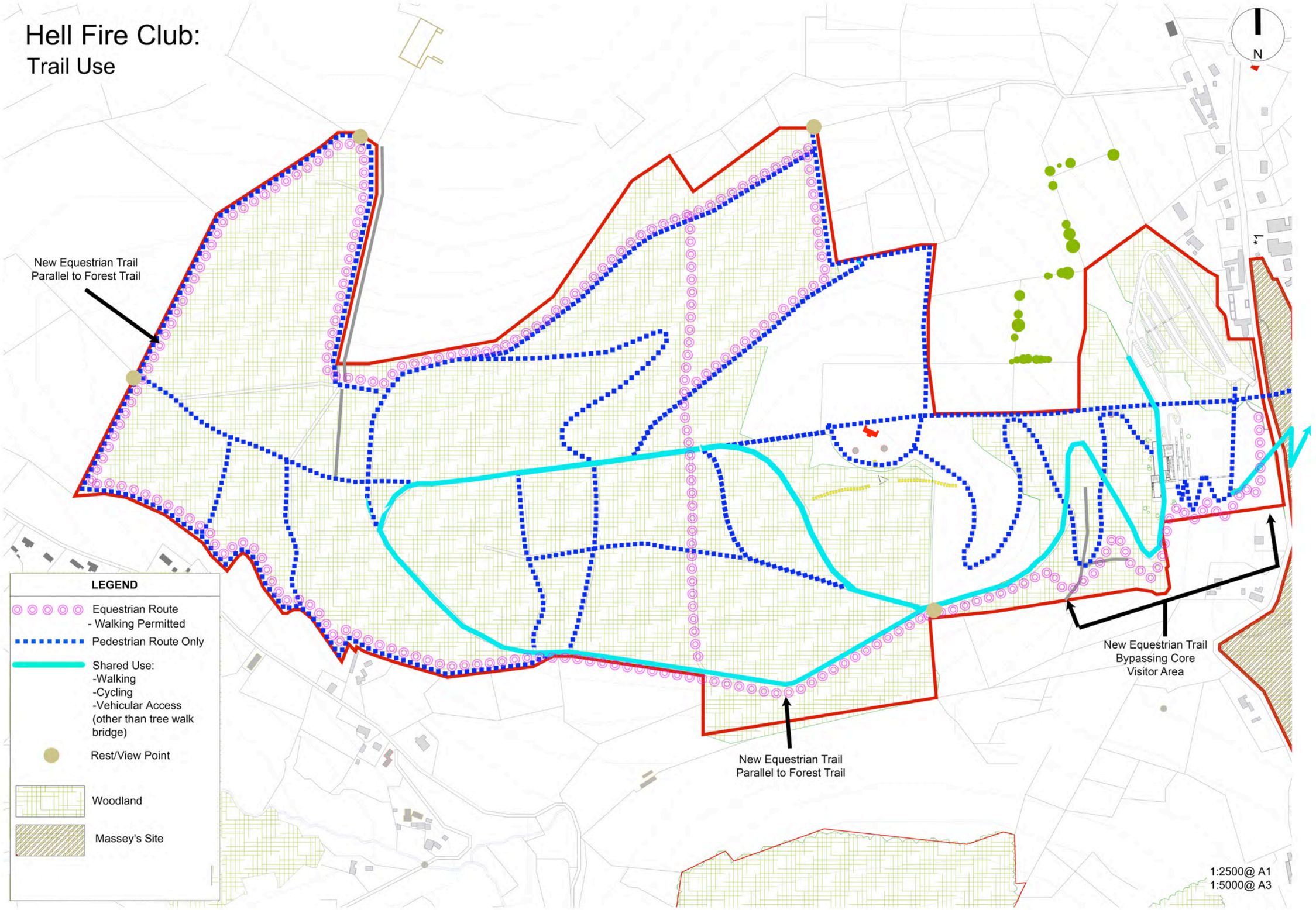
In the future, subject to agreeing access, it is proposed to create links from Hell Fire Wood trails across Piperstown Glen to the Dublin Mountains Way ideally to the west of Kilakee and realigning this section of the route from Cruagh, to Massey's, across the canopy walk to the new centre, around the Hell Fire Wood trails and onward to Piperstown and Glenasmole. This would fully place the new centre strategically in the existing trail infrastructure and national long distance mountain trails in the Dublin and Wicklow Mountains.

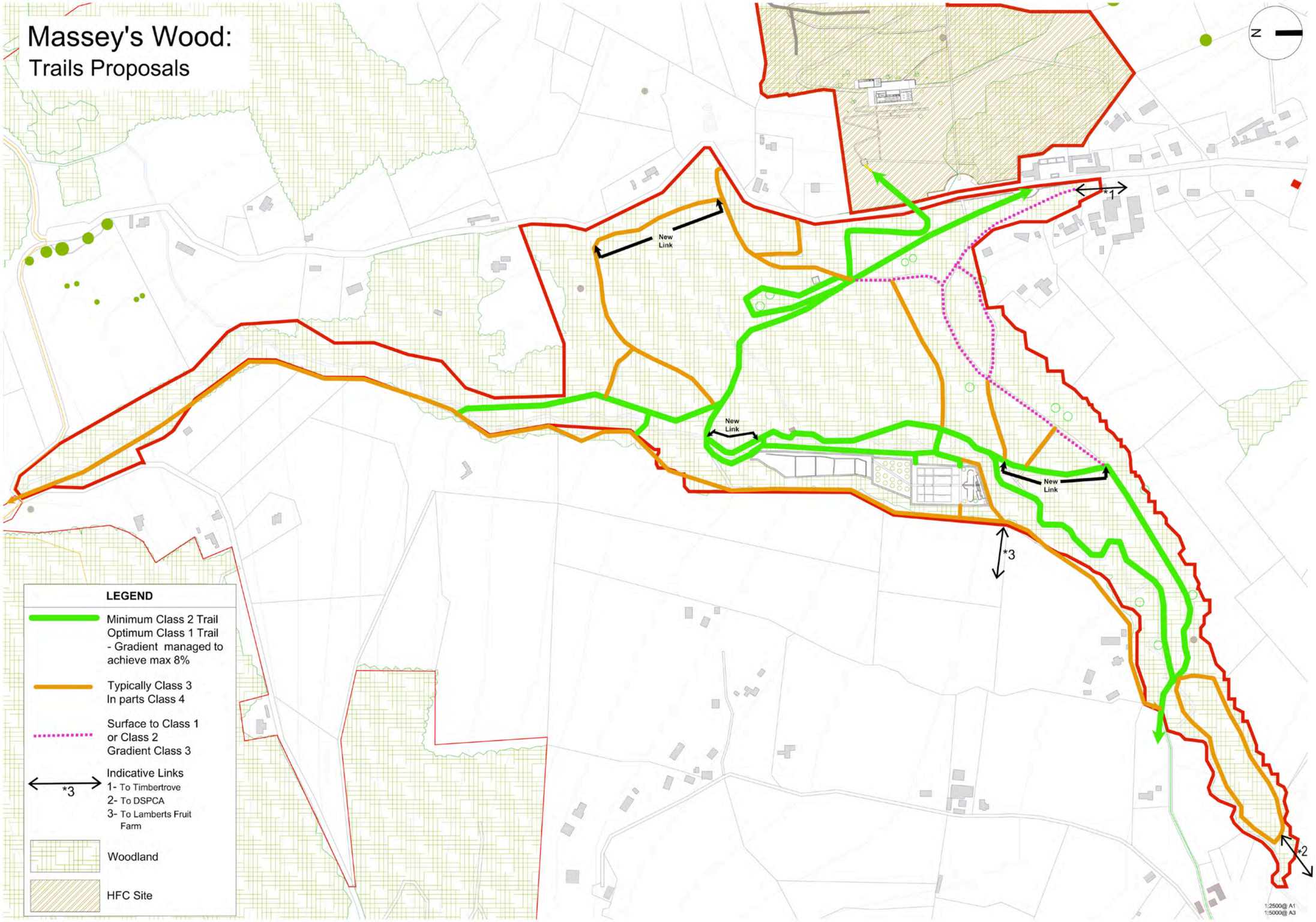
The maps below illustrate the trail proposals and uses for Montpelier Hill/ Hell Fire Wood and Massy's Wood providing complementary activities and experiences for the core features. The proposed extension and realignment of the Dublin Mountains Way is also illustrated.

Hell Fire Club:
Trails Proposals

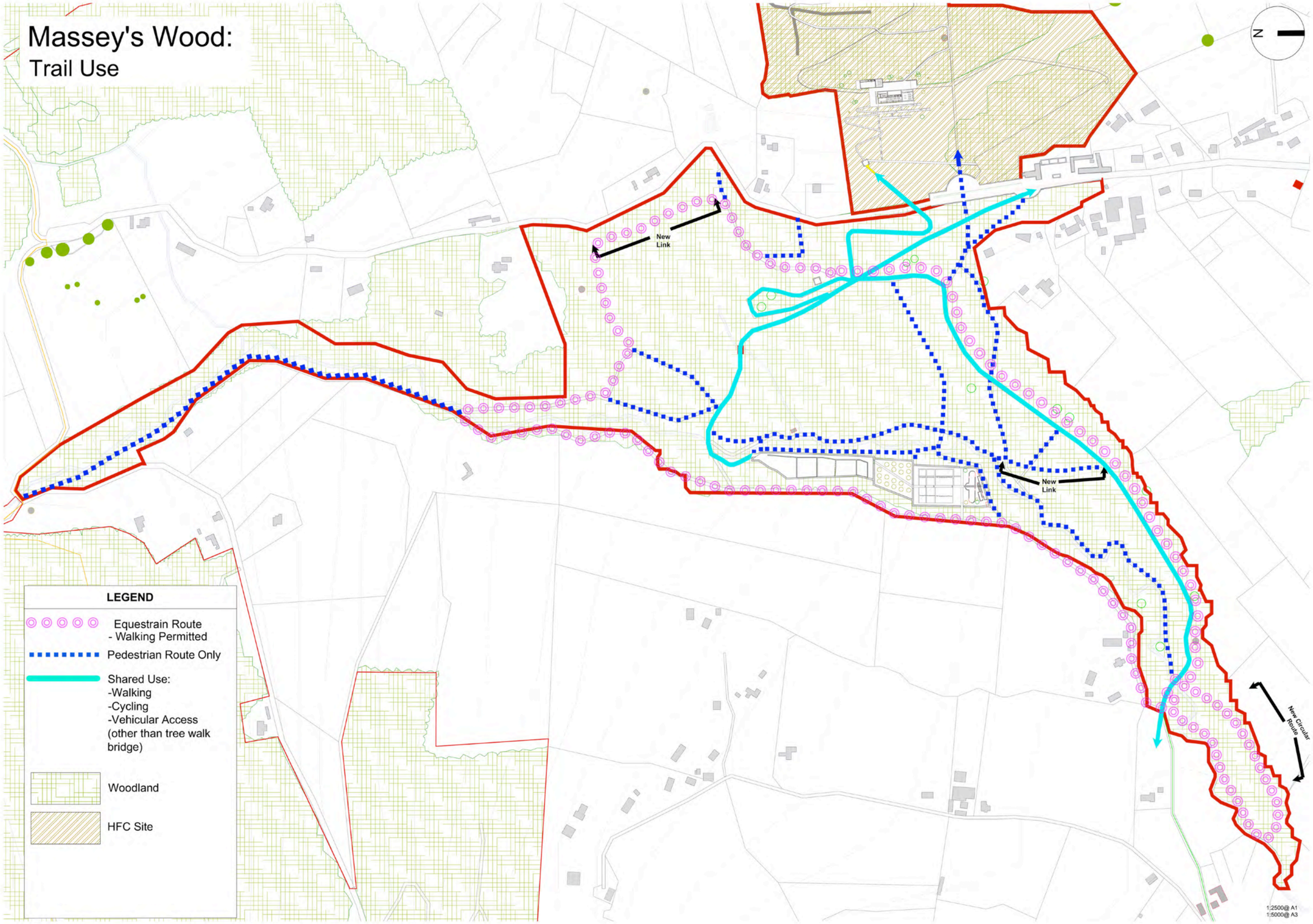


Hell Fire Club:
Trail Use

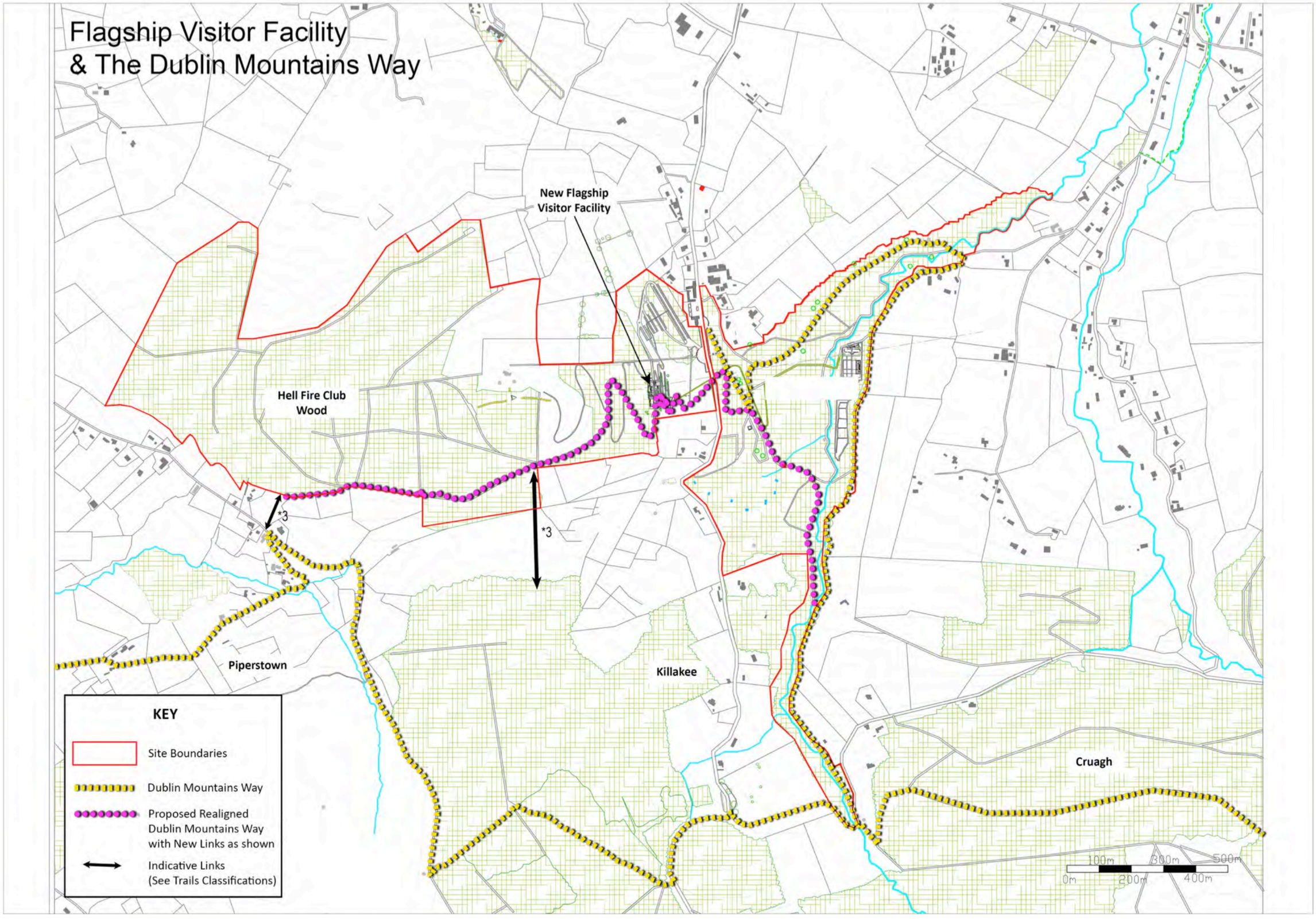



Massey's Wood:
Trails Proposals
N
New Link
New Link
New Link
*1
*3
*2
LEGEND
Minimum Class 2 Trail
Optimum Class 1 Trail
- Gradient managed to achieve max 8%
Typically Class 3
In parts Class 4
Surface to Class 1 or Class 2
Gradient Class 3
Indicative Links
*3
1- To Timbertrove
2- To DSPCA
3- To Lamberts Fruit Farm
Woodland
HFC Site
1:2500@ A1
1:5000@ A3

Massey's Wood:
Trail Use



Flagship Visitor Facility & The Dublin Mountains Way



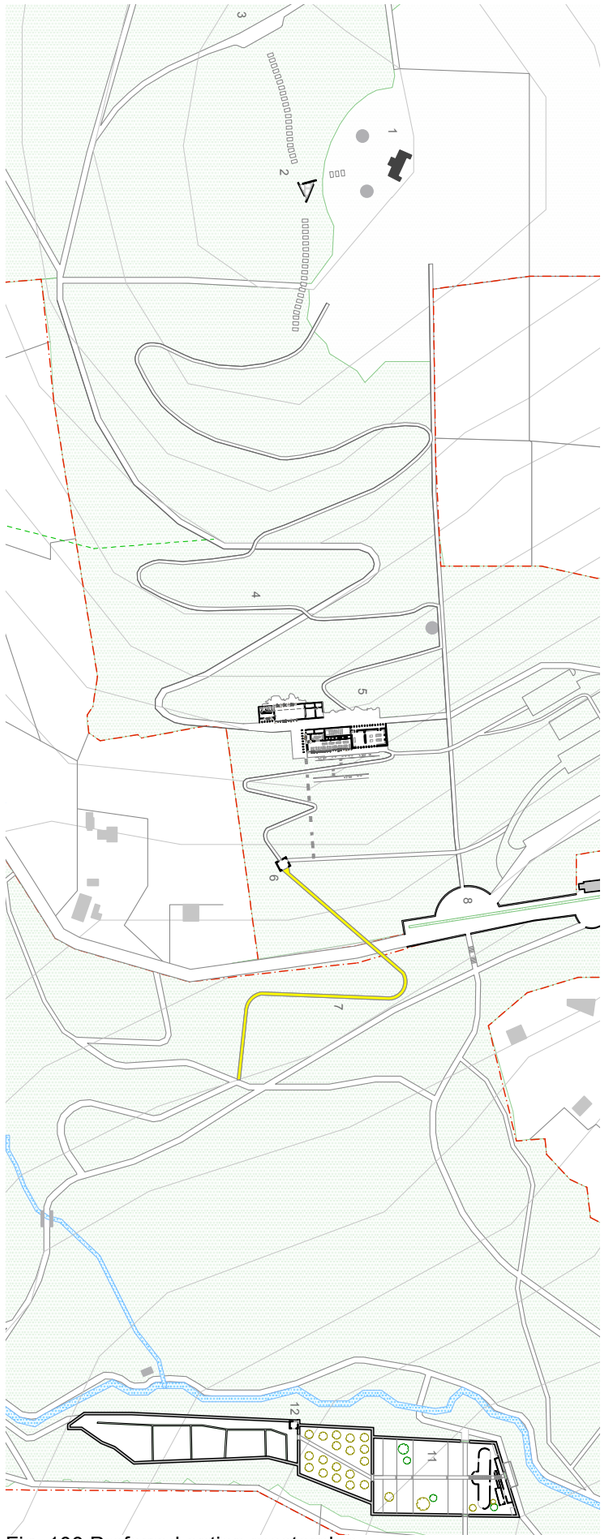


Fig. 108 Preferred option masterplan

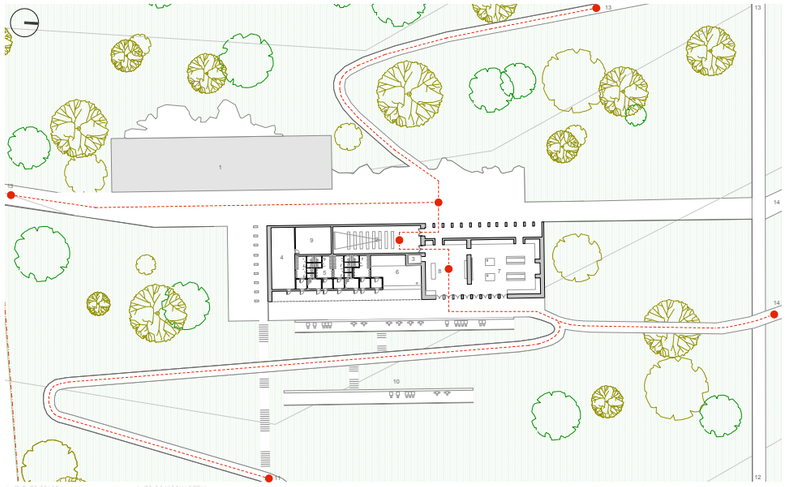


Fig. 109 Dublin Mountains Visitor Centre: Primary Movement

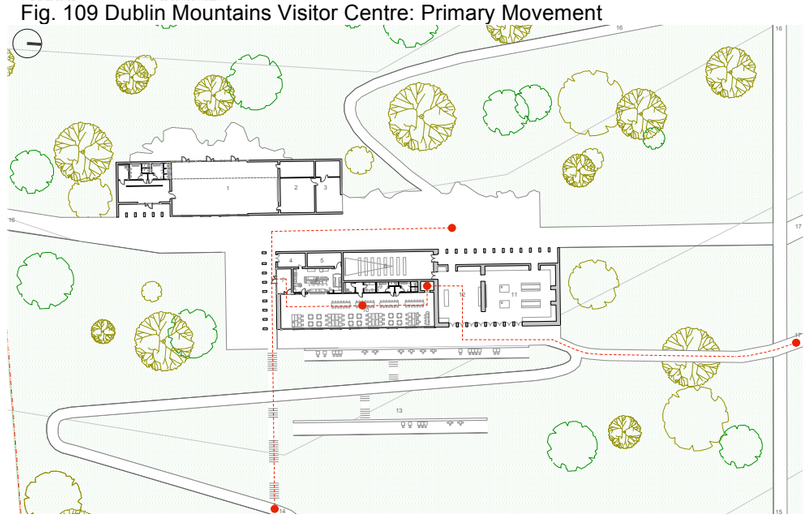


Fig. 110 Dublin Mountains Visitor Centre: Cafe/Resturant Access

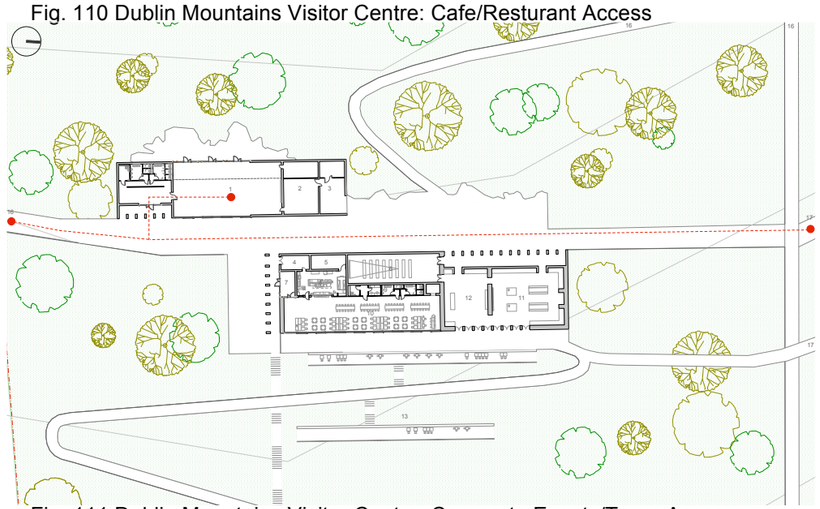


Fig. 111 Dublin Mountains Visitor Centre: Corporate Events/Tours Access

3.3. MOVEMENT AROUND VISITOR CENTRE: VISITOR CAPTURE AND DISPERSAL

The approach to the buildings by the public is by foot from the car park, with multiple options proposed to then gather and disperse the public through the site.

The primary route is to approach along a footpath directly from the car park onto a terrace to the reception area. This acts as an orientation point for the visitors. Guides and signage direct to the various options: ticketed tours and AV presentation, Hell Fire Club and walk, Massy's Wood, treetop canopy footbridge, etc.

For private corporate events at the Event Venue, a separate route is proposed along the existing forest path that by passes the main building. This allows for exclusive events to take place separately from the programme at the main building.

From the main visitor centre access to the Hell Fire Club is by various options.

1. Walking – The existing direct path is upgraded and a new path is made that is at an accessible gradient, both of which are seperate from the forest road. This allows choice and a variety of walking options.

2. Shuttle – A shuttle is provided at the main centre to offer visitors the choice of a tour to the Hell Fire Club with a guide. This is ticketed and includes the AV presentation.

Alternatively from the main centre the visitor can walk down to the treetop canopy footbridge. The bridge provides an identifiable link to Massy's Woods, for the visitor to then freely explore the forest and gardens.

Fig. 112 Examples of permeable green reinforced grass areas for parking

Fig. 113 Example of woodland screening cars and parking areas

Fig. 114 Example of cobbled rumble strip

3.4. LANDSCAPE DEVELOPMENT AND MANAGEMENT

Hell Fire Wood and Massys Wood offer one contiguous area of land forming a popular walking area, a gateway to the Dublin Mountains and, in the case of the Hell Fire Wood site, panoramic views over Dublin city. The sites also contain a range of unique heritage features, which add meaning, character, and, in particular, mystery to the visitor experience. The provision of the flagship facility within one connected land holding means that there is effectively one site with a unique combination of visitor attractions and points of interest requiring an appropriate design and management response beyond the specific architectural interventions and facilities proposed.

The purpose of this section is to summarise these resources and characteristics, set out the landscape design and management responses and proposals to support the flagship centre and associated architectural interventions and add value and complementary activity to the environs of the centre.

Hell Fire Wood will accommodate the main proposed visitor centre and related infrastructure (parking) and be the starting point to the tree canopy bridge link to Massys Wood across the R115. It will provide walking and trails access to Montpelier Hill culminating in the Hell Fire Club ruin and its prehistoric monuments.

The overall intention in the landscape framework is to complement these functions. This will be done by maintaining the upland working forest and character of this area with adjustments and variations to the new areas of recreation / visitor infrastructure and more intensive visitor use areas to the north of the Hell Fire Club itself including:

- Localised amenity landscape, non-commercial forest.
- Management of key areas of trees to enhance panoramic views
- Enhanced / upgraded tracks and trails where appropriate including stylised interventions at viewing points etc.
- Creation of reception / approach routes allowing orientation to key features, the centre and trails / routes. Such routes can include both steep and more easy gradient (universal) access and these are set out in the Trails Proposals.

Sufficient tree and hedgerow cover needs to be maintained to screen the car-park from views to the north (downhill) and introduce new landscape planting to soften / green views from the south / uphill and the centre itself. However landscape planting should also be managed to maintain open panoramic views from the new centre – in this regard much of the tree cover growing 20m lower than the viewing areas can probably be maintained without impinging on the panoramas

An activity natural play area is proposed to provide family friendly fun and attraction slightly away from the main field of view.

The remaining landscape will be managed to reflect upland grass and wildflowers with regenerating groups of native shrubs and trees characteristic of the area. The character will reflect a gradual transitional change from broadleaved to upland forestry.

Massys Wood will incorporate new amenities including a small kiosk, the eastern extent and landing of the tree canopy walk and enhanced trails and access whilst seeking to retain the natural and delightful character of the woods and streams and the romantic and atmospheric walled gardens as a discovered ruin alongside other archaeological and historic features.

The landscape framework is described below. Each Character area or feature is described and design or management objectives set out with appropriate images or sketches / plans to illustrate design intent.

HELL FIRE CLUB AND MONTPELIER HILL

The Hell Fire Wood and Montpelier Hill is a robust landscape consisting primarily of a working forest with parking and some amenity provision for walkers and visitors. Currently forest areas contain trees approaching maturity and due to be harvested / felled and more recently planted young trees with decades of growth ahead. In general it is a landscape constantly evolving and changing with the forest lifecycle. The overall intention is to maintain the upland working forest and character of this area with adjustments and variations to the new areas of recreation / visitor infrastructure including:

Localised amenity landscape, non-working forest.
Management of key areas of trees to enhance panoramic views
Retention of existing mature broadleaved specimen trees, currently within the forest canopy where feasible
Enhanced / upgraded tracks and trails where appropriate including stylised interventions at viewing points etc.

The following images illustrate the design objectives for specific areas, spaces and features:

Arrival and Parking

Objective:

Create a threshold area / gateway at the entrance to accommodate vehicular and pedestrian access and increase the capacity and functionality of the R115 at this point.
Increase parking capacity at main entrance in accordance with the masterplan, parking to extend in terraces up the slope alongside the main entrance along the contours to create a total 314no car-spaces including 24 disabled spaces.

Proposals:

Threshold / Gateway

Construct wider and new cobbled threshold area with stone boundary walls to HFC entrance off R115
Create reception / approach routes allowing orientation to key features, the centre and trails / routes.

Parking – as outlined in section 3.1

- The existing parking areas would be extended westwards linearly along the base of the site retaining the screening vegetation to the site boundary / adjacent houses.
- Vehicles can access the higher parking terraces via the existing forest road which would probably need to be widened as well as probably surfaced in tarmac.

Fig. 115

Fig. 116 Example of rolled dust and stone details to gathering areas – terraced seating and wildflower planting looking to panorama

Fig. 117 The panorama – requiring expansion and management to maintain the optimum composition – note trees to left of images currently narrowing field of view

Fig. 118 Existing regenerating shrubs and trees creating a vibrant and dynamic hillside landscape

- The second terrace would provide a circular link back to the entrance area creating a loop and parking for coaches and an alternative exit avoiding conflicts with vehicles parked in the lower car-park. It would also allow closure of the lower car-park and main road when Coillte operations are progressing.
- The terrace arrangement can be laid out to suit site conditions and to protect retained existing selected trees and provide ample planting to screen the parking area within the site and in wider views without affecting panoramic views
- As the terraces require construction of retention (possibly gabions) and their own level area they can function independently of existing levels allowing optimisation of gradients, access ramps etc. For example the uppermost terrace, which is reserved for disabled or mobility impaired people could be at a level comparable to the visitor centre entrance to allow universal access arrangement from that point.
- Turning or mini roundabouts would be provided to facilitate ease of movement.
- Lay-by areas / parallel parking can be provided along the forest access road. Such an arrangement could be extended as required.
- Parking surfaces could be in a range of materials from loose gravel to reinforced grass to blacktop depending on design objectives – probably a mix of both.
- Parking area shapes and “runs” of parking bays could be adjusted to reflect design intentions, softening / screening of areas, breaking up lengths of car-parking etc.
- The terraces can be lengthened in places to add additional capacity.

<u>Soft Landscape</u>

- Maintain sufficient tree and hedgerow cover to screen car-park from view to the north (downhill) and introduce new landscape planting to soften / green views from the south / uphill. Landscape planting to maintain open panoramic views from the new centre.
- Open short sections of framed views to northern boundaries where feasible.

Centre Approaches, hardstandings and environs

Objective:

Pedestrian extension of the arrival point/parking area and associated with the building frontage. Large enough to accommodate groups gathering, bicycle parking, seating including picnic and outdoor café areas.

Proposals:

- Character to be informal mostly surfaced with limited vegetation to maintain open views. Surfaces to be rolled dust, asphalt and stone details. Terraced seating and steps providing outdoor sitting and viewing points
- Terraces and building orientation and elevation will maximise the widest angle of view of city. Some of the existing trees will require removal to achieve this.
- The existing landscape of regenerating bushes and young trees should be managed to create a range of natural glades, meadow areas and habitats.

Fig. 119 Existing regenerating shrubs and trees creating a vibrant and dynamic hillside landscape

Natural Play area

Objective:

Provide an area close to the visitor centre for recreational activity and play.

Proposals:

- Use natural woodland and forest materials and landform to create natural play opportunities in a safe setting to attract families and children.

Fig. 120 Examples of natural play areas and family fun


Fig. 121 Examples of the mixed transitional landscape character envisaged between the visitor centre and retained commercial forestry.


Fig. 122 Keeping deer at bay can be addressed with individual or area fences, the increased activity around the new centre will probably deter many deer from the immediate vicinity.

Transitional Landscape – south of visitor centre

Objective:

Parkland landscape area with permanent mixed broadleaf and coniferous specimen trees linking formal facilities and amenity area with commercial and upland forest plantations.

Proposals:

The coniferous plantations to the rear of the new visitor centre site are due to be felled in 2016. Landscape reinstatement should seek to establish a permanent parkland landscape of meadows broadleaved specimen tree and increasing conifer numbers before giving way to the commercial plantations. These areas will be part of the amenity landscape immediately around the visitor centre and as well as an attractive setting and area to walk through will also provide natural play opportunities. Establishing trees in open landscapes rather than plantations will create challenges – deer, soil conditions and elevation. However careful species selection based on what is growing well already in the environment – Oak (Quercus), Beech (Fagus), Common Ash (Fraxinus), Birch (Betula), Mountain Ash (Sorbus) etc with protective measures against browsing will ensure a successful outcome.

Feature Processional Stairway with Landings for Viewing

Objective:

To regularise the existing steep and eroded “Direct Route” to HFC from the car-park and create a distinct/iconic feature.
To recognise and celebrate the significant panoramas that opens up on climbing the hill.

Proposals:

- Construct formal stairway – with feature risers in corten steel and/or stone
- Install benches / viewing areas on route for resting and experiencing the views.


Fig. 123 Unfolding panorama

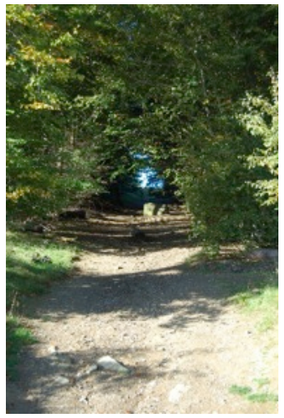



Fig. 124 Standing stone and heavily eroded path
Fig. 125 Views from open grassy walkway


Fig. 126 Examples of sensitive staircases

Hell Fire Club Environs

Objective

To create an appropriate setting for the immediate environs of the Hell Fire Club and associated archaeology
To guide access from trails, steps and access points through soft grass areas.
To reinforce the Hell Fire Club as a landmark on Montpelier Hill when viewed from a distance.

Proposals:

- Carry out archaeological assessment of ruin and adjacent burial tombs remnants.
- Assess alternative conservation / restoration options.
- Enhanced landmark - Forest line moved back from HFC to restore its prominence on the skyline of Montpelier Hill from the urban area.
- Improve the setting / immeadiate environs in the context of the forgoing.

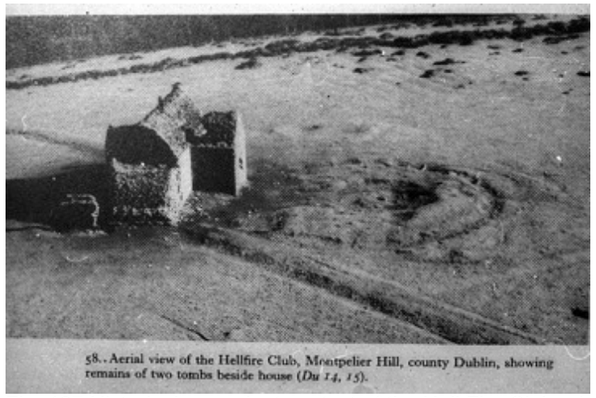


Fig. 127 Historical precedent context of the Hell Fire Club ruin

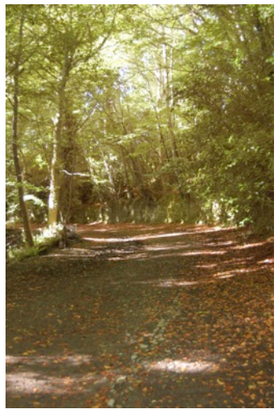
Fig. 128 Historical precedent context of the Hell Fire Club ruin

Fig. 129 Astley Castle

Fig. 130 Simple rolled gravel surface creating an appropriate setting for historical monuments

Fig. 131 The Hell Fire Club Interior

Fig. 132 Examples of woodland sculpture



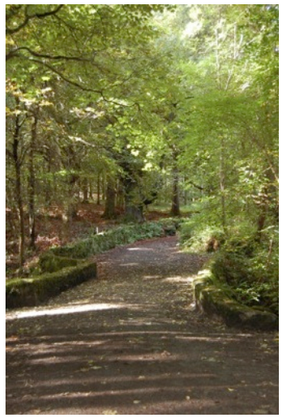


Fig. 133 Massy's 'drives' / 'rides'

Fig. 134 The ruined cottage and water mill

Long term Management of Hell Fire Wood

Objective:

Consideration to realign the sequence of forest management throughout or in selected areas of Hell Fire Wood to a continuous cover amenity woodland based on natural regeneration expanding the extent of the amenity value of the forest throughout the wider holding, whilst maintaining a commercial crop. The species content could be managed for commercial return but also aesthetic, amenity and biodiversity outcomes complementary to the new visitor facility.

Proposals:

- Overtime fell spruce and commercial stands of grid planted evergreens but retaining selected larch.
- Identify and retain veteran beech/oak and selected conifers where protection needed from prevailing winds.
- Use the location of veteran tree to determine the layout of car-parking areas and access roads.
- Clear, lop and top (using firewood contractor) leaving the ground suitable for natural regeneration and pedestrian access.
- Encourage natural regeneration to favour Oak, Beech in selected areas, thinning spruce regrowth and birch / gorse if necessary.
- Manage existing natural regeneration area below the visitor centre site to favour beech and oak with birch and larchi.e. thin/fell regenerating spruce and gorse.
- Manage understorey predominantly as rough grassland with beech until beech canopy develops.
- Showcase the site as a new natural regeneration trial by Coilte returning ancient broadleaved cover to the Dublin hills at this location.

MASSY'S WOOD

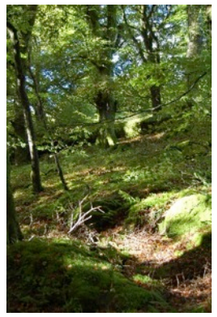
Massy's Wood consists predominantly of Broadleaved woodland with distinctive stands of mature beechwood as well as native oak and common Ash. There are also many specimen coniferous and other exotic trees scattered throughout the area reflecting its historic origins as a demesne. The woods have developed on the slopes of Montpelier and Cruagh Hills around the valley formed by Cruagh Brook. Whilst apparently natural in character the woods are predominantly planted originally an old demesne then developed as forest plantations. To the eastern boundary of the woods at its lowest point adjacent Cruagh Brook lies the remains of a Victorian walled garden.

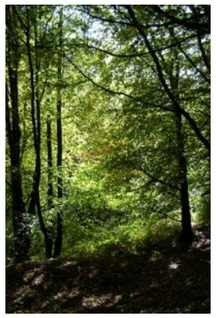
The overall design and management intention is to maintain and enhance the character of the woodland whilst improving access and providing some interpretation and restoration or enhancement of its main features. This will include:

- Maintaining and enhancing its **broadleaved nature and species mix** (contrasting with Montpelier Hill and the wider Coillte forests in the Dublin mountains)
- Maintaining and enhancing **Biodiversity and Ecology.**
- Opening up **lighter areas / glades** in key areas
- **Thinning** of dense undergrowth and plantations and **removal** of exotic invasives such as Laurel and Symphoricarpus.
- **Improve access and trails** in accordance with Trail Improvement Proposals
- Develop appropriate **conservation, interpretation, improvement and enhancement proposals** for heritage features throughout the Woods e.g. The Walled Garden, Wedge Tomb, Ruined Cottage, Bridges, Military Road, Ice House etc.
- Develop appropriate **interpretation of the cultural heritage** and stories associated with the wood.

Interventions introduced should be simple and appropriate that respect the nature, character and value of the wood reflected in the following words and images:

Naturalness
child friendly,
romantic and idyllic
magical
fun
free
easy access / walking





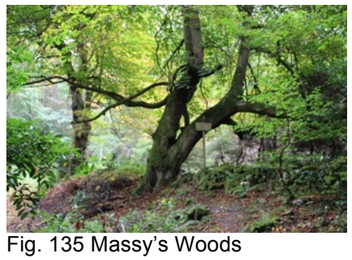


Fig. 135 Massy's Woods

Proposals in line with the above approaches could include:

- Use of sculpture and art to add/reinforce meaning and value
- Managing trails as wide "Drives" or "Rides" through Woodland (including Section of Military Road which should be restored)
- Ruined Cottage and Water Mill / Channel / Bridge enhancement project. Subject to appropriate conservation strategies reimagine and interpret these ruins.

Fig. 136 The existing brook – a natural playground

Fig. 137 Examples of stepping stones, water channels, water wheels playing with and interpretting their environments

- Cruagh Brook corridor – Develop an enhanced waterside trail, create more light, remove overbearing shrubs / trees, create glades and sitting space to improve access to water, improve bio-diversity and amenity.

The Walled Garden – Major Project to understand and enhance

The walled garden is currently very overgrown and its physical fabric is under threat from trees and vegetation growing close to structures and walls which they will ultimately degrade. Notwithstanding their overgrown and neglected character the gardens do have immense character as a discovered “lost” garden whilst walking the woods. In carrying out improvements this unique aspect should be retained and enhanced.

Proposals:

- In the first instance a detailed analysis of the gardens, their history, historic structures, threats and potential is required – this could be in the form of a conservation plan identifying the core physical and cultural values and heritage of the site. Such a study should be carried out by an experienced landscape archaeologist and conservation architect.
- Once this information, or even during the process of survey on site, the process of cutting back, clearing and removing unwanted and inappropriate / threatening vegetation should progress.
- At this point, with the legibility of the spaces restored, the heritage more fully understood and detailed conservation plans in place, future plans can be put in place to take the project forward.

Approaches and Ideas

- Rather than reinstating the original features and ornamental pleasure garden character, the framework spaces could be opened up to ensure their legibility and provide space for a range of uses – performance, horticultural and training or community activities.
- A series of garden spaces could be created which are of the woodland – native and trees, shrubs and herbaceous grassy species managed to create their own ornament and delight in a robust way that is perfectly in character with their now natural setting.
- The main walled garden could reflect the ghost of its former shape, patterns and features. Clear out, open up and restore the legibility of the walled garden as a high quality (but contemporary) garden space – use the original landscape pattern to create new places that retain the atmosphere, mystery and romantic character of the current
- Review the built heritage features and identify appropriate approaches to interpreting or restoring them e.g. the former glasshouse.
- Identify appropriate uses, new built elements and/or activities – programme the space.
- Articulate and retain its current romantic/secret/lost character.
- Meadow gardens with patterns of mown lawns and wildflower meadows and pollarded trees in rows.
- Create a Native Tree nursery as an educational project using local seeds to grow new trees for replanting elsewhere in the Dublin Mountains.
- Create a traditional orchard in meadow
- Create a series of exhibition gardens using flowery lawns, meadows, formal boxed trees and both traditional and contemporary forms.
- Improved garden path/drive lined with pruned cubed or pleached trees leading to the feature large space.

The overall intention is for the plant material and surface materials to be similar to what is found in the woodland – the way the material is used: form, layout and management is what creates the garden. This would be quite a unique response to a unique setting and a different approach to the traditional ornamental planting design.

This approach offers the opportunity for both intensification and/or less management / intervention depending on the selected option whilst acknowledging that something must be done with the walled garden and to respond to the opportunity it presents.

Some of these ideas are illustrated on the concept plan overleaf.

Fig. 138 Massy’s Walled Gardens – existing walls and turner conservatory remnants

3.4 RISK ASSESSMENT

3.4.1. RISK ASSESSMENT: SITE

	Activity / Criteria	Hazard / Risk Identified	Persons Affected	Risk Assessment	Proposed Control Measures	Notify PSDP
1.1	**Site Layout General**	Rural uplands location with current public amenity access.	Site personnel; Public	High	Site plan to address issues of access / phasing related to site location in rural area; secure site perimeter and allow sufficient working space. Close access to sites to public. Construction stage H & S Plan to contain contractor's site compound and access plan.	Yes
		Phased development: car park to be retained until buildings complete.	Site personnel; Public	High	Tender Docs to specify contractor to obtain condition survey of adjoining properties prior to construction. Tender Docs to specify construction stage H & S Plan to contain contractor's measures to secure site against intruders. Construction stage H & S Plan to contain contractor's method statement for protection of neighbouring existing properties.	Yes
		Construction site access / Construction traffic interface with public and private road traffic	Site personnel; Public	High	Construction stage H & S Plan to consider contractor's site layout and access plan for safe public / construction access during works. Controlled delivery times / well signposted loading and un-loading areas. Tender Docs to specify construction stage H & S Plan to contain contractor's measures to manage traffic in and around site.	Yes
		Site topography / levels / proposed level changes	Site personnel	High	Arrange pre-tender site survey and site investigations.	Yes
		Ground conditions / bearing capacity / ground contamination	Site personnel	High	Arrange pre-tender site survey and site investigations.	Yes
		Location of lifting zone / crane locations for each work phase	Site personnel; Public	High	Construction stage H & S Plan to contain contractor's site layout for safe location of lifting zone / crane locations	Yes
		Existing services	Site personnel	High	Arrange pre-tender survey of existing site services	Yes
1.2	**Site Works / Environment / Health Hazards**	Site security and secure storage of hazardous materials	Site personnel	High	Construction stage H & S Plan to contain contractor's site layout for hoarding locations, storage of materials and security requirements	Yes
		Falling from a height / trip hazards	Site personnel	High	Contractor to provide appropriate protection, safety and access equipment.	Yes

1.2	**Site Works / Environment / Health Hazards**	Fire and other emergencies	Site personnel	High	Construction stage H & S Plan to contain site organisation plan to include fire assembly points, safety equipment etc.	Yes
		Electricity – risk of electrocution	Site personnel	High	Contractor's site organisation plan to include location of existing services, proposed goal posts, rerouting of services as appropriate	Yes
		Noise – risk of hearing impairment / damage due to excessive noise levels Dust – risk of inhalation of dust from excavation / construction works/	Site personnel	High	Construction stage H & S Plan to contain noise / vibration / dust mitigation measures	Yes
		Asbestos – Risk of ill health due to inhalation / contact with existing asbestos	Site personnel	High	Arrange pre-tender asbestos survey Obtain specialist method statements for asbestos removal and disposal	Yes
		Other chemical / biological hazards including leptospirosis / weil's disease.	Site personnel	High	Construction stage H & S Plan to contain provision to control rodent infestation	Yes
1.3	**Compound set-up / Access**	Phased development	Site personnel; Public	Site personnel; Public	Tender Docs to specify contractor to obtain condition survey of adjoining properties prior to construction. Tender Docs to specify construction stage H & S Plan to contain contractor's measures to secure site against intruders. Construction stage H & S Plan to contain contractor's method statement for protection of existing adjoining houses.	Yes
		Shared public / construction access during works	Site personnel; Public	High	Construction stage H & S Plan to contain contractor's site layout and access plan. Secure scaffold, clearly marked, lit and padded. Construction stage H & S Plan to contain contractor's measures to manage traffic in and around site.	Yes
		Location of site compound vis-à-vis phased construction	Site personnel; Public	High	Construction stage H & S Plan to specify site compound, boundary hoardings and security for each phase.	Yes
		Contractor's storage / parking areas	Site personnel	High	Construction stage H & S Plan to specify contractor's storage / parking areas for each phase.	Yes
		Locations of scaffold / working platforms	Site personnel; Public	High	Construction stage H & S Plan to contain contractor's method statement for location of scaffold / working platforms.	Yes
		Location of lifting zone / crane locations for each work phase	Site personnel; Public	High	Construction stage H & S Plan to contain contractor's site layout for safe location of lifting zone / crane location	Yes

1.4	**Existing Site Services**	Existing services – underground and overground	Site personnel	High	Arrange pre-tender surveys / site investigations as allowed. M & E consultant to liaise with service providers to establish location of existing services. Tender documents to specify contractor to undertake pre-commencement CAT scan.	Yes
		Phased diversion / disconnection of existing services during construction / demolition	Site personnel	High	M & E consultant to plan for phased diversion of existing services. M & E consultant to advise on disconnection / diversion of existing services during phased construction.	Yes
		Overhead cables on adjoining streets	Site personnel	High	Construction stage H & S Plan to contain contractor's site layout and access plan.	Yes
1.5	**Existing Structures / Services**	Phased disconnection of existing / concealed services	Site personnel; Public	High	M & E consultant to plan for phased diversion of existing services M & E consultant to advise on disconnection / diversion of existing services during phased construction	Yes
		Removal / disposal of hazardous materials including asbestos	Site personnel; Public	High	Specify requirement for asbestos survey and method statement for removal / disposal of asbestos	Yes
		Exposure to noise/ vibration/ dust.	Site personnel; Public	High	Include noise / vibration / dust mitigation measures in contract documents	Yes
		Possible rodent infestation / Weils disease	Site personnel; Public	High	Include provision to control rodent infestation in contract documents.	Yes

3.4.2. RISK ASSESSMENT: CONSTRUCTION / PARTICULAR RISKS

	Activity / Criteria	Hazard / Risk Identified	Persons Affected	Risk Assessment	Proposed Control Measures	Notify PSDP
2.1	**Falling from a height**	Falls of persons / objects during construction works / maintenance works	Site personnel; Public; maintenance personnel	High	Construction Stage H & S Plan to contain method statements addressing safety for working at a height / Measures for safe distribution and storage of materials at height Design for adequate parapet / balustrade / edge protection where possible Design for suitable fall arrest system where edge guarding not provided Specify low maintenance equipment / components / finishes at high level	Yes
		Falls from or collapse of partially erected structures / landscape	Site personnel; Public	High	Construction Stage H & S Plan to contain method statements addressing safety for working at a height	Yes
		Falls from or collapse of platforms and scaffolding	Site personnel; Public	High	Construction Stage H & S Plan to contain method statements for erection, maintenance, removal of scaffolding	Yes
		Working around fragile roofing materials and voids	Site personnel	High	Construction Stage H & S Plan to contain method statements for temporary guard rails / edge protection	Yes
2.2	**Burial Under Earthfalls**	Collapse of deep foundations	Site personnel; public	High	Structural engineer to undertake risk assessment for deep foundations. Construction Stage H & S Plan to contain method statements for basement construction. Temporary works design by the contractor to comply with the requirements of the S, H & W (Construction) Regulations, 2006 Site security to prevent unauthorised access to basement works.	Yes
		Collapse of insufficiently supported un-retained material / trenches Fall of materials / spoil into working areas / trenches	Site personnel; Public	High	Construction Stage H & S Plan to include for safe stockpiling areas, access, roads etc. Construction Stage H & S Plan to contain method statements for appropriate inspections of any excavation, shaft, earthwork, underground works or tunnel.	Yes
2.3	**Engulfment in Swampland**	High water table / ground water / sewerage Flooding / rush of groundwater into excavation trenches	Site personnel;	Low	Obtain site investigations to establish ground conditions / site water table levels / water courses / drainage routes Construction Stage H & S Plan to include provisions for safe site drainage/diverted drains Temporary works design by the contractor to comply with the requirements of the S, H & W (Construction) Regulations, 2006	Yes

2.4	**Works on / near boundaries / existing structures**	Boundaries to site	Site personnel; Public	High	Allow for sufficient space between the new works and private lands, i.e. between the upgraded car park and the private properties along the R115 bordering the site. Construction stage H & S Plan to contain contractor's site layout and access plan / temporary hoarding plan and security measures Construction stage H & S Plan to contain contractor's method statement Specify contractor submit temporary works design Tender Docs to specify construction stage H & S Plan to contain contractor's measures to manage traffic in and around site.	Yes
		Boundaries between site compounds, storage, contractor's parking etc.	Site personnel; Public	High	Construction stage H & S Plan to contain contractor's site layout and access plan. Tender Docs to specify construction stage H & S Plan to contain contractor's measures to manage traffic in and around site.	Yes
2.5	**Installation of Scaffolding**	Access / scaffolding area between new / existing structures (Liberty House flat complex)	Site personnel	High	Site layout to provide for sufficient working space between new / existing structures	Yes
		Collapse / partial collapse of scaffolding / access platforms	Site personnel	High	Scaffolding installation to be in accordance with the provisions of HSA's Code of Practice for Access & Working Scaffolds. Construction stage H & S plan to contain provisions for regular inspection of scaffolding.	Yes
		Handling / storage of materials on scaffolding	Site personnel	High	Construction stage H & S Plan to include contractor's method statements demonstrating compliance with the Safety Health and Welfare at Work (Work at Height) Regulations 2009 – S.I No. 318 of 2006	Yes
2.6	**Working with hazardous substances**	Exposure to noise / vibration / dust during construction works	Site personnel	High	Construction stage H & S plan to include noise / vibration / dust mitigation measures	Yes
		Use of substances / products involving a statutory requirement for health monitoring	Site personnel	High	Specification to exclude hazardous materials and work practices	Yes
		Possible exposure to Weil's disease			Construction stage H & S plan to include control measures to prevent rodent infestation	Yes
		Possible exposure to contaminated ground water / sewage etc.			Construction stage H & S plan to include control measures to prevent exposure to ground water / sewage hazards.	Yes

2.7	**Working near high voltage power lines**	Working adjacent to existing power lines along public road / park / forest	Site personnel	High	M & E consultant's site surveys to locate high voltage power lines M & E consultant's to prepare risk assessment relating to high voltage power lines Contractor to liaise with utility providers Construction stage H & S plan to include method statements for protection to power lines (goal posts etc.) / control procedures for compliance with guidance of ESB Networks / HAS code of practice for avoiding danger from overhead electricity lines.	Yes
		Unknown underground power lines traversing site		High	Site survey / existing services drawings to be included in tender package Specify pre-construction CAT scan	Yes
		High voltage to plant during construction		High	Contractor to provide evidence of staff training and safety procedure.	Yes
2.8	**Wells, Underground Earth Work and Tunnels**	Excavation of deep foundations	Site personnel	High	Structural engineer to undertake risk assessment for deep foundations. Construction Stage H & S Plan to contain method statements for basement construction. Temporary works design by the contractor to comply with the requirements of the S, H & W (Construction) Regualtions 2006.	Yes
2.9	**After Build Maintenance**	Access for roof maintenance and repairs / maintenance and repairs of solar panels / Access to high level plant and equipment	Site personnel; Maintenance personnel	High	Design for adequate parapet / balustrade / edge protection where possible Design for suitable fall arrest system where edge guarding not provided Specify low maintenance equipment / components / finishes at high level	Yes
		Access to high level lighting	Maintenance personnel Residents	High	Specify long life light fittings to high level areas	Yes
		Access for window cleaning / maintenance	Maintenance personnel Residents	High	Specify window system allowing internal cleaning Allow for access for high level window cleaning system (pole system) Specify low-maintenance / long life materials / construction details	Yes

4.0. ARTICLE 6 SCREENING ASSESSMENT

4.1. SCREENING FOR APPROPRIATE ASSESSMENT

Sub-contents

1.0 **Introduction**
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1.2 The Requirement For An Assessment Under Article 6
1.3 Legislative Context
1.4 Stages Of An Article 6 Assessment
1.5 Scope Of The Screening For Appropriate Assessment
1.6 Main Sources Of Consultation

2.0 **Description Of The Project**
2.1 Background
2.2 Location
2.3 General Layout
2.4 Ecological Survey
2.5 Proximity Of Project To Natura 2000 Site(S)

3.0 **Assessment Of Potential Significant Effects: Stage 1 Screening**
3.1 Stage 1: Screening
3.2 Consideration Of Potential Cumulative Impacts

4.0 **Discussion And Conclusion**

5.0 **References**

1.0 Introduction

1.1 Introduction

This Screening for Appropriate Assessment has been undertaken to inform the Masterplan for the Dublin Mountains Tourism Facility at Hell Fire Wood and Massy's Wood near Montpelier Hill in South County Dublin. As part of the assessment direct, indirect and where necessary cumulative impacts on sites of European importance (Natura 2000) for nature conservation were examined.

1.2 The Requirement for an Assessment under Article 6

Regulation 42 (1) of the European Communities (Birds and Natural Habitats) Regulations 2011 states the competent authority (in this case, South Dublin County Council) has a duty to:
Determine whether the proposal is directly connected with or necessary to Natura 2000 site management for conservation; and, if not,
Determine whether the proposal is likely to have a significant effect on the Natura 2000 site(s) either individually or in combination with other plans or projects; and, if so,
Make an appropriate assessment of the implications (of the activities) for the Natura 2000 site(s) in view of the site's conservation objectives.

This report provides a screening for AA and is intended to address all issues regarding the Masterplan proposal and potential impacts on any of the designated Natura 2000 sites within proximity to the Site; and allow South Dublin County Council as the "Competent Authority" to comply with Article 6 (3) and (4) of the Habitats Directive 92/43/EEC.

1.3 Legislative Context

The European Communities (Birds and Natural Habitats) Regulations 2011 lists priority habitats and species that are of international importance and require protection. The regulations transpose into Irish law the European Directives 2009/147/EC (The Birds Directive) and 92/43/EEC (The Habitats Directives). This protection is in part afforded through the designation of areas that represent significant examples of habitats supporting populations of listed species within a European context (Natura 2000 sites). An area designated for bird species is classed as a Special Protection Area (SPA). An area designated for other protected species and habitats is classed as a Special Area of Conservation (SAC). Species that occur in SPAs (listed on Annex I of Birds Directive) or SACs (Habitats listed on Annex I and/or Species listed on Annex II of the Habitats Directive) in which they are designated features (Qualifying Interests) have full European protection. Species listed on Annex IV of the Habitats Directive are strictly protected wherever they occur in the country, whether inside or outside a Natura 2000 sites. Annex I Habitats that occur outside of SACs are still considered of international and national importance and under Article 27 (4(b)) of the European Communities (Birds and Natural Habitats) Regulations 2011, the planning authority has a duty to avoid the pollution or deterioration of these habitats.

European Directive 92/43/EEC (The Habitats Directive) requires competent authorities to carry out an AA of plans and projects that, either alone or in combination with other plans and projects are likely to have a significant effect on European designated sites.

In the European Communities (Birds & Natural Habitats) Regulations 2011, this is enacted in Part 5: 42 (1) which requires that any proposal likely to have a significant effect on a European Site, alone or in combination with other operations or activities, needs to be assessed with respect to its potential impact on the site's conservation objectives (an Appropriate Assessment). Conservation objectives define what constitutes favourable conditions of each qualifying interest by describing broad targets, which should be met if the qualifying interest is to be judged favourably.

1.4 Stages of an Article 6 Assessment

The European Commission's guidance promotes a staged process, as set out below. The need for each process is dependent upon the outcomes of the preceding stage.

(1) Screening for Appropriate Assessment
(2) Appropriate Assessment
(3) Assessment of Alternative Solutions
(4) Assessment where no alternative solutions remain and where adverse impacts remain known as the "IROPI test" (Imperative Reasons of Over-riding Public Interest) and compensatory measures.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. Stage 1 of the process identifies whether the project is 'likely to have a significant effect' upon any European site, referred to as 'Screening for Appropriate Assessment'. Screening is undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through standard best practice or the modification or redesign of the plan or project. If effects are significant, potentially significant or uncertain,

or if the screening process becomes overly complicated, then the process triggers Stage 2 (AA) with provision of a 'Natura Impact Statement' (NIS).

Stage 2 considers any potential impacts in greater detail including any mitigation measures (if necessary). If adverse impacts cannot be ruled out then the process continues to Stage 3 and assesses whether alternative solutions exist. If no alternatives exist and impacts on Natura 2000 sites are unavoidable, then a plan or project can only be implemented if there are 'imperative reasons of overriding public interest' (IROPI), as detailed in Article 6(4).

1.5 Scope of the Screening for Appropriate Assessment

The Screening for Appropriate Assessment (Stage 1) of the Dublin Mountains Tourism Facility Masterplan (hereafter the area of Hell Fire Wood and Massy's Wood will be referred to as the "Site") has been prepared in accordance with current guidance (See DoEHLG, 2010) and provides the information required to establish whether or not the proposed development is likely to have a significant impact on Natura 2000 sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 sites have been designated. The Screening for AA should include the following details:

Description of the project:
Location of the Site and distances from the qualifying features of Natura 2000 designations including a map of the Site in relation to Natura 2000 boundaries;
The size, scale, area of the project in relation to Natura 2000 sites and projected level of activity, class of activity and frequency; and,
If available the details of construction works including duration, materials and physical changes as detailed for the project and any possible impacts that the proposed construction may have on the defining structure and function of the Natura 2000 sites.

Potential Impacts on Natura 2000 with respect to the Conservation Objectives:
The impact of the proposed construction/operation on the defining structure and function of the Natura 2000; and,

Section 3.2.3 of the DoEHLG (2010) Guidance for Planning Authorities states that the specific approach to screening will depend on the scale of likely impacts of the plan or project; the sensitivities of the ecological receptors potentially affected; and, the potential for in combination effects, while cognisant of the precautionary principle.

1.6 Main Sources of Consultation

- Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities;
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive;
- European Communities (Birds & Natural Habitats) Regulations 2011;
- National Parks & Wildlife Service (2013) The Status of EU Protected Habitats and Species in Ireland. Volume 2 & 3: Article 17 Assessments. Department of Arts, Heritage and Gaeltacht;
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10;
- European Commission Environment Directorate-General (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; and
- European Commission Environment Directorate-General (2000) Managing European Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

2.0 Description Of The Project

2.1 Background

The 2015 South Dublin Tourism Strategy proposed, as its principal recommendation, the creation of a Dublin Mountains Flagship Project. This was in keeping with the 2007 report "Dublin Mountains Strategic Development Plan for Outdoor Recreation" which introduced the proposal to provide a 'flagship' welcome and orientation point in the Dublin Mountains, for which it estimated an indicative cost of €4m.

The Dublin Mountains Partnership (DMP) also has a key objective to develop a flagship facility that will act as a focal tourism attraction in the area.

In response, a Steering Group consisting of representatives of South Dublin County Council, Coilte and DMP issued tender invitations for a multi-disciplinary approach to the preparation of a feasibility study and masterplan for a flagship tourism facility in the Dublin Mountains. This Screening for AA forms part of the overall submission in relation to the Masterplan.

2.2 Location

The proposed Dublin Mountains Visitor Centre will be located at the northern gateway into the Dublin and Wicklow Mountains from Dublin City. In broad terms the site location is in the Owendoher River Valley to the south of Rathfarnham. There are several blocks of state owned land (Coillte Forests) in and around this valley and the Masterplan proposal focuses on the development of the tourism facility in the area of Hell Fire Wood and Massey's Wood that already provide extensive public access and walking routes linking into the higher mountains above 300m altitude.

2.3 General Layout

The general layout planned for the Masterplan can be seen on the layout drawing in Appendix A. The drawing shows the general location of all proposed facilities, these include the construction of the following elements:

- Archaeology Enclosure – Making of the Kings on Montpelier Hill;
- Visitors Centre and Events Building located downhill on eastern side of Montpelier Hill;
- Bridge House (start point for footbridge) located to the east of the visitors centre;
- Treetop footbridge linking Hellfire Club Wood and Massy's wood;

Fig. 139 Site Location

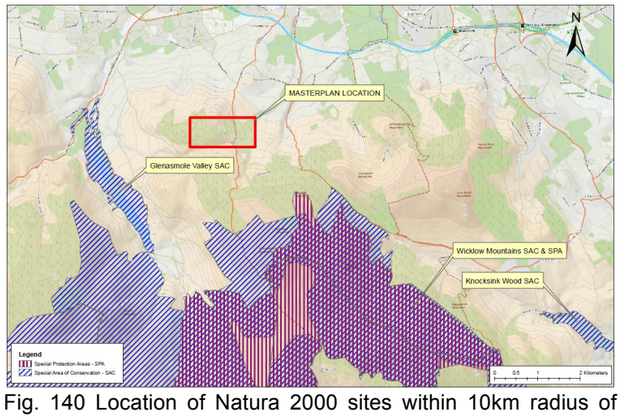


Fig. 140 Location of Natura 2000 sites within 10km radius of site

- Extension to existing car park to accommodate approximately 300 additional spaces. Parking surfaces could be of a range of materials from loose gravel to reinforced grass to blacktop, depending on design objectives;
- Redevelopment of walled garden (Massy's Garden) in Massy's Woods;
- Construction of a small forest kiosk building and workshop off the main path network on the southern side of the wood; and
- Upgrading of existing trails and forestry access routes where necessary.

The studies conducted to date to inform the Masterplan have identified the most suitable place for the main Visitor Centre Building to be on the eastern side of Montpelier Hill within the Hell Fire Wood at an altitude of approximately 320m above Ordnance Datum. This site is easily accessible from the public road and will provide high quality views across the northern edge of the Dublin Mountains and to the city with Dublin Bay in the distance. A new elevated footbridge is proposed as an integral part of the enjoyment for visitors. It will provide a link between Hellfire and Massey's Wood for people on foot.

The proposed extension to the existing carpark is proposed by means of additional terraces to the west in an area which is currently covered by conifer plantation. Planned feeling of trees in this area is proposed by Coillte in the coming years.

2.4 Ecological Survey

A site visit was conducted by a suitably qualified ecologist in November 2015 to examine baseline conditions and determine the presence and proximity of any qualifying interests of Natura 2000 sites in relation to the Site. Habitats were categorised using the Fossitt Classification System (Fossitt, 2000). The details of this survey can be found in the Environmental Assessment Report which accompanies the Masterplan.

2.5 Proximity of Project to Natura 2000 Site(s)

ArcView software using publicly available Ordnance Survey maps and NPWS shapefiles were used to identify the boundary of Natura 2000 sites in relation to the Site (see Table 2.1 and Figure 2).

Section 3.2.3 of the Guidance for Planning Authorities (DoEHLG, 2010) states that defining the zone of impact for the screening and the approach used will depend on the nature, size, location and the likely effects of the project. Key variables that determine whether or not a particular Natura 2000 site is likely to be negatively affected are: the physical distance of the project to a site, the sensitivities of ecological receptors and the potential for in-combination effects.

Pathways at risk from works are considered to be to habitats in immediate proximity or any hydrological connectivity to sensitive water bodies and watercourses. The zone of impact in this case has been defined on the limit of potential hydrological impact.

A review of all designated sites within close proximity (10km) to the site was undertaken to identify habitats and species of conservation importance within the wider area and to ensure that any designated features linked to these sites, and that have potential to occur within the Site, were a material consideration during the assessment. Table 2.1 below contains a list of these sites.

Table 2.1 Designated Sites within 10km of the Masterplan Site

Site Code	Designation	Site Name	Distance and Direction from Site
002122	SAC	Wicklow Mountains SAC	1.7km South
004040	SPA	Wicklow Mountains SPA	1.7km South
001209	SAC	Glenasmole Valley SAC	2.2km West
000725	SAC	Knocksink Wood SAC	8.2km East

Section 3 of this report examines the Conservation Objectives and Qualifying Interests listed for each of the above sites and assesses all possible impacts on these as a result of the proposed Masterplan.

3.0 Assessment Of Potential Significant Effects: Stage 1 Screening

3.1 Stage 1: Screening

Table 3.1 contains an assessment in the form of a Screening Matrix which examines the likely significant effects of the Masterplan proposal on all Natura 2000 sites within close proximity (10km) of the Site.

In addition to the Screening Matrix the assessment questions listed below which have been sourced from *EU Guidance - Assessment of plans and projects significantly affecting Natura 2000 sites – Assessment Criteria* have been answered in the context of the current Masterplan:

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site:
Any future proposed construction works are limited to specific areas within Hell Fire Club Wood and Massy's Wood and can be seen on the layout drawing in Appendix A. There are no actual works within any designated Natura 2000 site boundary. No elements of the activities on the Site are considered likely to result in a significant effect on the conservation objectives of any of the Natura 2000 sites listed in Section 2.

Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site:
No element of the application will result in loss of habitat area; fragmentation; disturbance; subsequent impacts on species population density; or, any change to water resources or water quality hydrologically connected to any Natura 2000 site.

Describe any likely significant changes to the site:
No element of the Masterplan will result in impacts to any Annex I habitat; cause a reduction in the area of any listed habitat within any Natura 2000 site; cause any direct or indirect damage to the physical quality of the environment within any Natura 2000 site; or cause any serious or on-going disturbance to species or habitats for which any Natura 2000 is designated.

Describe any likely impacts on the Natura 2000 site as a whole:
No element of the application will cause direct or indirect damage to the site; characteristics of any Natura 2000 site; reproductive ability of designated populations for which any Natura 2000 site is selected; or interfere with any known mitigation measures currently in place for other plans and projects.

Provide indicators of significance as a result of the identification of effects set out above:
There will be no hydrological connection to any of the Natura 2000 sites and no change in connectivity will result from the cycleway development. There will be no subsequent change to the physical quality of the environment (e.g. water quality).

Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:
Table 3.1 examines any potential effects that may occur as a result of the proposed works on the Natura 2000 sites previously outlined in Section 2. For a construction project of the nature and scale of the Tourism Development project, the likely zone of potential direct impact is considered to be the zone immediately around the construction site of the individual building elements (based on the proposed works, a radius of 100m is considered reasonable in this instance). Outside of this zone of potential direct impact there must be a source – pathway – receptor link connecting the project with the Natura 2000 site for an indirect impact to occur e.g. a watercourse or in the case of an SPA an area that may be recognised for bird species usage. As the project is small scale, any direct or indirect impacts are considered extremely unlikely. In order to satisfy the requirements of Article 6.3 of the Habitats Directive and for transparency, a Screening Matrix (Table 3.1) is provided showing how the key indicators have been applied in a systematic and objective manner.

Table 3.1 Screening Matrix of Natura 2000 sites within 10km of project site for Likely Significant Effects

Natura 2000 site	**Distance from proposed development**	**Qualifying Features**	**Assessment of Likely Significant Effect (LSE)**	**Screening Conclusion**
Wicklow Mountains SAC (002122)	1.7km	3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 4060 Alpine and Boreal heaths 6230 Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)* 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae and Galeopsietalia ladani*) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles (* denotes a priority habitat) 1355 Otter – *Lutra lutra*	In relation to potential impacts on the qualifying features listed, no complete source-pathway-receptor chain could be identified between the proposed works and the Natura 2000 site, therefore no LSE is expected on any of the qualifying interests or the conservation objectives of the Wicklow Mountains SAC	**Screened Out**

Wicklow Mountains SPA (004040)	1.7km	A098 Merlin *Falco columbarius* A103 Peregrine *Falco peregrinus*	In relation to potential impacts on the qualifying features listed, no complete source-pathway-receptor chain could be identified between the proposed works and the Natura 2000 site, therefore no LSE is expected on any of the of the bird species listed as Special Conservation Interests or the conservation objectives of the Wicklow Mountains SPA.	**Screened Out**
Knocksink Wood SAC (000725)	2.2km	7220 Petrifying springs with tufa formation (*Cratoneurion*) 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	In relation to potential impacts on the qualifying features listed, no complete source-pathway-receptor chain could be identified between the proposed works and the Natura 2000 site, therefore no LSE is expected on any of the qualifying interests or the conservation objectives of Knocksink Wood SAC.	**Screened Out**
Glenasmole Valley SAC (001209)	8.2km	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (* important orchid sites)* 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) 7220 Petrifying springs with tufa formation (*Cratoneurion*)* * denotes a priority habitat	In relation to potential impacts on the qualifying features listed, no complete source-pathway-receptor chain could be identified between the proposed works and the Natura 2000 site, therefore no LSE is expected on any of the qualifying interests or the conservation objectives of the Glenasmole Valley SAC	**Screened Out**

Any likely direct, indirect or secondary impacts of the proposed development, both alone and in combination with other plans or projects, on the Natura 2000 sites by virtue of the following criteria: size and scale, land-take, distance from the Natura 2000 sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 3.2 below.

Table 3.2 Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Sites

Size and Scale	There will be no impact on any Natura 2000 sites as a result of the size and scale of the proposed structures that form part of the Masterplan.
Land take	There will be no land take within any Natura 2000 site.
Distance from the Natura 2000 Site or Key Features of the Site	There is no direct connectivity between any designated Natura 2000 site and the proposed Masterplan area. Significant impacts to the Natura 2000 sites based on proximity are not anticipated since the works are wholly outside Natura 2000 sites.
Resource Requirements	The proposed development will not exploit any resources within any Natura 2000 site.
Emissions	Given the nature and scale of the works, significant emissions to air, water or land are considered unlikely.
Excavation Requirements	Excavations proposed as part of the works will be required for those structures outlined in Appendix A. No excavations are required within any Natura 2000 site.
Transportation Requirements	All transportation to the site will occur within the public road network. Therefore there will be no impact in this regard on any Natura 2000 site.
Duration of Construction, Operation, Decommissioning	The construction phase of the proposed development will be short-term in duration and therefore there will be no significant impact in terms of length of the construction phase. The operational phase is likely to be long-term in duration. However, given the development is small scale in nature significant impacts as a result of the duration of the project are not anticipated.

3.2 Consideration of Potential Cumulative Impacts

A key requirement of the Habitats Directive is to determine whether the Plan is likely to have a significant effect when considered in combination with other plans and projects. The main driver for addressing plans in combination is ensuring that cumulative effects are captured. For example, the effects of a plan on water quality may be insignificant when considered alone, but when combined with the effects of increased pollution from other plans, may lead to significant adverse impacts on site integrity. The 'in-combination' test, therefore, is about addressing 'cumulative effects'.

Determining which plans and projects to consider requires a pragmatic approach given the nature and scale of development occurring at any one time in the Masterplan area.

Current practice and available guidance suggests a staged approach to in-combination assessment which takes into account the following: a) if it can be clearly demonstrated that the plan will not result in any effects at all that are relevant to European site integrity then the plan should proceed without considering the in-combination test requirement in the Screening further b) if there are identified effects arising from the plan, even if they are perceived as minor and not likely to have a significant effect on the European Site alone, then these effects must be considered 'in-combination' with the effects arising from other plans and projects. Elements of the plan that have individually been screened out because they will have no effect at all on a European site, or because that element is too general in nature do not require an in-combination assessment, since clearly they will also have no cumulative effect, or any cumulative effects (as for effects individually) cannot be identified. In this case, as clearly demonstrated in Tables 3.1 & 3.2; the project does not provide for change which could lead to any conceivable effect on any of the Natura 2000 sites listed. The Screening has not identified any aspect of the project, link or pathway potentially directly, indirectly acting on qualifying interests that would undermine the conservation objectives for the site. Subsequently an in-combination test is not required for the Dublin Mountains Masterplan.

4.0 Discussion And Conclusion

On the basis of the screening assessment and application of the precautionary principle, indicators of significance show that there is no potential for localised short term or long term interference with the structure and function of any of the Natura 2000 sites listed above. It has been concluded that possible significant effects likely to arise from construction and operation of the tourism project have been entirely scoped out due to distance from qualifying features and their respective conservation objectives.

No areas of habitats that are important for the survival of the qualifying interests within the Natura 2000 sites will be:
Modified or fragmented, destroyed or isolated. No key biogeochemical processes necessary for the survival of the designated features will be impacted, directly or indirectly or in the short to long term.

No ecologically meaningful proportion of the qualifying interests of any of the Natura 2000 sites within close proximity will be:
Seriously impacted (either through loss, damage or deterioration in water quality).

It can be objectively concluded that there are not likely to be significant effects on the Natura 2000 sites arising from the construction or operational phases of the Masterplan project. A Stage Two: Appropriate Assessment will not be required to inform the project either alone or in combination with other plans or projects, with respect to the structure and function of the nearby SACs and SPAs and their conservation objectives.

5.0 References

DoEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities* (Department of Environment, Heritage and Local Government, Rev Feb 2010);

European Commission (2001) *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission Environment Directorate-General);

European Commission (2000) *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (EC Environment Directorate-General, 2000); hereinafter referred to as "MN2000";

European Commission (2007) *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC. Clarification of the Concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence,* Opinion of the European Commission.

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny

National Parks and Wildlife Service (NPWS) Circular NPW 1/10 & PSSP 2/10 *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, March 2010);

South Dublin County Council (SDCC) Planning Maps online, accessed 20/11/15 - http://sdublincoco.maps.arcgis.com/apps/Solutions/s2.html?appid=b83a115566bd43648a4b9fa3bb3a4cae

4.2. SCREENING FOR ENVIRONMENTAL ASSESSMENT

The project proposal consists of the following elements that form the basis of a new flagship tourism facility and attraction developed around the twin Dublin Mountain woodlands of Hell Fire Wood on Montpelier Hill and the adjacent Massey's Wood. For the purposes of understanding, planning requirements the elements are divided into those that are new in character and constitute development and therefore require planning permission, and those that are enhancements and management improvements to existing uses, facilities and amenities.

Elements that constitute New Development

a) Dublin Mountains Visitor Centre – 2 buildings totalling 1942m^2 on an elevated location on Montpelier Hill with panoramic views over the city and northern slopes – consisting of:
   - an iconic glass-fronted building
   - Reception Area inside the main entrance, operating as a Welcoming and Orientation Point for visitors to the Mountains.
   - Ramblers' Lounge
   - Panorama Cafe / Restaurant
   - AV/Movie Theatre
   - Events and Exhibition Venue

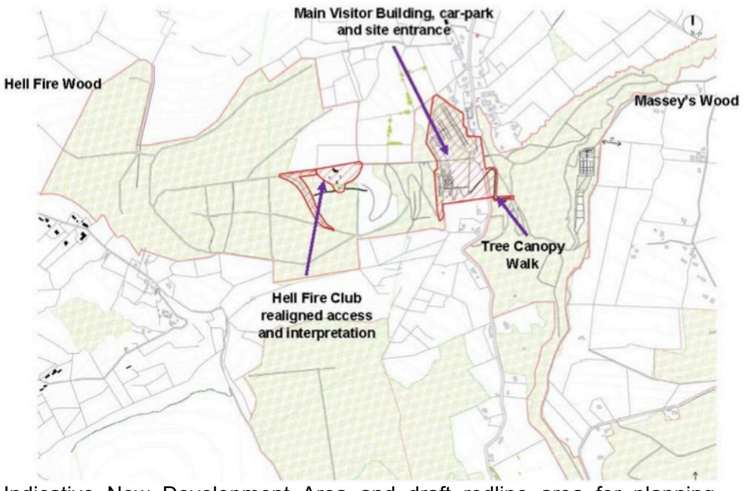
b) A feature and iconic tree canopy walk linking the new visitor centre on Montpelier Hill across the R115 to Masseys Wood.
c) Associated parking on a series of terraces providing 314no spaces including the existing ca. 83 spaces. Overspill parking may be provided on–site also on grassed areas.
d) New access junction from R115.
e) Viewing and Interpretation Points including a small wedge shaped structure near the Hell Fire Club and partial realignment of associated Vehicular access.

Elements that are enhancements and management improvements*

f) Improved tracks and trails including new sections/routes and links throughout Hell Fire Wood/Montpelier Hill and Masseys Wood.
g) Overall improved management and development of the amenities, recreational value and heritage of both Hell Fire Wood and Masseys Wood connecting to the wider mountain landscape and maintaining silvicultural practices in the commercial and amenity forests.

**It is important that ongoing and desirable improvements to tracks and trails, and the landscape, independent of the proposed visitor facility, as well as forestry operations i.e. existing uses, are not compromised by being caught up in the planning process for the new visitor facility.*

Those elements that constitute New Development and therefore would be subject to the planning process are illustrated by the red line area in the diagram below. The total area described by the red line is 113,000m^2 (or 11.3Ha). The overall area of the two landholdings at Hell Fire Wood and Masseys Wood is approximately 146Ha.



Indicative New Development Area and draft redline area for planning – Subject to agreement with the Planning Authority at the next stage

4.1. EIS Statutory Requirements

At 11.3Ha the proposal is sub threshold relative to the thresholds that apply to "Urban Development Project" i.e. schemes more than 20 Ha in size. The threshold for an Urban Development Project in this part of Dublin is defined in the Directive and the Planning Regulations[1] i.e 20 hectares";

The Environmental Assessment Report in Section 4.3 below indicates that the impacts described are not deemed significant or insurmountable by appropriate management and mitigation strategies.

There will be little cumulative impact with other development given its characteristics and uniqueness in the area, there will be limited demolition works, use of natural resources, production of waste, pollution and nuisances and there will be no risk of accidents, having regard to substances or technologies used.

Having regard to the environmental sensitivity of geographical areas likely to be affected by proposed development, having regard to existing land use, the relative abundance, quality and regenerative capacity of natural resources in the area and the absorption capacity of the natural environment the proposal will have no significant impact given the scale of the proposal. While the Directive considers that impact on mountain and forest areas and nature reserves and parks are issues that have to be considered, in this instance the proposal, given its modest scale, has limited impacts.

Furthermore, the proposal will have no significant impact on other areas of concern arising from the Directive including;

- wetlands,
- coastal zones,
- areas classified or protected under legislation, including special protection areas designated pursuant to Directives 79/409/EEC and 92/43/EEC,

- areas in which the environmental quality standards laid down in legislation of the EU have already been exceeded,
- densely populated areas,
- landscapes of historical, cultural or archaeological significance.

The project impacts could be seen as localised but the potential broader impact of the development and the anticipated visitor numbers to the Mountain area may be considered significant.

4.1.1 Public Concerns and Perceptions

Following a workshop with Mr Eddie Taaffe, South Dublin County Council Director of Services for Land Use Planning & Transport Department and Senior Planning Officer Neil O Byrne it was agreed that there would be significant public interest with regard to the project given the significance of the site historically and archaeologically – the site is associated with Dublin stories, experiences and histories. Given these sensitivities and in order for the project to be developed in as open and inclusive a manner as possible it would be appropriate to carry out a full Environmental Impact Assessment. As much of the research has already been carried out, with the carefully structured project methodology, this should not be unduly onerous and could incorporate ongoing site archaeological investigations at Montpelier Hill.

4.1.2 Recommendations

There is no clear legal requirement to carry out an EIA for this project, however, bearing in mind the potential wider impact of the development on the Mountain area and the scale of anticipated visitor activity, coupled with expected public interest in the project, and the fact that much of the groundwork has already been completed and informed the project design, it is recommended that a full Assessment of the detailed planning scheme is completed and an Environmental Impact Statement prepared as part of the next (planning) stage of the project.

4.3. ENVIRONMENTAL ASSESSMENT REPORT

Sub-contents

1.0 **Introduction**
1.1 Project brief, background, objectives and team
1.2 Scope of the Environmental report
1.3 Methodology in collating the Environmental Report
1.4 Description of the Project
1.5 Alternatives Considered

2.0 **Commentary of the environmental aspects likely to be significantly affected by the project**
2.1 Human Beings
2.2 Flora and Fauna
2.3 Soils, Geology and Groundwater
2.4 Surface Water
2.5 Air Quality
2.6 Noise and Vibration
2.7 Landscape and Visual
2.8 Cultural Heritage
2.9 Material Assets
2.10 Construction Impacts

3.0 **Discussion And Conclusion**

Executive Summary

This part of the report sets out a brief description of the receiving environment of the project under various headings. The potential impacts of the project on these aspects of the environment are identified and mitigation, if necessary,

The findings are summarized below:

- In terms of impacts on Human Beings the project is in keeping with local and emerging planning policy, complementary to existing land use patterns and brings an intensification and enhancement of an existing tourism and recreational asset. In the context of the draft 2016-2022 Development Plan it may be appropriate to strengthen supporting policy in the conext of the recommendations in this feasibility study and masterplan.
  Travel and Transportation issues may raise significant impacts and need to be planned for correctly not just within the site in terms of its parking and circulation infrastructure, but also in terms of enhancement of public transposrt access, links to public transport, cycling and pedestrian access to mitigate vehicular traffic generated by a successful new facility. Poor traffic and transportation planning will not only create safety and movement problems in the vicinity but would also erode the character of the centre and place to which people should be drawn.
  Subject to addressing the accces and transport issues described above impacts on tourism and recreation would be beneficial in nature.
- In terms of Flora and Fauna there would be no significant impacts identified on Natura 200 sites which lie some distance away. Locally within the site impacts on areas of woodland and associated habitat would be limited and likely to be imperceptible. Potentially bats may roost in areas to be developed and would need to be surveyed and species such as red squirrel and red deer may be disturbed. However the project also offers the opportunity to create and manage new habitat.
- Geology and Hydrogeological impacts would not be significant and can be managed through good design and construction practice.
- Impacts on Surface Water would not be significant and can be managed through good design and construction practice.
- Impacts on Air Quality would not be significant and can be managed through good design and construction practice.
- Impacts on Noise and Vibration levels would not be significant and can be managed through good design and construction practice.
- Impacts on Landscape Charcater would be generally benign as the amenity, landscape and recreation value of the receiving envirоinment at Montpelier Hill and Massseys Wood would be celebrated by an iconic and sensitively designed new wvisitor facity and pedestrian tree canopy level road crossing. Nontheless careful design, development and management of the facility and receiving enviromnnment, particularly in the conext of increased visitor numbers, would be required.
- Visual Impacts would be in the context of a commercial forest at Hell Fire wood where landscape change is part of the character of the area. Nonethless the integration of a prominent new building and elevated walkway, and the site infrastructure is challenging in terms of key and protected views from the city, the R115 scenic route and Criagh Wood. Visibility and mitigating visual impact needs to be balanced with the need for the centre to have some presence and a flagship quality. This is a positive design challenge as the project develops.
- The cultural heritage of the area is part of the offer and visitor experience – a representation of the wider mountain cultural heritage. Archaeology and Built Heritage would require best practice management techniques to minimise the impact of increased viasitors. Such management techniques coupled with improved interpretation would ensure the long teram protection of many of the archaeological and built heritage features around the site.
- Forestry in the area and Coillte operations will need to be managed and planned going forward in the context of the proposed flagship visitor facility. Planted areas lost to commercial forestry would need to be replaced elsewhere. However these imapcts are not regarded as significant or insurmountable in the context of joint project between Coillte and South Dublin County Council.
- Construction impacts in this environment with the relatively unspoilt qualities of this area on the slopes of the Dublin Mountains would require good practice management to avoid in particular run-off contamination of local streams and waterways.

Cumulatively the impacts described are not deemed significant or insurmountable by appropriate management and mitigation strategies. Such strategies relate to quality design of built interventions, well planned and screened site infrastructure and parking, integrated traffic and transportation planning and implementation, and best practice design, construction and operation of the new facility.

1.0 Introduction
The Masterplan has been informed by ongoing analysis of the receiving environment, options and locations and the resulting scheme reflects an appropriate and benign response to the cultural and environmental resources present.

1.1 Project brief, background, objectives and team.

1.2 Scope of the Environmental report

The Environmental Report is not an Environmental Impact Assessment as defined by the EU Directive and regulations. The project proposals have been developed to Masterplan level and is not a definitive proposal to planning level. This report is structured similarly to an Environmental Impact Assessment and identifies, as far as feasible at this stage of project design, potential impacts and how the project responds to those impacts and site sensitivities in terms of mitigation.

1.3 Methodology in collating the Environmental Report

Much of the analysis and data informing the Environmental Report is contained in the various stage reports prepared to date as part of the staged process required by the client in defining the project and identifying a suitable location for the proposed development. It is not the intention to reproduce that information in an environmental report but to summarise the key issues under the various chapter headings and outline the issues in a clear and concise way for each topic as appropriate.

1.4 Description of the Project

The project proposal consists of the following elements that form the basis of a new flagship tourism facility and attraction developed around the twin Dublin Mountain woodlands of Hell Fire Wood on Montpelier Hill and the adjacent Massey's Wood. The woods are separated by the R115 road from Dublin south to Kilakee and Sallys Gap.

h) Dublin Mountains Visitor Centre – 2 buildings totalling 1942m^2 on an elevated location on Montpelier Hill with panaoramic vierws over the city and northern slopes – consisting of:
   - an iconic glass-fronted building
   - Reception Area inside the main entrance, operating as a Welcoming and Orientation Point for visitors to the Mountains.
   - Ramblers' Lounge
   - Panorama Cafe / Restaurant
   - AV/Movie Theatre
   - Events and Exhibition Venue

i) A feature and iconic tree canopy walk linking the new visitor centre on Montpelier Hill across the R115 to Masseys Wood.
j) Associated parking on a series of terraces providing 314no spaces including the existing ca. 83 spaces. Overspill parking may be provided on –site also on grassed areas.
k) Ne accesss junction from R115.
l) Viewing and Interpretation Points including a small wedge shaped structure near the Hell Fire Club
m) Improved tracks and trassl including new sections/routes and links throughout Hell Fire Wood/Montpelier Hill and Masseys Wood.
n) Overall improved management and development of the amenities, recreational value and heritage of both Hell Fire Wood and Masseys Wood connecting to the wider mountain landscape and maintaining silvicultural practices in the commercial and amenity forests.

1.5 Alternatives Considered

A site selection process was undertaken by the project team examining the environmental sensitivities of a range of potential sites in the upland areas of South Dublin. Parallel to this a study of the requirement and profile of a Flagship Visitor Centre was also carried out.

As part of this process 5 options were initially identified as potentially suitable for the centre and its emerging concept. These were:
- Hell Fire Wood
- Masseys Estate
- Stewards House and Belfry (private)
- Featherbed/Kilakee
- Cruagh
- And a combined Hell Fire Wood and Masseys Estate option

Following this analysis in Stage One and Two of this study the preferred option of the combined Hell Fire Wood and Massey's Estate was identified and developed in more detail. This option forms the basis of the Masterplan in Stage 3 of this study and the subject of this Environmental Report.

2.0 Commentary of the environmental aspects likely to be significantly affected by the project

2.1.0. Human Beings

The immediate receiving environment of the proposed visitor centre consists of the existing local attraction and recreation areas created by the Hell Fire Wood and Massey's Wood, and the immediate stretch of the R115 along which are found a range of residences, and rural enterprises.

The wider context is the suburbs and built-up area of Dublin City to the north and west and, to the south the increasingly rural, upland, remote and wild Dublin and then Wicklow Mountains, including the Wicklow Mountains National Park. This receiving environment is described in more detail in Stages 1 and 2 above.

This section describes the potential impacts of the development on Human Beings – planning and land use issues, travel and transport, and Tourism/recreation locally.

2.1.1 The Existing Environment

Planning, Land Use
Planning and land use as well as related landscape and conservation policy has been examined at length in identifying an appropriate location for the visitor centre. The main "development" aspects of the project are confined to a 7 ha area on Montpelier Hill where the main building and service facilities including parking, would be located. Other parts of the project involve enhanced maintenance and management, and interpretation of the existing recreational and heritage amenities.

Fig. 141 Traffic Route from M50 Junction 12 to Hell Fire Wood

Fig. 142 *Overspill Parking on Killakee Road at Hell Fire Wood, despite double yellow lines*

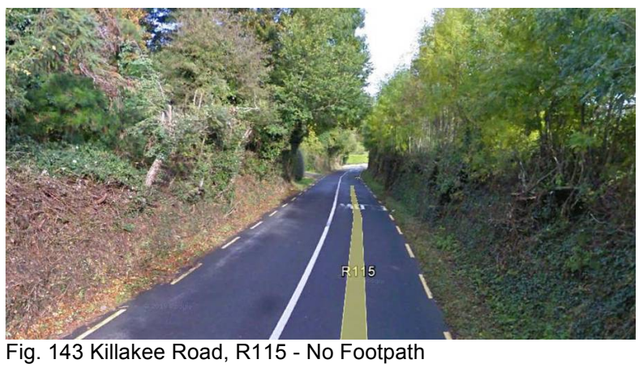


Fig. 143 Killakee Road, R115 - No Footpath

Key Planning and Environmental Considerations identified include:

- Preference should be given to sites beneath the 350m contour line
- Tourism developments above the 120m contour or within high amenity zoned lands will require a landscape assessment / rationale.
- Protected views and prospects from the city will need to be considered in any site selection and design.
- Protected scenic routes will need to be considered in any site selection and design.
- Any proposed building in the Dublin Mountains Area (Objective H) should be low rise and be sensitive in siting and design.
- Adverse impacts on Natura 2000 sites and the Wicklow National Park should be carefully considered and avoided where possible.
- The current zoning of much of the study area (Objective H – to protect and enhance the outstanding natural character of the Dublin Mountain Area) lists a number of relevant uses open for consideration Part of the study area is located in Zone Objective B (to protect and improve rural amenity and to provide for the development of agriculture.

The Draft Development Plan 2016-2022 sets out policy supporting the development of the new visitor facility (supported by the draft plan ref ET5 Objective 3) and relevant ancillary uses to that facility.

Travel and Transport

Consideration of suitable accessibility was a significant factor during the Site Selection Studies that identified the most suitable place for the proposed Dublin Mountains Visitor Centre to be on the eastern side of Montpelier Hill within the Hell Fire Wood at a distance of about 2.5km south of the Dublin urban area. This close proximity to the city should assist access to the site by a number of transport modes so as not be totally reliant on private vehicular traffic. This site is easily accessible from the public road and is situated so as to provide high quality views across the northern edge of the Dublin Mountains and to the city with Dublin Bay in the distance.

The proposed location for the Dublin Mountains Visitor Centre at Hell Fire Wood is as close to the city as possible so as to link to public transport services, with connections to suitable walking and cycling routes, and along a regional road that can provide suitable traffic access.

Existing Roads - Traffic Access

There are several regional roads in the central sector of the Dublin Mountains in the vicinity of Hell Fire Wood, all of which are fairly narrow, with long steep gradients (10% or more) as they climb from the edge of the city southward. The local roads generally consist of cul-de-sac routes into the valleys and hillsides that are mostly used for access to farms and rural residences. These roads are typically as narrow as 4m or 3m and are only suitable for very low volumes of local access traffic. They are also suitable and pleasant for walking due to their quiet character with slow traffic speeds.

The two regional roads in the central area of the Dublin Mountains that link southward from Rathfarnham are:

- R115 Stocking Lane / Killakee Road / Military Road from Ballyboden into County Wicklow at Glencree and continuing onward through the heart of the Wicklow Mountains to Laragh and Glendalough; and
- R116 Edmondstown Road / Cruagh Road, also from Ballyboden, that extends south-eastward by Rockbrook and Tibradden and then descends into Glencullen.
-

These regional roads are typically 5m to 5.5m wide and carry moderate levels of traffic consisting of both local access traffic and visitors entering the mountains from the north. They are the primary access routes into the mountains and are generally suitable to cater for a modest increase in traffic that may be attracted by the proposed visitor centre.

A further regional road the R113 traverses east to west across the foot of the mountains from Ballinteer towards Oldcourt. This road is narrower in places than the other regional roads and also contains some very sharp bends such as the hairpin bend at Rockbrook at the junction with the R116 Cruagh Road. This road is not suitable for additional traffic volumes, and especially for large coaches, which would not be able to get around several sharp bends at Rockbrook.

Three traffic access routes are available from the Dublin city direction to Hell Fire Wood:

iv) From Dublin City Centre via Rathfarnham and the R115 regional route along Stocking Lane and Killakee Road, over a distance of 12 km;

v) From M50 Junction 12 via Ballycullen Road, Gunny Hill (R113) and Killakee Road (R115), over a distance of 4 km;

vi) From Tallaght via Oldbawn Road and Killininny Road to join the same route as from the M50, over a distance of 6 km.

All of these access routes involve up to 2.5 km along rural roads that are relatively narrow. These roads have considerable landscape character and should not be improved for a modest increase in traffic attracted to the proposed *Dublin Mountains Visitor Centre*. The narrow and bendy roads serve to slow traffic and to support the low speed limits that facilitate shared use by cyclists.

Existing Car Parking at Hell Fire Wood

The existing car park provides approximately 80 car parking spaces over an area of 0.22 Hectares in a single aisle arrangement that is 16m wide and 140m long. This car park is regularly full at weekends with typically 40 or so cars parked along the public road outside. This overspill parking causes traffic congestion and there is a clear need to increase the capacity of the car park in Hell Fire Wood to cope with existing demand before provision for new demand generated by the proposed visitor centre.

Existing Pedestrian Access

There are no footpaths along Killakee Road or other rural roads between the proposed site and the city edge, 2.5km to the north. It is not therefore currently pleasant or particularly safe to walk to the Hell Fire Wood from the city.

Fig. 144 No.15B Bus at Woodstown (Stocking Avenue)


Fig. 145 Cruagh Road, R116


Fig. 146 Cruagh Lane - suitable for pedestrians without a footpath


Fig. 147 Existing Cycle Track along Stocking Lane

Existing Public Transport Access

Bus at Ballycullen / Woodstown

Bus Route 15: Woodstown Village - Ballycullen - Knocklyon - Templeogue - Terenure - Rathmines - City Centre - north side to Clongriffin: 10 minute frequency.

Bus Route 15B: Ballycullen - Woodstown Village - Rathfarnham - Rathgar - Georges Street - Dame Street - Grand Canal Dock: 20 minute frequency Monday to Saturday, 30 minute frequency on Sunday.

The most direct walking connection from the public bus service at Woodstown to Hell Fire Wood is over distance of 2.5 km along unsuitable roads without footpaths at Ballycullen Road / Gunny Hill / Killakee Road

Bus at Rockbrook
Bus Routes 61: Rockbrook - Whitechurch - Rathfarnham - Dundrum - Milltown - Ranelagh - Eden Quay:

- Hourly service from city to Whitechurch, 7 days a week;
- 2 services daily Monday to Friday extend to Rockbrook;
- No service at weekends

Bus Routes 161: Rockbrook - Whitechurch - Grange Road - Nutgrove - Dundrum LUAS stop:

- 4 services daily Monday to Friday
- No service at weekends

Pedestrian Access Route from Rockbrook
1 km walk to Massey's Wood and a further 1km to Hell Fire Club, including

- 0.5 km along R116 Cruagh Road without a footpath, and
- 0.5 km along Cruagh Lane, a very quiet rural road from Cruagh Road to Massey's Wood.

The absence of a footpath on Cruagh Road is a hindrance to the safe and comfortable access into the Dublin Mountains from the public bus service at Rockbrook.

LUAS/Bus at Tallaght to Bus at Marlay Park:
A long distance walking route could be undertaken along the northern edge of the Dublin Mountains following the Dublin Mountain Way and a part of the Wicklow Way from Tallaght to Marlay Park. Mid-way along, this route would pass by the proposed Dublin Mountains Visitor Centre at Killakee, where the centre can provide opportunities for rest and refreshment. Such an itinerary could be as follows:

- LUAS Red Line from City Centre to Tallaght; or
- Bus Routes 49 (30 minutes frequency), 54a (30 minutes frequency), 65b (hourly frequency) from City Centre to Kiltipper Way, 1km south of Tallaght Town Centre;
- 15 km walk from Kiltipper Way along the Dublin Mountains Way via Bohernabreena Reservoirs, of which 7 km is along quiet local rural roads. (Due to private lands, the DMW takes a very circuitous route immediately west of Montpelier Hill (Hell Fire Club), which adds 3.5 km to the walking distance compared to a potential direct route.)
- 15 km walk via Cruagh, Tibradden and Kilmashogue to Marlay Park;
- Bus Route 16 (12 minute frequency) from Grange Road to City Centre (and Dublin Airport).

Existing Cycling Access

The Hell Fire Wood is located at some distance from the nearest cycling facilities in the Dublin suburban area as follows:

a) 2.5 km to Ballycullen Road via Killakee Road (R115) and Gunny Hill (R113);
b) 3.5 km to Ballyboden via Killakee Road (R115), Stocking Lane, with a 1 km length of cycle track, and Scholarstown Road;
c) 3.5 km via Massey's Wood, Cruagh Road (R116) through Rockbrook and Edmondstown Road (with some traffic calming) to Ballyboden.


Fig. 144 Recreational Cyclist on The Military Road climbing up to The Featherbed

The speed limits on these rural roads are reduced to reflect the narrowness and bendiness:

- Along the R115 route the 50 km/h zone extends southwards from the urban area along Stocking Lane and Killakee Road to the Gunny Hill (R113) junction, which is 1 km north of the Hell Fire Wood car park. There is a 60 km/h speed limit along Killakee Road past the Hell Fire Wood all the way up to just beyond the Killakee Viewing Point at the Cruagh Road junction over a length of 2.5 km;
- On the R116 route along Edmonstown Road and Cruagh Road, there are similar speed limits applied, with the 50 km/h zone extending to just south of the Mount Venus Road junction at Rockbrook.

The existing conditions on these roads are generally suitable for experienced cyclists to share with traffic due to the fairly low traffic volumes and the low speed limits.

Tourism and Recreation

The main tourism and recreational uses of the site, under the management of Colite/DMP, are:

- Short Leisure Walks - a frequent activity
- Informal Touring by Car – passing through the site, with some stopping there
- Organised Excursions – mainly passing through the site (apart from the ghost tour and special interest groups)
- Hill Walking/Rambling – passing through as part of a longer walk
- Mountain Biking – informally and unofficially
- Mountain Running – mainly informal jogging in this area
- Road Cycling and Motorcycling - passing through the site, with some stopping there
- Horse Riding - informally and unofficially
- Sightseeing – from the top of Hellfire

To encourage and support those stopping in the area, there is a car park with space for around 80 cars. At times, this is at capacity and cars are parked along the roadside.

There is evidence of anti-social behaviour at Hellfire and Massy's Wood, including vandalism and graffiti.

The only existing business located close to the site is Timbertrove which includes a country store and café, used by visitors.

DMP estimate that Hellfire gets 50,000 visits per year and Massey's Wood gets 20,000.

2.1.2 Potential Impacts

Planning, Land Use

Land use policy in the area does not conflict with the proposed development type and uses. The site selection process and concept reflect local and emerging environmatal and planning policies.

In terms of impacts on planning and landuse the project will see an intensification of uses in a well planned designed and managed site.

Travel and Transport

The proposed Dublin Mountains Visitor Centre will attract a large increase in the number of people wishing to travel to the site, mainly on the northern approach from the city. Average visitor numbers are expected to be in the order of 1,250 per day.

At present the site could not cope with any increase in transport demand for the following reasons:

a) The site is not properly accessible by public transport which is located 2.5km away at the closest'
b) The site is not properly accessible by walking in the absence of footpaths on Stocking Lane / Killakee Road, Gunny Hill or Edmondstown Road / Cruagh Road or alternative routes away from public roads;
c) The site is not properly accessible for cautious cyclists in the absence of a segregated cycle route;
d) The existing car park at Hell Fire Wood is overloaded regularly and needs to be significantly enlarged.

Tourism and Recreation

The proposal is to create a flagship visitor attraction on the site that will generate around 300,000 visits per year. The main potential beneficial impacts of this will be:

- A significant addition to the tourism product offered by Dublin at home and overseas
- A new focal point and visitor centre for the wider Dublin Mountains area
- Encouragement of more health and wellbeing activities within the environs
- Promotion of greater knowledge and understanding of the Dublin Mountains and the countryside in general
- Support for an estimated xx jobs, directly on site [to be added]
- An estimated contribution of €xxx to the local economy [to be added]
- Much improved parking provision
- Reduction in anti-social behaviour in the area (through greater security)

2.1.3 Mitigation Strategies

Planning, Land Use

With the Development Plan 2016-2022 still in draft and awiting adoption by the local authority, there is an opportunity to refect the masterplan and feasibility study proposals in the masterplan and ensure planning and land use policy aligns with the specific recommendations of this study.

Travel and Transport

Marketing of the visitor centre for tourists in Dublin City should seek to encourage people to use public transport services to visit the site. Many will not have rental cars and it can be expected that they will use a bus service if provided. The site should attract service providers such as those that already run day tour services to places like Malahide Castle Demesne, or into the Wicklow Mountains.

On the basis that the site will be accessible by special tourist bus services from Dublin, it is reasonable to assume that there will be a mode share of 60% arrival by car, with the balance using public transport, walking to cycling.

Traffic Access and Parking

An assessment of the potential visitor numbers to the site has been provided by Tourism Development International amounting to 300,000 visitors per annum. On this basis the parking demand for the site has been estimated to be about 230 spaces, including the existing demand at the site. To allow for variable peaks in demand, it is therefore proposed to provide for 300 car parking spaces and 10 coach spaces on the site. The new parking capacity will provide 220 spaces in addition to the existing 80 spaces.

It is not proposed to impose parking charges as this would run the risk of people parking on the public road instead of in the car park.

Fig. 148 60/50 km/h Speed Limit on Killakee Road at Gunny Hill Junction, looking south

Fig. 149 Example: Shuttle Bus for Mount Snowdon at Pen-Y-Pass

Fig. 150 Possible Owendoher Greenway (in bright green)

Satellite Parking

As the visitor centre is intended to be a base for a cluster of sites in the vicinity, there will be satellite parking available at Killakee, Cruagh Wood, Tibradden Wood etc. Some visitors may call by the centre on their way to and from these other sites and only stay briefly. Others may park at Cruagh for example and make an extended walking trip to Massey's Wood and Hell Fire Wood.

VMS Parking Signs

After a period of monitoring in the early stage of the visitor centre opening, if it is found that parking demand is higher than forecast, then further mitigation measures can be implemented with overflow parking at a site closer to the city and with suitable warning signs for drivers on approach.

An electronic monitoring system can be provided to record the occupancy rate at the Hell Fire Wood Car Park. This would link to Variable Message Signs (VMS) to the north before the junctions of Stocking Avenue on the two main approach routes from the city and M50 directions. Those signs will alert drivers to the lack of parking spaces at Hell Fire Wood and will instead direct them to an over-flow car park on SDCC land at the eastern end of Stocking Avenue.

Over-Flow Parking

There may be a greater than expected parking demand if the visitor centre is particularly successful, or if mode share by car is higher than expected despite promotion of alternative modes of transport. It is not desirable to further expand the car parking capacity at Hell Fire Wood beyond 300 spaces for landscape impact reasons. Instead consideration could be given to a satellite car park further north at the edge of the urban area. South Dublin County Council has land at the junction of Stocking Avenue and Stocking Lane at about 2.5km from the visitor centre site, which would suit. The suggested shuttle bus from the public bus terminus Woodstown could also link this car park to the visitor centre. Such an arrangement is provided at Pen-Y-Pass in Snowdonia in North Wales as shown in the following photograph.

Improvements to Pedestrian and Bicycle Access and Parking

There will be several access points for pedestrians and cyclists:

a) From Rockbrook via Cruagh Lane to Massey's Wood lower gate, as linked from the city via the suggested *Owendoher Greenway* described below;
b) From Killakee Road though the main car park entrance.
c) A possible new footpath from the northwest at the townland of Orlagh into Hell Fire Wood.

Potentially a 3 km long greenway could be developed along the *Owendoher River* from Ballyboden southwards through Rockbrook and into Massey's Wood, which would provide a very pleasant access route to the site for cyclists and walkers approaching from the northern direction. Parts of this greenway have already been put in place associated with various developments as shown in later photographs. The river is located alongside Edmondstown Road on the western side for 1.5km from Ballyboden southward to Kilmashogue Cemetery just south of the high bridge under the M50 motorway. Along this section much of the river corridor seems to be publicly accessible as part of the road reservation or within housing developments. However, some private lands would be involved along the route such as at the disused mill in Edmondstown.

South of the M50 the river crosses under Edmondstown Road and passes through fields at a distance of about 50m to the east of the road. A greenway route along this section would entail private lands over a distance of 1.3km.

Bicycle parking facilities will be provided at both access points so that cyclists may proceed on foot if they wish to go for a walk. The quantum of cycle parking proposed is as follows:

- 50 spaces at the Massey's lower gate;
- 100 spaces at Hell Fire Wood.

It would be attractive for cyclists to traverse through Massey's Wood from Rockbrook so as to be able to continue southward along Killakee Road into the higher mountains if they wish. It is proposed therefore that the core network of universal access trails through the site will be available for shared use by cyclists in accordance with the usual greenway principles of priority for pedestrians.

A suitable grit surface will be provided on these main tracks for use by bicycles as well as wheelchairs and buggies.

Link Bridge from Hell Fire Wood to Massey's Wood

A link bridge will be provided between Hell Fire Wood and Massey's Wood over Killakee Road, which will be about 250m long so as to address the gradient along the route. To accommodate the expected volume and mix of users on this route, a width of 4m is proposed.

This bridge will overcome the current severance between the two sites which causes some people to park on the road at the entrance to Massey's Wood on Killakee Road. In future these people can use the enlarged car park at Hell Fire Wood and then cross on the new bridge to Massey's Wood.

Improvements for Access by Public Transport

The existing bus services provide potentially suitable access to the Hell Fire Wood area under consideration for the proposed Dublin Mountains Visitor Centre. The following options could be considered for improved public transport access:

a) Extended Route 15 for 2.5km from Woodstown Village via Gunny Lane, possibly as a Route 15C variant every 30 minutes (1 in 3 services) or hourly (1 in 6 services). However, the gradient of up to 12% on this route is probably too steep for a standard Dublin Bus vehicle and the operating costs would be high for the small number of passengers.

b) Shuttle Bus link to Route 15 at Woodstown Village. This could use a smaller and more suitable vehicle that could better manage the steep gradients and narrow road. It could also be used for a hill-walker shuttle bus service up to the *Feather Bed* on the *Military Road*. A single vehicle could provide a service at 20 minute intervals at peak periods. For off-peak periods an on demand service could be provided with a notice at the bus terminus of a number to call for the shuttle bus to come down from the centre.

c) Rockbrook Bus Service frequency improvement: More services could be provided to Rockbrook to enable walkers to link towards the LUAS at Dundrum and other areas to the east. This could be a secondary service for the visitor centre, involving a pleasant 2km long walk via the proposed *Owendoher Greenway* and Massey's Wood.

d) An *Art O'Neill Bus* tourist service from Dublin Castle direct to Hell Fire generally following the historical escape route taken by Art O'Neill and Red Hugh O'Donnell in January 1592. This could be a special service as an event for visitors to Dublin to undertake for a wider experience.

New Pedestrian Access Route from Woodstown to Hell Fire Wood

As noted earlier there is no satisfactory pedestrian link from the end of the high-frequency bus service at Woodstown to the Hell Fire Wood. However, there is potential for a very good walking route directly to the site and away from the narrow public roads. The proposed pedestrian access route is from Woodstown to Hell Fire Wood via Orlagh Lane to the north-western corner of the forest as shown in the following aerial photograph. This route will be very pleasant and will approach the visitor centre from over the summit of Montpelier Hill past the *Hell Fire Club* building.

This route would follow an existing footpath westward along Hunters Road / Old Court Road for 0.6km. Orlagh Lane is a quiet cul-de-sac road that extends for 0.75km directly southward from Old Court Road to the edge of the mountains. There is a gravel track across the fields for 0.8km to the boundary of Hell Fire Wood. Public access along this track would need to be secured by South Dublin County Council. The remaining 1.6km would follow forest roads within the Coillte lands.

Fig. 151 Pedestrian Route (in yellow) from Bus No.15B at Woodstown to Hell Fire Wood via Orlagh Lane: 3.8km

Tourism and Recreation

Those potential impacts that will require mitigating measures are:

- The enlarged car park and new coach park (to minimise visual intrusion and any likelihood of congestion or safety issues)
- The visual appearance of the new centre (which has to be striking but in total sympathy with its environment)
- The possibility of queuing at busy times and crowding at viewpoints
- Footfall pressure at specific points of interest
- The appearance and operation of the proposed shuttle vehicle attraction
- Pressure on footpaths and shuttle routes

2.2.0 Flora and Fauna

Introduction

This section of the Environmental Assessment Report describes the existing habitats and species present on site, assesses the potential impact of the proposed Masterplan on these habitats and species and proposes mitigation measures to avoid, reduce or remedy any predicted significant effects.

A standalone Stage I Screening for Appropriate Assessment has also been prepared in respect of the proposed Masterplan which examined any likely significant effects as a result of the proposed scheme on the designated Natura 2000 sites within close proximity to the Masterplan site. The results of this assessment are summarised in Section 4.2.3 below.

Assessment Methodology

A number of methodologies were employed in completing this chapter of the environmental assessment including detailed desk-based studies and a multi-disciplinary site survey. Further details are provided below.

Desk Study

The purposes of the desk study were to review information available in the public domain and to obtain information held by statutory and non-statutory consultees. 10km and 1km buffer zones for designated sites and protected species records respectively were considered to be sufficient for the desk study based on the size of the Masterplan Site and the category of development involved (proposed development of tourism facilities).

ArcView software using Ordnance Survey maps and NPWS shapefiles were used to identify the boundary of the Site in relation to Natura 2000 sites, i.e. Special Areas of Conservation (SAC) designated under the EC Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas (SPA) designated under the EC Birds Directive (Directive 2009/147 EC); and, other sites of conservation importance, for instance, proposed Natural Heritage Areas (pNHA) and Nature Reserves.

As part of the information gathering process, a desk study was carried out to identify recent and historical records of protected species within and adjacent to the Site. The desk study was conducted using the following sources:

- National Biodiversity Data Centre (NBDC Online Interactive Map);
- National Parks and Wildlife Service (NPWS – Map Viewer); and
- National Parks & Wildlife Service (2013) The Status of EU Protected Habitats and Species in Ireland. Volume 2 & 3: Article 17 Assessments. Department of Arts, Heritage and Gaeltacht.

As with all desk studies, the data considered were only as good as the data supplied by the recorders and recording schemes. The recording schemes provide disclaimers in relation to the quality and quantity of the data they provide and these were considered when examining out-puts of the desk study.

Multi-disciplinary Site Walkover Survey

A multi-disciplinary walkover survey was conducted on 17th November 2015. The areas earmarked for development, were located and examined and those habitats present were identified. Any plant species present were identified and habitat types were assigned in the field.

Habitats were classified using A Habitats Guide to Ireland (Fossitt 2000) and the dominant plant species were recorded. Surveys were undertaken in accordance with the NRA 'Guidelines for Assessment of Ecological Impacts of National Road Schemes (2009)' and reference was made to the NRA Ecological Surveying Techniques for Protected Flora and Fauna (2009).

Any notable signs of protected species in the areas surrounding the proposed development locations were also recorded during the site visit. Mammals and birds were assessed in the course of the main habitat survey using a combination of direct sightings and observations of signs, tracks and droppings.

Survey Limitations

Standard survey methods were followed (Best Practice Guidance for Habitat Survey & Mapping, Heritage Council, 2011) however, any biases or limitations associated with these methods could potentially affect the results collected. Furthermore, while every effort was made to provide a full assessment and comprehensive description of the site, the Fossitt Habitat survey was conducted in November 2015 and this would not be considered an optimal time of year for habitat surveys. The optimum time of year for broad habitat surveys is considered to be between May and September.

2.2.1. The Existing Environment

Designated Sites

A review of all designated sites within close proximity (10km) to the site was undertaken to identify habitats and species of conservation importance within the wider area and to ensure that any designated features linked to these sites, and that have potential to occur within the Site, were a material consideration during the survey. The details of these sites are listed in Table

Table 2.2.1. Designated Sites within 10km of Masterplan Site

Site Code	Designation	Site Name	Distance and Direction from Site
002122	SAC	Wicklow Mountains SAC	1.7km South
004040	SPA	Wicklow Mountains SPA	1.7km South
001209	SAC/pNHA	Glenasmole Valley SAC/pNHA	2.2km West
000725	SAC/pNHA	Knocksink Wood SAC/pNHA	8.2km East
000991	pNHA	Dodder Valley pNHA	6km North
001753	pNHA	Fitzsimon's Wood pNHA	5km Northeast

No direct or indirect connections between the project site and those sites listed above were identified. Therefore no impacts on any of the species or habitats present in these sites is expected and they have been ruled out from further assessment. In the case of Natura 2000 designated sites, their assessment is discussed in detail as part of the Screening for AA.

Protected Species

Online sources of publicly available data offered by National Biodiversity Data Centre (NBDC) informed the desk study. A 1km buffer was examined for any protected species within close proximity to the site. The following species were identified within that area.

Table 2.2.2. Notable Protected Species Records within the 1km Site, Source: NBDC

Species	Closest Proximity And Date	Designation	Suitable Habitat Within The Site
Pine Marten (*Martes martes*)	On site close south of existing car park (2007)	European Protected Species: EU Habitats Directive Ireland: Annex V Protected Species: Wildlife Acts	Yes
Bat Species: Brown long-eared Common pipistrelle Soprano pipistrelle Leisler's Natterer's	Several records of various species within site.	European Protected Species: Annex IV Protected Species: EU Habitats Directive Ireland: Protected Species: Wildlife Acts	Yes
Otter (*Lutra lutra*)	200 metres north of site in agricultural lands	European Protected Species: Annex II Protected Species: EU Habitats Directive Ireland: Annex IV Protected Species: Wildlife Acts	Yes
Red Squirrel (*Sciurus vulgaris*)	Three locations on site recorded as part of the Irish Squirrel Survey 2007	Ireland: Protected Species: Wildlife Acts	Yes
Red Deer (*Cervus elaphus*)	Identified throughout the site (Irish Red Deer database 2010)	Ireland: Protected Species: Wildlife Acts	Yes
Badger (*Meles meles*)	NBDC shows that there is potential for this species to occur throughout the site.	Ireland: Protected Species: Wildlife Acts	Yes

Plate 4.4.1 View of conifer plantation to the rear of Hell Fire Club

Plate 4.4.2 Proposed location of Visitors Centre and Events Venue

Plate 4.4.3 Cherry laurel in Massey's Wood

Plate 4.4.4 Young beech woodland in Massy's Gardens

Habitats present on Masterplan Site

In general the vegetation and habitats present in the project area can be assigned to the following habitats, based on the Fossitt (2000) habitat classification:

Table 2.2.3. List of Habitats identified during walkover survey

Habitat Type	Fossitt, 2000 Habitat Code
Improved agricultural grassland	GA1
Ornamental/non native shrub	WS3
Mixed broadleaved woodland	WD1
Conifer Plantation	WD4
Scrub	WS1
Stone walls and other stonework	BL1
Earth Bank	BL2
Buildings and artificial surfaces	BL3
Eroding upland River	FW1

These habitats are described in more detail below and illustrated in Plates 4.4.1 - 4.4.4.

The Hell Fire Wood is located on Montpelier Hill which rises to 388m and is the most north westerly outlying hill of the Dublin Mountains. The slopes around the hill are comprised of improved agricultural grasslands (GA1) on the north side and conifer plantation (WD4) on the remaining sides. The area to the rear of the Hell Fire Club building where the new archaeological enclosure is to be constructed is comprised of conifer plantation consisting of mainly Sitka Spruce (see Plate 4.2.1).

Hell Fire Wood is a working, commercial forest and will remain so into the future. With a new visitor facility and enhanced amenity function there would be a need for some localised changes in land use and management to ensure the commercial forest and the planned amenity can coexist. It is proposed to increase the area of car-parking in the northern section of the site through the provision of new terraces on the upper slopes. It is envisaged that the terrace arrangement could be laid out to suit site conditions and retain trees where necessary. At present some mature trees have been retained adjacent to the car-park for aesthetic reasons and screening of the car-park. However their retention may not be feasible into the future due to the potential of the conifers to become over tall and prone to wind throw. Parking surfaces could be in a range of materials from loose gravel to reinforced grass to blacktop, depending on design objectives. However the surfaces are likely to be a mix of both. This area of the site is of low biodiversity interest as minimum light penetrates through the conifers and the area is devoid of any ground flora, however the area may host red-squirrels who favour such habitat (NBDC record). A number of middle aged broad leafed trees are found at Hell Fire as well as some mature trees which pre-date the forest and clearly grew in open ground in the past. These trees could provide potential for bat roosts and would need to be examined further if their felling is proposed.

The Visitor's Centre is currently proposed in the area adjacent to the main access track to the south west of the carpark (See Plate 4.2.2). This area is comprised of more mature conifer plantation to the west (upper slope) and young Douglas Fir and scrub (WS1) to the east (downward slope) of the path. Felling of trees in this area would be required to make room for the development and removal of part of the bank on the western side would be required to make room for the proposed Events building.

Massy's Wood, in contrast to Hell Fire Wood, is predominantly a broad leaved woodland comprising beech (*Fagus sylvatica*), birch (*Betula pubescens*), oak (*Quercus robur*), sycamore (*Acer pseudoplatanus*), Spanish chestnut (*Castanea sativa*) and ash (*Fraxinus excelsior*) (WD1). There are some areas of coniferous plantation and specimen trees from the original Killakee demesne (WD2). Mature specimen trees include Irish Sessile Oak (*Quercus petraea*), Giant Sequoia (*Sequoiadendron giganteum)*, Irish Yew (*Taxus baccata 'fastigata'*), West Himalayan Spruce (*Picea smithiana*) and Monterey Pine (*Pinus radiate*). The wood has reasonably well developed structure in parts, although under dense beech or conifers shrub and field layer, development has been restricted. Cherry laurel and rhododendron, invasive shrubs, are abundant in places and detract from the nature conservation interest of the site (See plate 4.2.3). There is an objective in the current management plan for the site to address this issue.

Whilst predominantly a recreational forest with a high biodiversity function, woodland management works are ongoing with the thinning of areas of beechwood planned in 2016. It is expected that the management of the woodland can be adapted to accommodate the amenity value that may be required. Stone Bridges (BL1) and an area which consists of a walled garden (BL1) which was originally part of the Kilakee demesne are located to the eastern extremity of the site. It is proposed to develop this area into a tourism attraction through enhancement of existing features.

The area of walled garden (Massy's Garden) which is planned for development currently has predominantly young beech trees growing in the area. Ground flora of bramble, nettles, bracken and ivy were noted in the walled garden area (see Plate 4.2.4)

Grey squirrel has been recorded previously on the site (Coilte, Biodiversity Management Plan).

The Owendougher River (River of Gold) (FW1) flows in a north-south direction along the eastern extremity of the Massy's Wood section of the site. The river connects into the River Dodder approximately 6km downstream and is part of the larger River Liffey system. According to the Inland Fisheries Report, Sampling Fish for the Water Framework Directive (2011 http://wfdfish.ie/wp-content/uploads/2011/08/ERBD_rivers_report_20111.pdf), brown trout was recorded on the river in 2011. While otter are likely to use this river corridor, no physical signs of the species were detected during the site visit.

2.2.2. Potential Impacts

Designated Areas

As stated previously a separate Screening for Appropriate Assessment has been carried out for the Masterplan to examine the potential for any likely significant impacts that the development may have on designated Natura 2000 sites. The assessment concluded that possible significant effects likely to arise from the project could be entirely screened out due to distance from qualifying features and their respective conservation objectives as all Natura 2000 sites are considered sufficiently distant and disconnected (no source-pathway-receptor link) from the project site. Please see the Screening for Appropriate Assessment for full details.

Habitats and Species

The development entails the construction of certain key structures within the Hell Fire Club Wood; this will involve the removal of several areas of both conifer and deciduous woodland. The project will also involve the upgrading of existing paths within the site area, again this is not expected to cause any significant impacts on the overall biodiversity of the site. As outlined above it is not expected that the removal of these patches of woodland will have a significant effect on the overall biodiversity value of the site. The impacts will be localised and providing that the mitigation measures listed in the next section are adhered to, then no adverse impacts are expected.

Otters and Badgers

No otter or badger signs were identified during the multi-disciplinary walkover. Although significant impacts are not expected on these species, given that the current Masterplan does not contain detailed design proposals for the site's development, it is recommended that further surveys of the areas of construction and those areas that are to be developed within Massy's gardens are carried out prior to construction.

Bats

Bats may be impacted on site as a result of the direct loss of roosting habitat and tree lines used for foraging and feeding. Impacts on these species are more likely in the Massy's woodland area as mature deciduous tress in this area provide suitable roosting habitat. As outlined in the mitigation measures below it is recommended that detailed bat surveys are carried out for any trees earmarked for felling as part of the development and any other areas where mature trees are proposed for removal. Small areas of feeding habitat such as scrub and other linear features such as treeline will be lost as a result of the proposed scheme. The removal of these linear features may also interfere with flight paths between foraging areas and roosting site and therefore replacement planting for these areas should be incorporated into the final design.

Birds

Assuming the proposed site clearance works associated with the development is undertaken outside of the breeding bird season from March 1st to August 31st (in accordance with the Wildlife (Amendment) Act (2000)), it is considered that there will be no perceptible impact on the local bird populations, as the habitats lost as a result of the development are primarily common and widespread. If works are planned during this time, a site inspection by a suitably qualified ecologist prior to and during clearance (Ecological Clerk of Works) will be required to ensure compliance while works proceed.

Non-Native Invasive Species

Invasive species represent one of the greatest threats to biodiversity, second only to that caused by direct habitat destruction. They do this by competitively excluding or outcompeting our less robust native species, by preying on native species or by altering the natural aquatic or riparian habitat in which they reside. The presence of Laurel throughout the Massy's wood site was noted during the site visit. It is acknowledged that treatment and removal of this plant is an aim of the management plan for the site devised by Coillte. Some areas comprising this invasive species are located close to possible development sites. These areas should be eradicated prior to any construction commencing.

2.2.3. Mitigation Strategies

As the Masterplan develops into the more detailed design phase, appropriate mitigation measures should be designed on a site and project-specific basis in consultation with relevant consultees (e.g. South Dublin County Council Heritage Section). The mitigation principles outlined below include avoiding or minimising habitat and species loss and any degradation to habitats and species populations, particularly of those protected species and species of conservation importance. Fragmentation of valuable features should also be avoided or minimised in areas where plant populations or habitats of nature conservation importance are present i.e. native tree species. Consideration should also be given to habitat enhancement works to take advantage of any opportunities that arise during the project design. For example, any future landscape planting within the area surrounding the proposed Visitor's Centre and also the Massy's wood area should comprise an appropriate species-rich mixture of native trees and shrubs, and should be designed to link with the existing woodland habitat.

The multi-disciplinary walkover survey did not identify the presence of protected species on site; however the desk study conducted for the site has identified records of Red Squirrel, Badger, Pine Marten, Red Deer and various Bat species. Otter was recorded previously to the north of the site in agricultural lands so there is likelihood that this species may use the Owendougher River that flows through the site. It is recommended that targeted surveys are carried out during optimal survey times for those areas of the site where clearing of woodland is required to re-examine the areas for the presence of protected species. Specific mitigation measures for European Protected Species that have been previously recorded on the site are given below:

Pine Marten
Where avoiding impacts on valuable habitat features for pine martens is not possible, mitigation should focus on the planting or enhancement of woodland habitat, incorporating a diverse range of woodland species, with the aim of maximising fruit production and prey availability. The retention of old trees with cavities suitable for use as dens should be considered, as should the provision of artificial dens (nest boxes).

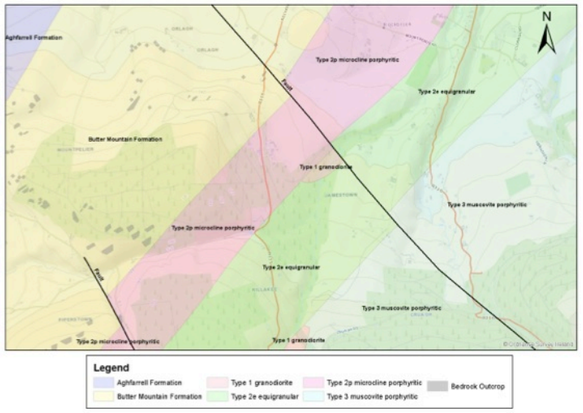


Figure 4.4.1 – Bedrock Formations in the Study Area

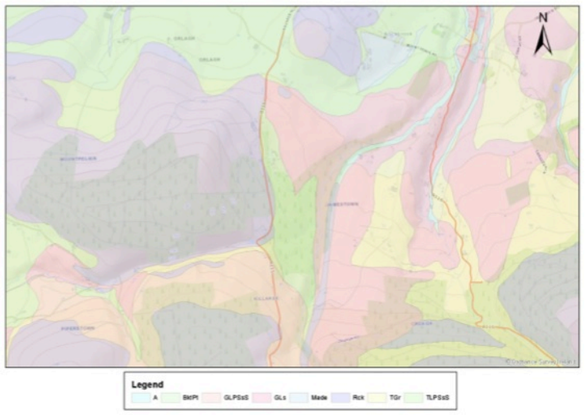


Figure 4.4.2 – Quaternary Geology across the Study Area

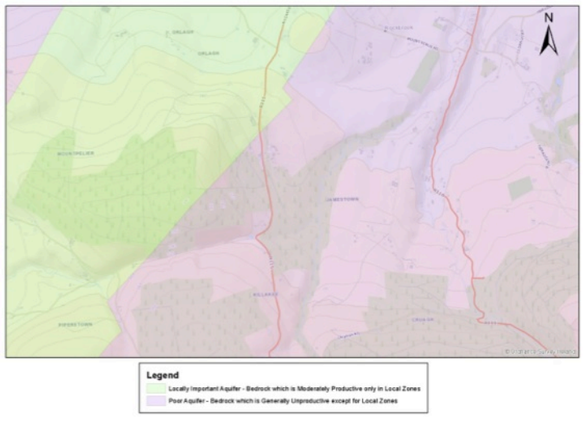


Figure 4.4.3 – Bedrock Aquifers in the Study Area
Red squirrels

Following the desk study and multi-disciplinary walkover survey, it is considered likely that there could be a possible negative effect on red squirrels in the Hell Fire Wood area, further targeted surveys will be necessary to confirm the presence of the species, and/or to collect information to inform a comprehensive impact assessment. A combination of three survey techniques should be used to determine the presence/absence of red squirrels: direct observation surveys; drey counts; and searching for feeding remains.

If the species is identified in this area, the following measures could be implemented;

- Artificial dreys (nest boxes) can be provided, and the provision of safe crossing points, such as rope bridges, can be considered to minimise the risk of mortality as a result of road traffic collisions, although the efficacy of rope bridges in particular (especially when larger distances need to be bridged) remains unproven.
- Unoccupied dreys located in trees to be affected by site clearance operations should be removed, with trees felled during mid-October to January, when there is least chance of encountering young squirrels.

Bats
Mitigation measures to offset the loss of roosts are detailed below:

- All mature trees which are to be cleared will be assessed prior to their felling by an experienced bat specialist. Following this any tree identified as providing potential or actual bat roosts will be felled (under supervision and NPWS / NIEA licence) during the autumn months of September or October to coincide with the least vulnerable parts of the bats' lifecycle (winter hibernation and summer breeding) and avoid the bird breeding season.
- Where possible severed linear features such as hedgerows and treelines will be reconnected using appropriate native species to reconnect bat commuting routes.

2.3.0 Soils, Geology and Groundwater

2.3.1. The Existing Environment

Solid Geology
A review of published available information predominantly based on the 1:100,000 scale Geological Survey of Ireland (GSI) map of the study area was undertaken. The area is generally underlain by Ordovician Metasediments and Leinster Granites. The generalised bedrock geology in the area is split between these two lithologies with the Ordovian Metasediments located to the west with Granite located to the east. Rock units in the area include both the Type 2p Microcline Porphyritic and Type 2e Equigranular Formations as well as the Butter Mountain formation. Each of these formations extends south-west to north-east – see Figure 4.1 below. These Lower Paleozoic rocks have a complex geological history and are thus highly folded and faulted with several phases of deformation. Two fault lines occur in parallel orientation to the formations north and south of the Masterplan area - see Figure 4.3.1.

The site of the proposed Materplan is generally underlain by granites. The Type 2p Microcline Porphyritic formation comprises granites with microcline phenocrysts whilst the Type 2e Equigranular consists of pale grey, fine to coarse-grained granites. The Butter Mountain formation extends along the western portion of the Masterplan site area and consists of dark slate-schist, quartzite and coticule.

Quaternary Deposits (Subsoils)
Subsoil depths across the Masterplan site will typically be low with bedrock recorded as being exposed in places. There is greater variety in sediment deposition in the area with areas of gravel deposits, tills (or 'boulder clay') and exposed rock recorded in the GSI Quaternary and Teagasc subsoil mapping. The following subsoil classifications are present across the proposed Masterplan site and these are shown in Figure 4.3.2:

- A - Alluvium undifferentiated
- GLPSsS - Sandstone and shale sands and gravels (Lower Palaeozoic)
- GLs - Limestone sands and gravels (Carboniferous)
- Rck - Bedrock at surface
- TGr - Granite till
- TLPSsS - Sandstone and shale till (Lower Palaeozoic)

Tills will generally be low permeability when compared with the sand and gravel deposits present to the east of the site. Alluvium deposits exist along the length of the Jamestown stream and are not extensive. The majority of the site is categorised as having bedrock exposed at the ground surface (Rck), however site walkover visits confirmed that till cover exists across almost the entire site with the exception of the area to the east of the R115. In areas that have been categorised as having bedrock exposed at the surface, it is likely that bedrock is shallow with subsoil generally less than 3m in depth.

Hydrogeology

Aquifer Classification
The site topography is mountainous with a steep north-east gradient. This topographic creates a steep hydraulic gradient in the aquifer, which will influence the velocity and volume of groundwater flow. The Leinster Granites are considered to be a Poor Aquifer (Pl), generally unproductive except in local zones. These rocks are typically low permeability with low storativity leading to their classification. The Ordovician Metasediment rocks are classified as being a Locally important aquifer (Ll) which is moderately productive only in local zones. The Ordovician Metasediments are one of the better aquifers in the region with a number of small public supplies abstracted from these rocks. A bedrock aquifer map of the proposed Masterplan Site is given in Figure 4.4.3.

The dominant aquifer recharge process in this area will be diffuse recharge from water percolating through the overlying subsoil. High rates of potential recharge are unlikely due to the steep topography which will result in increased runoff to streams and rivers. Potential recharge in the area is further limited because the rocks in this area are considered to be poor aquifers and hence do not have sufficient storativity to accept significant volumes of water.

Groundwater Vulnerability
Groundwater vulnerability characterises the geological and hydrogeological conditions to determine the ease by which groundwater may become contaminated by human activities. As part of this assessment, the GSI Groundwater Vulnerability mapping for the area was consulted and reviewed. The area of the proposed Masterplan Site is considered to be

predominantly of Extreme and High Vulnerability due to the presence of very shallow subsoil cover. The vulnerability rating of 'Extreme – bedrock exposed at the surface (X)' is likely better categorised as Extreme (E). Bedrock was confirmed as generally not exposed across the site during the site walkover visit however bedrock is likely shallow. To the east of the R115, a portion of the site is overlain by relatively low permeability till providing protection against contaminants and this area is considered to be of Moderate Vulnerability. The area adjacent to the Jamestown Stream is considered to be of High and Extreme Vulnerability due to rock being shallow or exposed. Groundwater vulnerability mapping of the area is shown in Figure 4.3.4.

Groundwater Bodies
The proposed Masterplan Site is located within the Kilcullen Groundwater Body (GWB) which is considered to have a poorly productive bedrock flow regime. The Kilcullen GWB is large, containing areas of Northeast Wicklow, Northwest Kildare and South Dublin. Given the size of this GWB, there is a varied topography with a significant mountainous region present to the south and east. Topographic highs present across the GWB influence all aspects of the groundwater system.

Groundwater Resources/Supply
There are no groundwater supplies located within 2km of the site identified within the GSI records. In addition the site is not located in close proximity to any public drinking water protection areas contained within GSI records.

Groundwater Flows
The majority of groundwater flow will occur in the upper 3 metres of the rocks. This flow is mostly in a weathered zone in a lateral direction towards discharge points such as rivers and springs. In some instances a fracture network may exist which will allow groundwater movement at greater depths however only flow in isolated fractures is expected below 30 m.

Regional groundwater flow paths are unlikely as the rocks do not have sufficient transmissivity to transport water over long distances. Typical groundwater flow paths will be less than 300m with discharge occurring to the closest surface water feature. Discharge will occur through springs at the break of slopes and also to overlying streams and rivers as baseflow. The proportion of flow in adjacent watercourses that is baseflow from groundwater will vary throughout the area.

2.3.2. Potential Impacts

Geology
The proposed Masterplan will involve the construction of certain key structures within both the Hell Fire Club Wood and Massy's Wood and the upgrading of existing paths within the site area. These works will involve excavations for foundations and associated construction works. Bedrock is likely shallow or exposed in the area, however it is unlikely that significantly deep excavations into bedrock will be required. Given the limited size and extent of the associated construction works, the proposed development will have a minimal impact on the geology of the surrounding area.

Quaternary Deposits (Subsoils)
Construction works will require the removal of topsoil and vegetation, however it is not expected that significant subsoil excavation will be required. Given that bedrock is shallow in the area it is likely to be encountered during excavation works and detailed design should incorporate this into construction planning. It is considered unlikely that significant bedrock cuts will be required during construction due to the nature of the proposed development. Overall, the proposed development will have a minimal impact on subsoil in the area.

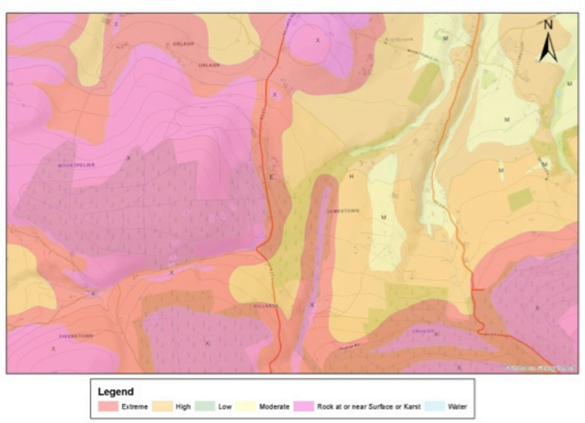


Figure 4.4.4 – Groundwater Vulnerability in the Study Area

Hydrogeology
Given the likely presence of shallow bedrock across the site, there is the potential for contamination of underlying bedrock aquifers particularly during construction. Excavation for foundations may encounter bedrock which would create a pathway for contaminants to enter bedrock. Localised point sources of pollution during the construction phase such as fuel storage tanks, workshop facilities, drums of machinery oil and leaks from plant or machinery are considered to be the most significant potential impact on groundwater quality in the area. Potential risks from construction activity include:

- Point sources of pollution entering the bedrock aquifer during excavations exposing shallow bedrock (e.g. leakages /spillages of fuels, oils, other chemicals and waste water, controlled discharges under licence)
- Creation of a vertical pathway in which potentially contaminated water/materials could migrate downwards contaminating groundwater
- Leaching of contaminants to groundwater through thin subsoil which could then discharging to streams/rivers

2.3.3. Mitigation Strategies

A Construction Environmental Management Plan (CEMP) should be adopted to ensure good construction management practices – further details are given in Section x.x below. If contaminated soil is encountered in any areas during construction, the extent of the contamination will be established. If necessary, it will be removed off-site and disposed of in accordance with the requirements of all relevant Waste Management Legislation and guidance provided in the NRA document entitled 'Guidelines for the Management of Waste from National Road Construction Projects, 2008'. It is considered that contaminated soil is unlikely to be encountered.

Given that the construction may involve excavation into shallow bedrock, there is the potential to create a vertical pathway in which potentially contaminated soils/sediment or chemical spills can migrate downwards contaminating groundwater. The CEMP should take account of this potential risk and limit the potential for vertical flowpaths to exist. Protection should be provided to block potentially contaminating material/liquid from entering the bedrock.

Disposal of surface water to ground by infiltration should incorporate appropriate sustainable urban drainage treatment stages in order to prevent contaminants entering groundwater. Appropriate treatment measures could include: grass swales, infiltration basins, grass channels or filter drains.

2.4.0 Surface Water

2.4.1. The Existing Environment

The proposed Masterplan Site falls within the Eastern River Basin District and is within the catchment of the River Dodder. The Dodder River rises above Glenasmole to the south-west and its catchment encompasses a total area of 120.8 km2 before discharging to the River Liffey at Ringsend. There are a number of sub-catchments within the immediate area which are

drained by the Jamestown Stream which flows along the eastern boundary of the subject lands. The Jamestown Stream confluences with the Owenadoher River downstream of the site before reaching the Dodder at Templeogue. A portion of the site may form part of the Orlagh Stream sub-catchment which confluences the Dodder at Firhouse.

Given the mountainous terrain, watercourses in the area will have a "flashy" profile. The steep terrain results in a large portion of rainfall in the area entering watercourses as runoff. In that regard, recharge to the underlying aquifers will be limited. The flashy profile of these watercourses has led to significant flooding across the Dodder catchment particularly in its lower reaches. During extreme rainfall events, watercourses will swell significantly followed by a rapid reduction in water levels.

2.4.2. Potential Impacts

The construction phase of the proposed development poses the highest risk for potential impacts to local hydrology. Works in the vicinity of watercourses throughout the area pose the potential for sediment material entering the waters which could cause temporary impacts on water quality during the construction phase. Pollution from mobilised suspended sediment is therefore the primary potential risk. In addition there is a risk to stream/river water quality from localised point sources of pollution during the construction phase such as fuel storage tanks, workshop facilities, drums of machinery oil and leaks from plant or machinery. Potential risks from construction activity include:

- The dispersal of contaminated sediments into the stream/river waters;
- Water quality impacts associated with works, machinery, infrastructure and on-land operations (e.g. leakages /spillages of fuels, oils, other chemicals and waste water, controlled discharges under licence);
- Impact of excavation operations adjacent to the watercourses through the creation of a vertical pathway in which potentially contaminated soils/sediment can migrate laterally ultimately contaminating surface water; and
- Leaching of contaminants to streams/rivers through gravels and permeable media

Once completed, the proposed development will result in increased impermeable areas which will result in increased surface water runoff volumes. Unmitigated these increased volumes of runoff could cause localised flooding and also influence areas further downstream in the catchment. Given the scale of development proposed, it is considered unlikely that significant changes to the local hydrology will occur. The incorporation of appropriate mitigation measures in the design process will allow for these impacts to be mitigated as detailed below.

2.4.3. Mitigation Strategies

There is no formal surface water drainage system in the area. Surface water run-off arising from the construction of the proposed development will be discharged to existing surface watercourses and/or soakaways as appropriate. Footpaths and walkways will incorporate over-edge drainage supplemented by drainage channels as required. Where possible these footpaths and walkways will be constructed of permeable media to promote infiltration to ground and therefore reduce runoff volumes. Runoff from hard standing areas and buildings will be discharged either to adjacent watercourses or soakaways. Runoff volumes from roofs or buildings can be further reduced by incorporating rainfall harvesting systems where appropriate. The final drainage discharge mechanism will be determined by both the proximity to existing watercourses and existing ground conditions. Disposal to existing watercourses will incorporate sustainable urban drainage systems in order to provide treatment prior to outfall. This will ensure there will be no reduction in surface water quality. Road drainage will incorporate at least two forms of treatment prior to outfall to existing watercourses and where required will provide attenuation for extreme rainfall events. It is anticipated that surface water runoff volumes arising from the development will be relatively small and therefore long term changes in local hydrology are unlikely to occur.

A Construction Environmental Management Plan (CEMP) will ensure good construction management practices and appropriate handling and spill response procedures are followed as part of the implementation of the mitigation strategy. Good construction management practices should be followed which should be in line with current guidance and legislation.

A suitable buffer zone shall be incorporated in the vicinity of watercourses with no works taking place inside this area. Mitigation measures will include the requirements for best practice and adherence to relevant Irish guidelines, or international guidelines where these are not available. In preparing the CEMP, reference should be made to:

- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001).
- Control of Substances Hazardous to Health (COSHH) Handling of Hazardous Materials.
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites. (Eastern Regional Fisheries Board, 2006)
- Maintenance and protection of the Inland Fisheries resource during road construction and improvement works. (Southern Regional Fisheries Board, 2007)
- Guidelines for the crossing of watercourses during the construction of National Road Schemes. (National Roads Authority, 2008).

The implementation of a comprehensive CEMP will ensure good construction management practices and appropriate handling and spill response procedures are followed as part of the implementation of the Mitigation strategy. The CEMP should prevent sediment or debris from entering the watercourses which could obstruct flow or reduce water quality. In addition site compounds should be located as far away from the stream/river banks as practically possible to limit the impact of potential pollution incidents during the construction stage.

2.5.0. Air Quality / Climate

2.5.1. The Existing Environment

Within the vicinity of the proposed development, there are no major sources of potential air pollution, such as heavy industrial premises. Montpelier Hill and Massey's Estate have low levels of air contamination due to the rural nature of their locations and the surrounding area. To the south, mountains dominate the area whilst the city suburbs are located to the north of the study area.

Meteorological conditions

Air pollution levels are largely dependent on meteorological conditions, particularly wind speed, wind direction and rainfall. The nearest representative Met Éireann weather station collating detailed wind and rain records is Baldonnel-Casement Aerodrome station, which is located approximately 9km northwest of the study area. The predominant wind direction is south westerly with an average wind speed of approximately 5.1-7.2m/s. The average annual rainfall for the area is reported as 754.3 mm/yr.

Background Air Quality Data

The proposed development is situated within Zone A: Dublin Conurbation, which is a zone categorised by the EPA for air quality monitoring and reporting. The EPA monitored air quality parameters at monitoring stations within Zone A, in close proximity to the proposed development site. The results for parameters including NO2, NOx, SO2, PM10, PM2.5, O3 and CO did not exceed their respective limits during 2014, (EPA, 2014).

2.5.2. Potential Impacts

During construction, the potential air quality impacts include emissions from construction vehicles and dust generation due to their movements. The potential air quality impacts associated with the operation of the proposed development include generator emissions from the visitor centre building along with vehicular emissions and dust generation due to the expected increase in traffic volumes.

The main sensitive receptor in the area includes a cluster of buildings located north of the entrances to both the Hell Fire Wood and Massey's Wood comprising heritage buildings, a cemetery, Steward's House, Timbertrove and Montpelier Farm. Additionally, residential clusters are located east of Massey's Wood. However, there are not likely to be significant impacts due to the construction and operation of the proposed development with regards to air quality due to the small scale of works associated with the development and the proximity of the works from sensitive receptors.

2.5.3. Mitigation Strategies

In order to minimise potential air pollutant emissions and dust generation as a result of increased traffic during construction, it is recommended that a Dust Management Plan be implemented. Measures involved in the Dust Management Plan should include:

- Site access roads will be regularly cleaned and maintained as appropriate;
- Construction vehicles will have their speeds restricted to prevent the unnecessary generation of fugitive dust emissions;
- Vehicles delivering material with dust generation potential shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind; and,

The dust management plan will be monitored and assessed at regular intervals by the contractor. In the event of dust nuisance occurring outside the site boundary, the effectiveness of existing measures will be reviewed and further mitigation will be implemented to rectify the problem.

It is concluded that no air quality mitigation measures are required during the operation of the development as the air quality impacts during the operation phase will not be significant.

2.6.0. Noise and Vibration

2.6.1. The Existing Environment

The nature of the study area is rural within a forested area and therefore, the noise levels within the proposed study area are relatively quiet. There are no major noise sources within the vicinity of the proposed development and the study area has low noise levels due to its rural nature. To the south, the area is dominated by mountains whilst the city suburbs are located to the north of the study area.

Noise levels within the area are expected to be <55 dBA Lden and <40 dBA Lnight according to South Dublin County Council Noise Maps 2013. Within the surrounding buildings the noise is assumed to be no greater than 55 dB.

2.6.2. Potential Impacts

During construction, the potential impacts due to noise and vibration include movements of construction vehicles and the operation of construction machinery. The potential noise impact associated with the operation of the proposed development includes increased noise levels due to increased volume of traffic. There will be no sources of vibration during the operational phase.

The main sensitive receptor in the area includes a cluster of buildings located north of the entrances to both the Hell Fire Wood and Massey's Wood comprising heritage buildings, a cemetery, Steward's House, Timbertrove and Montpelier Farm. Additionally, residential clusters are located east of Massey's Wood. However, there are not likely to be significant impacts due to the construction and operation of the proposed development with regards to noise and vibration due to the small scale of works associated with the development and the proximity of the works from sensitive receptors. Furthermore, there are no schools, places of worship or hospitals within the study area and to this end, the proposal does not warrant a noise monitoring programme.

2.6.3. Mitigation Strategies

Due to the nature of the construction phase, it is recommended that the following mitigation measures should be employed to reduce impacts to the receiving environment.

- Establishing noise and vibration limits during the construction phase in line with guidelines;
- Limiting of hours for which noise generation and vibration level are expected to be high; and,
- Establishing communication with the general public.

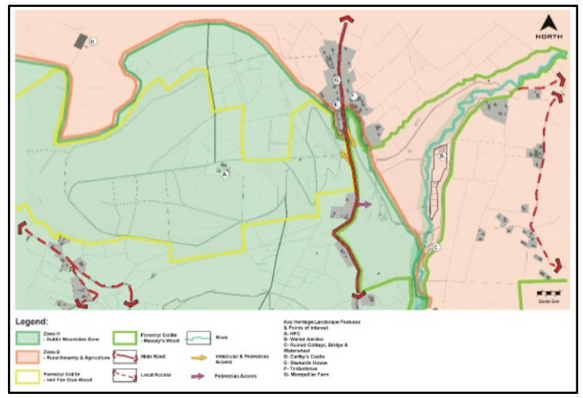


Figure 4.4.7.1 – Land Use, Zoning and Access

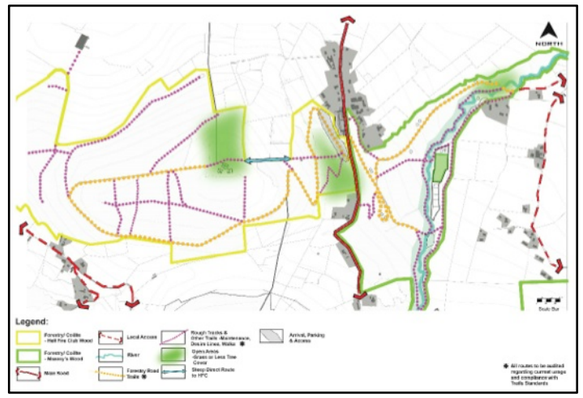


Figure 4.4.7.2 – Trails, Forest Roads and Open Areas

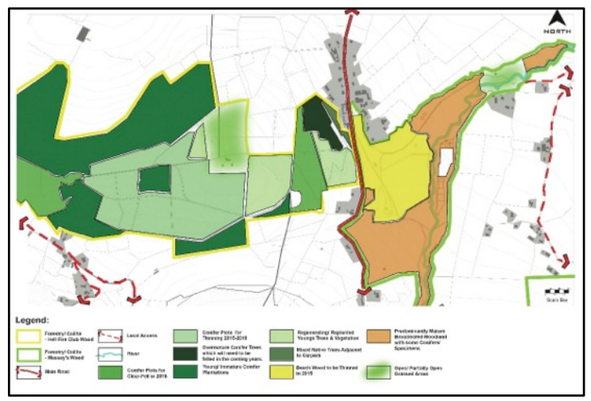


Figure 4.4.7.3 – Vegetation and Forestry

2.7.0. Landscape and Visual

Landscape and Visual Impact Assessment (LVIA) addresses the potential impacts of a proposed development on the landscape and visual characteristics and values of an area. Methodologies for assessment should be in accordance with the Landscape Institute Guidelines for Landscape and Visual Impact Assessment, Second Edition, 2002, and Third Edition 2013, (hereafter referred to as the LVIA Guidelines) and with the EPA's Guidelines on the Information to be Contained in Environmental Impact Statements, 2002.

The following documents are also relevant

- Department of the Environment and Local Government's Draft Landscape and Landscape Assessment Guidelines.
- South Dublin County Council Development Plan 2010 – 2016
- South Dublin County Council Draft Development Plan 2016-2022
- South Dublin County Council Landscape Character Assessment
- Dun Laoghaire Rathdown County Development Plan 2010-2016
- The Dublin Mountain Partnership Strategic Plan

The LVIA Guidelines prescribe that landscape and visual impacts be assessed by separate, although linked procedures. Landscape assessment considers the effects deriving from alterations to the elements and characteristics of the landscape, which may give rise to changes in its character, how it is experienced and hence the ascribed value of the landscape. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

The proposed development of a Flagship Tourism Facility for the Dublin Mountains is based on a detailed analysis of the landscape and visual characteristics of the receiving environment, the commercial requirements of a facility of that nature and an appropriate sensitive and creative design response to the opportunities offered by the preferred site.

These Landscape and Visual characteristics and their consideration in selecting the preferred option are set out in details in Stage 1 and 2 of the Feasibility Study. The key issues are summarised below for the purposes of this Environmental Report

2.7.1. The Existing Environment

Land Use and Zoning
The Hell Fire Wood is located on Montpelier Hill which rises to 388m and, as the most north westerly outlying hill of the Dublin Mountains, offers spectacular panoramic views from various locations across the city and Dublin Bay. The slopes around Montpelier Hill to the north and west comprise rural fields in pasture eventually giving way to the city suburbs at Kiltipper / Oldbawn, Ballycullen and Emondstown. Approximately 3km from Montpelier Hill lies the M50 corridor.

South of Montpelier Hill lies Killakee Mountain giving way further south, south east and south west to the extensive upland landscape of the Dublin and Wicklow mountains. Between Montpelier Hill and Killakee Mountain lies Piperstown Glen a steeply sloped valley separating the two mountains.

Massy's Wood is separated from Hell Fire Wood by the R115, a single lane carriageway from the city to the north leading south to Killake, Glencree and Sally Gap. Massy's Wood lies in a low lying area or valley falling away from the R115 and Montpelier Hill to the west and partly enclosed or formed by the slopes of Cruagh Mountain to the east.

A cluster of buildings can be found just north of the entrances to both sites. These include some significant heritage buildings as well as potentially complementary services - Stewards House, Timbertrove and Montpelier Farm. Further north at Rockbrook can be found the demesne of Mount Venus, the DSPCA grounds and Mount Venus cemetery. Other residential clusters can be found to the west and east ends of Piperstown Glen and east of Massy's Wood. Other heritage sites of note include the prominent Hell Fire Club itself and adjacent Passage Graves on the summit of Montpelier Hill and Carthys Castle/ Dollymount House just north of the forest on Montpelier near Orlagh.

Massy's Wood contains a number of significant upstanding artefacts that contribute to its character, most notably the walled garden complex to the eastern boundary and its remnant Turner glasshouse foundations; the ruined cottage, watermill and bridge; the icehouse and various other historic features including the Military Road.

The Hell Fire Wood is accessed direct from the R115 which leads to a car-park. Massy's Wood has no parking facilities and is accessed from Montpelier by crossing the road or parking on the R115.

In terms of Zoning, all of the Hell Fire Wood is located in the Zone Objective H – to protect and enhance the outstanding natural character of the Dublin Mountain Area. Approximately half of Massy's Wood is located in Zone Object H, the rest is located in Objective B - to protect and improve rural amenity and to provide for the development of agriculture.

Trails, Forest Roads and Open Areas

Figure 4.4.7.2 illustrates many of the roads, trails and walks through Hell Fire Wood and Massy's Wood. The interconnection with the Dublin Mountains way and other trails and Greenways is set out in Stages 1 and 2 and in Trails Audit in this Stage 3. In terms of amenity and character the routes provide an established framework for access along easy gradient roads potentially suitable for vehicles – forest roads in HFC and wide drives / rides in Massy's Wood and steeper walks and narrower trails which may need enhancement physically and in terms of gradient to optimise access (where feasible) around the two woods for all.

As well as trails and roads through the woods there are a small number of open spaces which are areas of importance to the project in formulating a design strategy. They include the environs of the Hell Fire Club on the summit of Montpelier Hill, part of the north eastern slopes of Montpelier Hill - currently regenerating forest and scrub but low enough to allow open views - and the partly overgrown walled garden in Massy's Wood. These are key spaces along the necklace of trails for locating amenities and experiences.

Vegetation and Forestry
Figure 4.4.7.3 illustrates the mix of forestry throughout the two land holdings and can be read with the Stage 1 Forestry overview by FEL consultants and Section 4.10 below.

Hell Fire Wood is almost entirely coniferous with a range of ages present including areas recently clear-felled and replanted, areas of mature forest due for harvesting/clear-felling in the near future and middle aged forest in management. Adjacent the car-park some mature trees have been retained

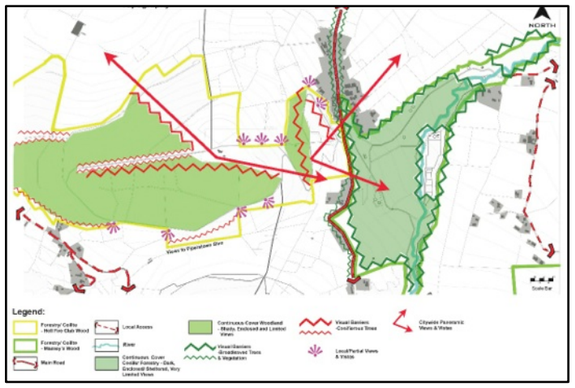


Figure 4.4.7.4 – Views, Visual Barriers and Enclosure

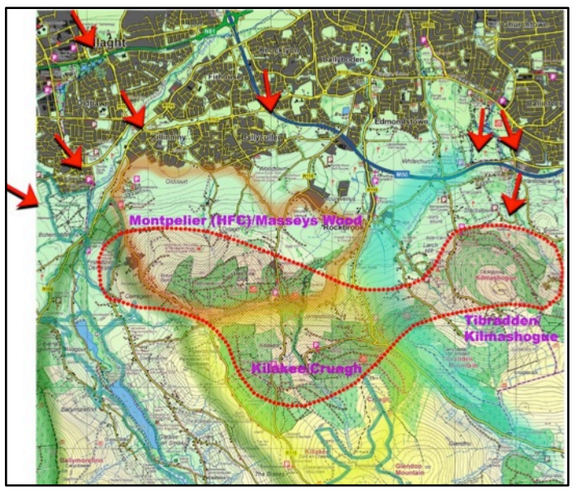


Figure 4.4.7.5 – Protected Views and Prospects

for aesthetic reasons and screening of the car-park, however their retention may not be feasible into the future due to the potential of the conifers to become over – tall and prone to wind throw. A number of middle aged broad leafed trees are found at Hell Fire as well as some mature trees which pre-date the forest and clearly grew in open ground in the past. Hell Fire Wood is a working, commercial forest and will remain so into the future. Forest works, planting, managing and harvesting are part of its story and character. With a new visitor facility and enhanced amenity function there would be a need for some localised changes in land use and management to ensure the commercial forest and the planned amenity can co-exist.

Massy's Wood, by contrast is predominantly broad leaved woodland of beech and oak. There are some areas of coniferous plantations and specimen trees from the original Killakee demesne. In places exotic invasive species are being cleared and reduced. Whilst predominantly a recreational forest with a high biodiversity function, woodland management works are ongoing with areas of beechwood planned for thinning in 2016. The management of the woodland can be adapted to accommodate the amenity value that may be required.

The coniferous forests create significant landscape features, however these are not permanent and are subject to potentially significant change as harvesting and replanting progress.

Visual Analysis: Views, Visual Barriers and Enclosure
Figure 4.4.7.4 illustrates the key visual characteristics of the two areas. These consist of:

- Enclosing nature of the woodlands – walks and trails within Hell Fire Wood and Masseys Wood have a limited field of view. The coniferous forest of HFC are particularly enclosing and often dark, with little to invite a walker into the tree area. The broadleaved woods of Masseys whilst also enclosing in terms of views out, are by contrast, inviting to the walker to explore the woods off trail – the Beechwoods in particular having little undergrowth.
- As a hill Montpelier offers perimeter views over the surrounding landscape where trails abut the perimeter or spaces opening to the outside are found. The perimeter trails to Piperstown Glen offer views to Killakee, the direct steep trail to the HFC from the car park offers increasingly enticing panoramas over Dublin city until one reaches the open expanse around the HFC itself. There are also views south to the Dublin and Wicklow mountains from the southern perimeter. The forest roads on the north east slopes also offer spectacular views over the city in places.
- As a valley Masseys Wood offers no real external views – its visual delight being internal to the woods and characterful trees, natural features (Cruagh Brook) and atmospheric ruins and structures.
- Views in and out of the forests are generally blocked and screened by boundary vegetation.
- The R115 approaching from the north or south has limited views into either woods due to the dense roadside vegetation and trees.

A range of views and prospects are protected in both current and draft plans. These represent:

- Views from urban or peri-urban areas towards the mountains
- The prospect or landscape composition presented by the mountains looking towards the urban area.

Scenic routes and drives within the upland area most relevant being the R115 between Montpelier Hill and Massy's Wood

Summary
Montpelier Hill has existing parking and a potential building location on the north east slope enjoying the views of the city. The proposed visitor centre facility has links by forest road or direct to HFC and its panoramic open space. There are potential visual conflicts and design challenges as forest harvesting, site clearance and view-management opens up the slopes to views from the city.

Montpelier offers the visitor a mini-mountain experience with a summit destination, forests, taster views to the mountains further south, panoramic city views and capacity to accommodate parking and other amenities in a relatively robust landscape setting.

Massy's Wood offers a unique broadleaved woodland experience with its distinctive trees and character, sense of nature, its child friendly experience and its sense of romance, magic, fun and idyllic woodland. It has its own trails and walks which are relatively easy. Massy's Wood is very beautiful and timeless – this characteristic enhanced by its romantic ruins and the story behind them, and the Cruagh Brook corridor.

Whilst Montpelier has its distant panoramic views, Massy's Wood is generally more inward looking.

The existing landscape context and its aesthetic value is not permanent and is potentially subject to major change (Hell Fire Wood) over the next few years as maturing forests are harvested by Coillte. This has implications for the landscape value and current recreational uses and poses a challenge for the location and setting of any new visitor facility.

2.7.2 Potential Impacts

Visibility does not necessarily imply negative visual impact. Visibility may be desirable particularly for a visitor attraction as envisaged. The key issue is appropriateness and sensitivity to the prospect and landscape composition within which any new building is set.

The proposed new built interventions involve a significant new visitor building on a prominent site mid-way up Montpelier Hill from the site entrance, associated external works including feature terraced seating on the north facing slopes, an expanded series of parking terraces running up the hill toward the new centre, improved entrance gateway area off the R115, a new feature pedestrian bridge and tree canopy leading from the visitor centre over the R115 to and through Massy's Woods. A new kiosk is proposed in Massy's Woods close to the bridge landing.

As well as the above built structures a series of improvements and expansions of the trail network are proposed, signage and interpretation facilities and management of both Montpelier Hill and Massy's Wood to enhance their visitor appeal and character –this will include conservation

works and enhancements of various heritage features. A significant increase in visitor numbers is planned and vehicular tours around the sites will introduce a new aspect to their current use.

The overall intention is to maintain the upland working forest and character of Hell Fire Wood with adjustments and variations to the new areas of recreation / visitor infrastructure including:

- Localised amenity landscape, non-working forest.
- Management of key areas of trees to enhance panoramic views
- Expanded car-parking, Enhanced / upgraded tracks and trails where appropriate including stylised interventions at viewing points etc.

In terms of landscape character, the main impact / change will be the increased emphasis on the amenity values of the receiving environment and associated physical evidence of visitor infrastructure and numbers. New buildings and architectural interventions to facilitate and service this change and associated management practices are designed to enhance the existing recreational character, functioning and value of the receiving environment. In this regard the impact on landscape character will be low to medium and benign or beneficial in nature.

There is potential visual impact on:

- Protected views and prospects of the mountains from the city suburbs of Montpelier Hill and the proposed visitor centre and associated terraced car-parks.
- The Scenic drive along the R115 as it passes between Hell Fire Wood and Masseys, particularly in relation to opening up a new entrance junction and the proposed bridge/tree canopy.
- Views westwards from Cruagh Wood towards Hell Fire Wood where the proposed visitor centre site is prominent.

However the proposed buildings are designed to integrate with the site and their architecture, materials and design language is embedded in the place. Infrastructure can be hidden and screened through the reinstatement of native shrubs and trees, and planting can assist in soften the setting of new buildings. In addition even if there was no development, significant change will happen to the receiving environment through the normal forestry processes of harvesting and replanting.

Nonetheless the new centre should be visible and relatively prominent if it is to be successful, and the new bridge will signal a gateway feature both for the new facility and the wider Dublin and Wicklow mountains to the south. These most visible features will celebrate the mountains and be beneficial and positive in terms of visual impact and the values represented by the site.

Developments, which are minimal within Massy's Wood, will have no visual impact outside the woods.

2.7.3. Mitigation Strategies

- Sufficient tree and hedgerow cover needs to be maintained or reinstated to screen the proposed car-park terraces from views to the north (downhill) and introduce new landscape planting to soften / green views from the south / uphill and the centre itself. Landscape planting should be managed to maintain open panoramic views from the new centre – in this regard much of the tree cover growing 20m lower than the viewing areas can probably be maintained without impinging on the panoramas.
- Design of buildings and structures (proposed bridge), as well as new infrastructure needs to be appropriate in language, materials and detailing to the site and place. In this regard, design to planning stage should include a design statement setting out the design rationale and how it addresses these issues. A Landscape and Visual Impacts Assessment of the final design including representative photomontages from key views should be prepared.
- Further planting and sympathetic landscape and surfacing work around the proposed facilities will mitigate impacts on views from elevated locations at Cruagh and adjacent areas to the east and south.

2.8.0. Archeology and Heritage

2.8.1. The Existing Environment

The study area has a vast archeology and heritage offering, spanning pre-history to the 18th Century, from Neolithic passage tombs to the Hell Fire Ruin.

It is primarily a prehistoric landscape with evidence of human activity from the Neolithic and Bronze Ages. The archeology includes a large number of funeral monuments constructed on elevated sites. This includes the passage tomb situated behind the Hell Fire Club ruin, which is due to be excavated next year. Also of note within the masterplanned area is the Wedge Tomb in Massy's Woods. The area in which it sits is relatively secluded and there are minimal signs of human distrubance. A standing stone is also present on route upto the Hell Fire Club which has collapsed and had been vandalised by graffiti.

There is a concentration of built heritage on the north and western slopes generally and around Montpelier Hill in particular. As well as archaeology built heritage consists of hill cottages and scattered demesne houses and remnants, and hunting lodges of Victorian or 18th century origin the most famous being the Hell Fire club itself. .

Massy's Estate was a major landholding estate upto the 19th Century. The old house has now been replaced with a modern home in private ownership. However the woodlands and Walled Garden are in the ownership of Coilte. The woodland is now managed by Coilte, and the Walled Gardens are now as a ruin, becoming increasingly overgrown and eroded.

A full appraisal of the archeology and heritage in the study area is presented in stage 1 of this report.

2.8.2. Potential Impacts

The increased footfall that the Masterplan will bring could affect the archaeology and heritage in the following ways:

Hell Fire Club:
increased erosion around the building and within the structure.

Passage Tomb:
Disturbance and vandalism (graffiti) of the excavated site.
Standing Stone:
Increased erosion around the stone and vandalism (graffiti).
Wedge Tomb:
Increased erosion around the tomb and vandalism (graffiti).
Massy's Walled Garden:
Increased erosion of the remaining walls, steps and paths.

2.8.3. Mitigation Strategies

It is the policy of the Council to favour the preservation in situ of archaeological remains or objects in their settings, this is evident in the vision for the facility which includes the archeaological and heritage resources as part of the masterplan.

However, due to the potential impacts the following mitigation strategies would need to occur – and which have been accounted for as part of the masterplan.

- Minimal intervention around the Hell Fire Club, with potential hard standing and landscaping around the building, and a suggestion of a new floor and stairs within the structure.
- The passage tomb will be re-assessed following the excvation, however, an exhibition enclosure is located in the wooded area behind the tomb which could be used to present any findings.
- On-site security and increased passive surveillance – from including the resources along routes – reduces the risk of vadalism and grafitti.
- The walled gardens will be cleared and a conservation plan will be undertaken to best preserve the features.
- Interpretation at the visitor centre and near/around the monuments will raise awareness and educate visitors, in turn encouraging them to respect the reamins / objects.

2.9.0. Material Assets – The Forest Resource

The forests in this area are very diverse, ranging from commercial plantations to native woodlands of all ages. The range of benefits that these forests cover is also diverse, extending beyond basic timber production to encompass bio-diversity, wildlife conservation, environmental protection, rural development, carbon sequestration, amenity and recreation, and tourism. Although considerable overlap does occur, the forests can be roughly divided into 2 types, amenity (Massy's Wood) and timber production forests (The Hell Fire Club).

Most forests in Ireland, particularly publicly-owned forests, provide amenity and recreation for the general public, even though the primary objective is timber production. Some forests are specifically managed to provide an environment for people to relax and recreate in a wooded setting. These forests usually have various recreational features such as well-developed pathways, interpretation signs, public conveniences, gardens, tourism centres and seats to facilitate people's enjoyment. Timber production is still pursued, but is secondary to the promotion of the use of the forest for recreation by the visiting public.

Both Hellfire Club and Masseys Wood are owned by Coillte. As such both are managed under the principles of sustainable forest management and are certified by the Forest Stewardship Council (FSC). Coillte's primary focus for the forests is the production of high quality timber.

This can certainly be the case for the Hell Fire Club forest, however, given the species breakdown in Massy's Wood high quality timber production would be of lesser concern.

2.9.1. The Existing Environment

Hell Fire Wood is almost entirely coniferous with a range of ages present including areas recently clearfelled and replanted, areas of mature forest due for harvesting/clear-felling in the near future and middle forest in management.

Massy's Wood, by contrast is predominantly broad leaved woodland of beech and oak. There are some areas of coniferous plantations and specimen trees from the original Killakee demesne. In places exotic invasive species are being cleared and reduced. Whilst predominantly a recreational forest with a high biodiversity function, woodland management works are ongoing with areas of beechwood planned for thinning in 2016.

The population of deer is high in all forest properties in the area and they cause severe browsing damage to the trees. It should be noted that the ever increasing deer population makes the establishment of broadleaves difficult in this area even with the presence of deer fencing. Deer fences are often breeched by trees falling and breaking the fence or more often people cutting holes in the fence

2.9.2. Potential Impacts

The options presented will have some impacts on the forestry in the area. These impacts include removing commercial forestry in some cases and replacing with broadleaves. This in itself may prove cumbersome to establish given the exposure of the site and presence of deer mainly. By replacing conifers with broadleaves also the value of that piece of ground will depreciate.

All trees that need to be cleared whether for silvicultural reasons or for recreational purposes such as tracks or buildings etc. will require felling licenses.

The forestry act states, in layman terms, that when forests are cut down they need to be replanted. If replanting is not going to occur then a limited felling license is required and replacement lands will need to be planting instead.

Singles trees and small groups of trees can be removed under a normal general felling license. However, discussions will have to be opened with the Department of Agriculture in relation to clearing larger areas and lines of trees for tracks etc. without replanting. As the areas are going to be used for recreation there may be scope to forgo limited felling license rules.

With clearing areas of trees the remaining forest can sometimes be disturbed depending on a number of factors (aspect, elevation, remaining tree shelter etc.) Opening areas of the forest for structures and tracks etc. may lead to some trees becoming unstable and prone to windblow as evident in Massy's wood. This could be a health and safety risk.

Future operations will have to be planned for certain times of the year only, given that during the summer months visitor numbers are going to increase. If car parks overspill there is the potential also that traffic could become a problem for timber lorries.

Tracks that are to be upgraded or installed new for vehicles should be designed and built so that timber lorries can also use these roads in the future. Some of the walking tracks designed should be multi-purpose also; tracks such as the one around the perimeter of Hell Fire can be used as a walking track but as a fire line also.

2.9.3. Mitigation Strategies

Commercial forest activities such as road maintenance, thinning and clearfelling will need to be planned well in advance and organised during winter months when visitor numbers are lower. Pedestrian diversions can be installed off paths etc. to allow forest activities as normal. Certain car parks may need to be closed during these operations also.

For security and health and safety, barriers should be kept in place to prevent vandalism, dumping, anti social behaviour, rallying and overnight parking. Car parks should close during the night.

Discussions should commence with the Forest Service before any progress is made with felling licences. This can iron out any potential problem in the future.

Specific types of trees shelters can be used instead of tubes or deer fencing where areas are being converted from conifer to broadleaf. Agreements with Coillte will need to be in place for the change of land uses also.

2.10.0 Construction Impacts

2.10.1. Potential Impacts

The development entails the construction of certain key structures within the Hell Fire Club Wood; this will involve the removal of several areas of both conifer and deciduous woodland. The project will also involve the upgrading of existing paths within the site area, again this is not expected to cause any significant impacts on the overall biodiversity of the site. it is not expected that the removal of these patches of woodland will have a significant effect on the overall biodiversity value of the site. The impacts will be localised and providing that the mitigation measures listed in the next section are adhered to, then no adverse impacts are expected.

The proposed Masterplan will involve the construction of certain key structures within both the Hell Fire Club Wood and the upgrading of existing paths within the site area. These works will involve excavations for foundations and associated construction works. Bedrock is likely shallow or exposed in the area, however it is unlikely that significantly deep excavations into bedrock will be required. Given the limited size and extent of the associated construction works, the proposed development will have a minimal impact on the geology of the surrounding area.

Construction works will require the removal of topsoil and vegetation, however it is not expected that significant subsoil excavation will be required. Given that bedrock is shallow in the area it is likely to be encountered during excavation works and detailed design should incorporate this into construction planning. It is considered unlikely that significant bedrock cuts will be required during construction due to the nature of the proposed development. Overall, the proposed development will have a minimal impact on subsoil in the area.

Given the likely presence of shallow bedrock across the site, there is the potential for contamination of underlying bedrock aquifers particularly during construction. Excavation for foundations may encounter bedrock which would create a pathway for contaminants to enter bedrock. Localised point sources of pollution during the construction phase such as fuel storage tanks, workshop facilities, drums of machinery oil and leaks from plant or machinery are considered to be the most significant potential impact on groundwater quality in the area. Potential risks from construction activity include:

- Point sources of pollution entering the bedrock aquifer during excavations exposing shallow bedrock (e.g. leakages /spillages of fuels, oils, other chemicals and waste water, controlled discharges under licence)
- Creation of a vertical pathway in which potentially contaminated water/materials could migrate downwards contaminating groundwater
- Leaching of contaminants to groundwater through thin subsoil which could then discharging to streams/rivers

The construction phase of the proposed development poses the highest risk for potential impacts to local hydrology. Works in the vicinity of watercourses throughout the area pose the potential for sediment material entering the waters which could cause temporary impacts on water quality during the construction phase. Pollution from mobilised suspended sediment is therefore the primary potential risk. In addition there is a risk to stream/river water quality from localised point sources of pollution during the construction phase such as fuel storage tanks, workshop facilities, drums of machinery oil and leaks from plant or machinery. Potential risks from construction activity include:

- The dispersal of contaminated sediments into the stream/river waters;
- Water quality impacts associated with works, machinery, infrastructure and on-land operations (e.g. leakages /spillages of fuels, oils, other chemicals and waste water, controlled discharges under licence);
- Impact of excavation operations adjacent to the watercourses through the creation of a vertical pathway in which potentially contaminated soils/sediment can migrate laterally ultimately contaminating surface water; and
- Leaching of contaminants to streams/rivers through gravels and permeable media

During construction, the potential air quality impacts include emissions from construction vehicles and dust generation due to their movements. The potential air quality impacts associated with the operation of the proposed development include generator emissions from the visitor centre building along with vehicular emissions and dust generation due to the expected increase in traffic volumes.

During construction, the potential impacts due to noise and vibration include movements of construction vehicles and the operation of construction machinery. The potential noise impact associated with the operation of the proposed development includes increased noise levels due to increased volume of traffic. There will be no sources of vibration during the operational phase.

2.10.2. Mitigation Strategies

A Construction Environmental Management Plan (CEMP) should be adopted to ensure good construction management practices. If contaminated soil is encountered in any areas during construction, the extent of the contamination will be established. If necessary, it will be removed off-site and disposed of in accordance with the requirements of all relevant Waste Management Legislation and guidance provided in the NRA document entitled 'Guidelines for the Management of Waste from National Road Construction Projects, 2008'. It is considered that contaminated soil is unlikely to be encountered.

Given that the construction may involve excavation into shallow bedrock, there is the potential to create a vertical pathway in which potentially contaminated soils/sediment or chemical spills can migrate downwards contaminating groundwater. The CEMP should take account of this potential risk and limit the potential for vertical flowpaths to exist. Protection should be provided to block potentially contaminating material/liquid from entering the bedrock.

Disposal of surface water to ground by infiltration should incorporate appropriate sustainable urban drainage treatment stages in order to prevent contaminants entering groundwater. Appropriate treatment measures could include: grass swales, infiltration basins, grass channels or filter drains.

The implementation of a comprehensive CEMP will ensure good construction management practices and appropriate handling and spill response procedures are followed as part of the implementation of the Mitigation strategy. The CEMP should prevent sediment or debris from entering the watercourses which could obstruct flow or reduce water quality. In addition site compounds should be located as far away from the stream/river banks as practically possible to limit the impact of potential pollution incidents during the construction stage.

In order to minimise potential air pollutant emissions and dust generation as a result of increased traffic during construction, it is recommended that a Dust Management Plan be implemented. Measures involved in the Dust Management Plan should include:

- Site access roads will be regularly cleaned and maintained as appropriate;
- Construction vehicles will have their speeds restricted to prevent the unnecessary generation of fugitive dust emissions;
- Vehicles delivering material with dust generation potential shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind; and,

The dust management plan will be monitored and assessed at regular intervals by the contractor. In the event of dust nuisance occurring outside the site boundary, the effectiveness of existing measures will be reviewed and further mitigation will be implemented to rectify the problem.

Due to the nature of the construction phase, it is recommended that the following mitigation measures should be employed to reduce impacts to the receiving environment.

- Establishing noise and vibration limits during the construction phase in line with guidelines;
- Limiting of hours for which noise generation and vibration level are expected to be high; and,
- Establishing communication with the general public.

5.0. CONCLUSION

The emerging masterplan consolidates and defines the visitors' potential appreciation of a unique place and experience in the Dublin Mountains.

Situated between the Hell Fire Club at the peak of Montpellier Hill, and Massy's deciduous Forest, the flagship visitor centre is designed to be a building that celebrates the outdoors and encourages walking and being in nature. The circulation is external with no internal corridors or staircases in these buildings. The visitor centre is a place that provides facilities and orientation to the immediate and distant landscape, a place that builds knowledge to routes, trails and outdoor activities.

The centre contains the following facilities – welcome and orientation, retail, cafe / restaurant, event venue, av + shuttles, to-go kiosk, treetop canopy walk to Massy's, the woodland forest and water ways, archeaology interpretation – wedge enclosure - and the Walled Garden.

Enhanced trails and walks encourage further outdoor activities, and the extended proposed public transport and car parking allows easier accessibility.

The centre will direct and interpret the history and stories of the Dublin Mountains, and explain the unique development of Dublin and Dublin Bay.

The centre will become a destination for families and friends to go for a day out, a place to enjoy the natural landscape that is uniquely close to the city. It will also be a destination for corporate events, where bespoke events can be programmed to facilitate large parties and tours.

Its location will define it as the gateway / meeting place to the Dublin Mountains, and facilitate ramblers and walkers the opportunity for refreshments and guides to the archaeology of the Dublin Uplands and the Wicklow Mountains.

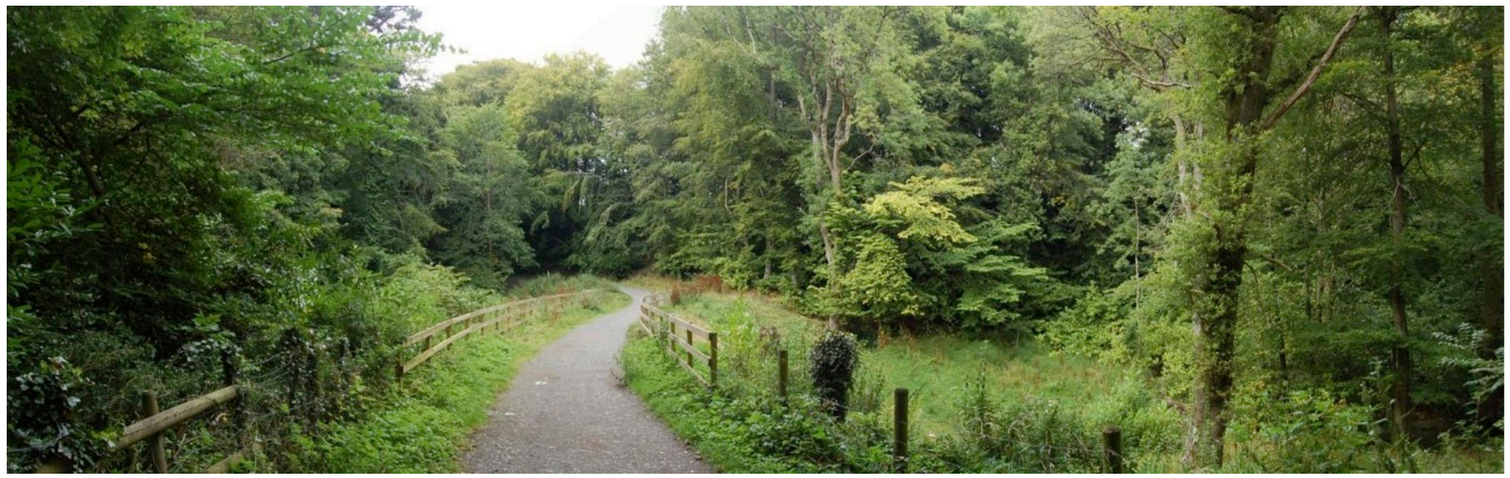
The 'wow factor' is provided by the panoramic cafe / restaurant with views to Dublin Bay. The unique geographical relationship of the Dublin Mountains, the sea, and the Eurpean Capital City of Dublin becomes legible for all to see. The restaurant in itself can act a stand-alone food destination, which will serve to introduce a new audience to the mountains.

This together with programmed events throughout the year will open up the Dublin Mountains as a resource for the wider community, both local and international.

It is estimated that by year three it will attract 300,000+ visitors to the centre and will be an economic driver for the region. The response to Failte Ireland's challenge for visitors to be participants of surprising outdoor experiences, where city living thrives side by side with th enatural outdoors, is delivered with this Feasibility Study and Masterplan, that defines and strategises the location, the infradtructure and the outline planning of the vision to create a flagship attraction within the Dublin Mountains.

FEASIBILITY STUDY AND MASTERPLAN FOR A FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS

STAGE 4 PROJECT PLAN FOR THE PREFERRED OPTION



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1.0. PROJECT PLAN

1.1. Project Timeline

INTRODUCTION

The Stage 4 Report: Project Plan for the Preferred Option sets out the programme for the Masterplan to be realised.

This report and the information outlined is presented in the knowledge that clarity will be formed when the masterplan is approved and finalised before the Flagship Tourism Facility for the Dublin Mountains is bought forward to the next stage of development.

1.1 PROJECT TIMELINE