

Classification and Grading for Recreational Trails



national trails office
An Irish Sports Council Initiative



THE
IRISH SPORTS
COUNCIL



AN CHOMHAIRE SPÓIRT

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The National Trails Office

The National Trails Office (NTO) is a programme run by the Irish Sports Council building on the work of the former National Waymarked Way Advisory Committee (NWWAC). The programme is focused on supporting the development of a diverse and sustainable recreational trails network in Ireland. This will encourage many more people to become active in outdoor recreation and will contribute to the Council's overall mission of increasing participation among all Irish people in all forms of sport and physical activity.

The NTO seeks to act as a central resource to all individuals, agencies and organisations with an interest in recreational trails in Ireland, be they for walking, cycling, horse-riding or paddling in both urban and rural environments. The corner stone of this support is in setting and monitoring standards for Irish trails and promoting good practice for recreational trail development, maintenance and management. The main areas of work of the National Trails Office include:

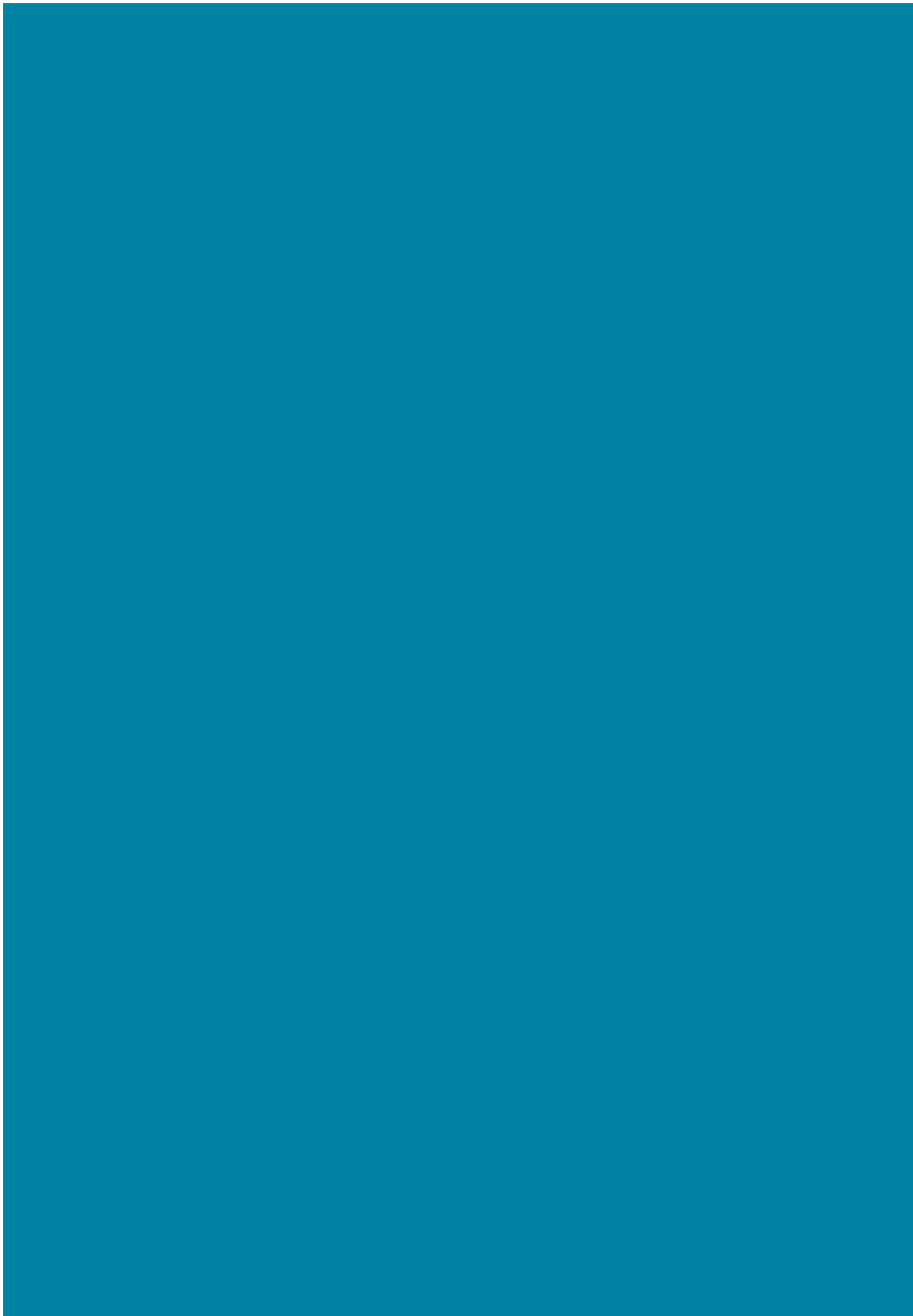
- **Trail Standards and Classification**
Development of trail management standards and a trail classification and grading system.
- **National Trails Register**
Management and maintenance of a register of all accredited trails in the country.
- **Trails Inspection Programme**
Inspection of new trails and ongoing annual inspections of all accredited trails.
- **Walks Scheme**
Support for the trail maintenance scheme (Walks Scheme) introduced by the Department of Community, Rural and Gaeltacht Affairs and administered by Local Area Development Companies.
- **Trail Development Advice**
Provision of advice to trail developers at a pre-planning stage in a trail project.
- **Technical Trail Advisory Service**
Provision of detailed technical advice to trail providers regarding the improvement of existing trails or the development of new trails.
- **Education and Training**
Provision of training programmes related to the planning, development and ongoing management of trails.
- **Trail Promotion and Awareness Building**
Ensuring that public awareness and use of trails is maximised.
- **Trail Research**
Research to inform and guide recreational trail development in Ireland.

National Trails Advisory Committee

The National Trails Advisory Committee (NTAC) was established to facilitate cooperative working and joint initiatives among all agencies involved in funding, development and management of trails nationally. To this end, the key organizations who have a stake in the development of trails in Ireland are represented on the National Trails Advisory Committee. The National Trails Office (NTO) takes direction and advice from the National Trails Advisory Committee.

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Introduction

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1.0 Introduction

In 2007 an Irish Trails Strategy was launched by the Irish Sports Council and is supported by the key agencies involved in the development of trails in Ireland. The strategy communicates a broad vision for recreational trails in Ireland which is:

“- to create, nurture and maintain a world class recreational trail network that is sustainable, integrated, well utilised and highly regarded, that enhances the health, well being and quality of life of all Irish citizens and that attracts visitors from around the world”

‘Recreational trails’ are defined in the Irish Trails Strategy as being ‘a corridor, route or pathway, generally land or water based, primarily intended for recreational purposes, including walking, hiking, cycling, canoeing and horse-riding’. Recreational trails may be single use or shared use and may be located in rural or urban environments or bridge both. The Irish Trails Strategy addresses only trails established for non-motorised purposes.

The strategy identifies a need for the development of a system for the classification of trails for use by all organisations involved with recreational trail development and management. The strategy recognises that consistent standards and classifications across the country will lead to better quality trails, improved cost estimates, better resource and maintenance planning and, in the longer term, a more sustainable trails network.

This document has been produced following broad consultation and input from the trail community in Ireland. It addresses five main categories of trails:

1. Walking
2. Cycling (off-road and road)
3. Horse Riding
4. Water Based
5. Shared Use

The document describes a classification system and a trail grading (difficulty rating) system for each of these categories of trail. It also provides guidance on the suitability of each class of trail for the environment or land type through which it may pass, using the principles of a recreation resource planning methodology known as the Recreation Opportunity Spectrum (ROS), which has been adapted for Irish conditions.

This document has been endorsed by the National Trails Advisory Committee (NTAC) and is for use by all organisations involved in the development and management of trails. It is intended that the systems for the classification and grading of trails described in the document, are adopted nationally and used when planning new trails or planning the upgrade and maintenance of existing trails. The adoption of these systems in Ireland will help to ensure the provision of trails of a consistent quality for users across the country.

This document does not seek to set out details on [how to](#) develop or plan a trail. This topic is addressed in other documents including – “NTO Trail Development Process” and “Guideline for Developing and Marking Waymarked Ways”. The document also does not provide details of trail construction techniques or detailed specifications for trail furniture. Such information can be found in the various sources listed in Appendix 1. Such documents should be consulted when carrying out the detailed design for a new trail or the upgrading of an existing trail.

This document will be reviewed on an ongoing basis and revised periodically as appropriate.

1.1 Trail Sustainability

Sustainability is using a resource today without impacting negatively on the ability to use this resource in the future.

Trails play a key role in the provision and management of outdoor recreation in Ireland and can bring many benefits at community, regional and national levels if they are sustainable.

Recreational trails must be robust, durable and fit for purpose, may be located in rural or urban environments and are usually waymarked.

A sustainable trail supports responsible outdoor recreation, has a positive impact on the environment, heritage and communities and addresses landowner and user needs and concerns.

A sustainable trail is one which is developed to a standard and maintained at this standard on an ongoing basis. The use of the guidelines in this document will assist in ensuring that some of the key elements of sustainability are addressed in the planning and development of trails.

1.0

Trail Classification System

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2.0 Trail Classification System

A Trail Classification System provides a means of classifying trails based on the nature of the trail and the class is assigned based primarily on the key physical attributes of the trails as follows:

- the width of the trail
- the gradient on the trail
- the nature of the trail surface

While the general principals are the same, there are different classification systems for each of the categories of trails addressed in this document – i.e. walking, cycling, horse riding, water based and shared use trails).

2.1 Using the trail classification system

A fundamental principle in planning and developing a trail is that it should meet the needs and expectations of those who will use it and that it is appropriate for the land type in which it exists. This can be summarised as - ‘the right trail in the right place’. As described below, classification of a proposed trail before proceeding with development or upgrading will help ensure this is achieved.

2.2 Establishing a trail class

2.2.1 Who are the trails for?

In planning new trails the intended users of the trail should be clearly established by the trail provider. (For example, it should be decided if a trail is intended for use by all, including less mobile users or is it for enthusiasts who will require a challenging trail? Is it primarily aimed at local casual walkers, enthusiasts from outside the area or international visitors?) When this evaluation has been completed an appropriate class for the proposed trail can be determined such that a trail can be designed and developed to meet the needs of the intended users. Detailed descriptions of the trail classes are provided in Chapters 4 to 8 below related to each category of trail.

2.2.2 Where will the trails be located?

While consideration of the intended users of a trail is critical, the land type through which a trail will pass must also be taken into account when deciding the classification. There must be a balance between the needs and expectations of users and the land type or environment in which the trail will be located. For example, a highly developed trail may not be appropriate in a remote natural area. This balance between user needs and expectations and the environment must be carefully considered before developing any trail.

Guidelines for developing the appropriate trail in the correct environment or land type are summarised in the tables (Tables 2.1 to 2.3) below. These tables use the general principles of a recreation planning methodology known as Recreation Opportunity Spectrum (ROS)¹. Using this approach the tables below give trail providers a guide to selecting the most appropriate class of trail for the land type through which the trail will pass.

¹ This is a system for planning and managing recreation resources that categorises recreation opportunities into different classes based on the environment in which they exist. In the case of trail planning, this approach can be used where the trail can be considered as the “recreation opportunity” and thus the different classes of “trail” which are appropriate for different land types can be identified.

Table 2.1: Walking trail classes suited to different land types

Land Type	Description	Class 1	Class 2	Class 3	Class 4	Class 5
Urban/ Urban Fringe	Cities, towns and villages and in urban and suburban parks					
Core Recreation Areas	Established recreational areas e.g. central areas of forest parks or national parks, near beach car-parks, etc.					
Rural landscapes/ forest areas	Countryside areas away from communities, villages; farmland and forest areas away from core recreation areas					
Upland or Remote area	Open mountain area, remote landscapes, areas far away from any habitation					

Table 2.2: Off-road cycling trail classes suited to different land types

Land Type	Description	Class 1	Class 2	Class 3	Class 4	Class 5
Urban/ Urban Fringe	Cities, towns and villages and in urban and suburban parks					
Core Recreation Areas	Established recreational areas e.g. central areas of forest parks or national parks, near beach car-parks, etc.					
Rural landscapes/ forest areas	Countryside areas away from communities, villages; farmland and forest areas away from core recreation areas					
Upland or Remote area	Open mountain area, remote landscapes, areas far away from any habitation					

Table 2.3: Horse riding trail classes suited to different land types

Land Type	Description	Class 1	Class 2	Class 3
Urban/ Urban Fringe	Cities, towns and villages and in urban and suburban parks			
Core Recreation Areas	Established recreational areas e.g. central areas of forest parks or national parks, near beach car-parks, etc.			
Rural landscapes/ forest areas	Countryside areas away from communities, villages; farm land and forest areas away from core recreation areas			
Upland or Remote area	Open mountain area, remote landscapes, areas far away from any habitation			

While a Class 1 walking trail (wide, smooth and flat) is appropriate for a town park or near a beach car-park, for example, it is not suitable for an upland or remote area. Similarly, a class 5 off-road cycle trail (rugged with big gradients and very technically challenging) is not suitable for a town park or close to areas of high use, e.g. forest park car-parks.

By following the guidelines outlined in the tables above, the trail provider will be ensuring that trails are located where they are most suitable for the intended users and are appropriate for the land type.

Many trails may pass from one environment type into another and with that change it may be appropriate for the class of trail to change accordingly. For example a trail may be classified as Class 1 or Class 2 near an urban area but a loop of this trail may extend into a more rural or forested setting, in which case this section of the trail may change to Class 3 or 4.

When an appropriate trail class has been determined, detailed specifications for construction or development can be drawn up. Details of trail construction methodology and installation of trail furniture are outside the scope of this document but information on this aspect of trail development is available from a number of sources as listed in Appendix 1. At the detailed planning stage of a trail it is important that specific construction requirements are established. Some of these requirements may relate to safety. It is recommended that experts in the field, are used for advice on detailed planning and construction.

2.3 Use of classification system for existing trails

It is intended that existing trails should also be classified using the system described in this document. This is important for the purpose of establishing a record of the nature of the trails currently being provided in the country. This will help inform those involved in the maintenance and enhancement of the existing trail network, the planning of new trails and the promotion of trails. It will also facilitate the application of a grading to trails, as described in this document, thereby providing a consistency between the grading of existing trails and new trails .

Classification of existing trails can be used to establish the level of management required on a trail. Typically trails in the lower trail classifications will be higher usage and have more facilities and services than those in the higher classes. Consequently, these will need a greater degree of management. This knowledge will help in the allocation of funding and resources for ongoing trail management and maintenance.

2.4 Conclusion

The trail classification system is a tool for use in trail planning, development and management. The recommended guidelines provided in this document will ensure that in designing, constructing and maintaining trails, trail providers throughout the country can provide trails which are consistent with the environment in which they are developed and meet the expectations and requirements of their users.



Trail Grading System

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3.0 Trail Grading System

A trail grade is a “difficulty rating” for a trail or route and provides guidelines for users to help them make an informed decision before setting out on a trail. The availability of this information is important for a number of reasons:

- Encourages users to make use of trails that match their ability level.
- Helps ensure that trail users have an experience that meets their expectations.
- Manages risk and helps to minimise discomfort or injury to trail users.
- Is useful from a promotional and marketing perspective.

3.1 Trail grading for trail managers

The grade of a trail or route is determined primarily by the classification of the trail (or trail sections which make up the route). Based primarily on the trail classification, the grading of a trail takes into account the trail features - steps, stiles, etc.; the trail gradient and the trail surface. The grading for an entire route made up of different sections of trail (e.g. forest road, steep single track) takes into account the class of each of the sections. It is usually determined based on the predominant classifications along the route. Other factors such as remoteness, exposure etc. should also be taken into account where appropriate. The length of the trail does not impact on the grading.

In the case of a long trail with different sections which are used independently, (e.g. sections of a National Waymarked Way) , it may be appropriate to rate sections of the trail separately.

Guidelines for use by trail providers on establishing the difficulty rating for different categories of trails are provided in chapters 4 – 8 below for each category of trail.

3.2 Trail grading information for users

The trail grading information provided to users will be predominantly descriptive and describe the trail from a user’s point of view. The chapters below for each category of trail include a table showing the recommended trail grading information which should be provided to trail users.

In addition to grading, information on the length of the trail should be provided. This should be indicated in terms of distance (km) and estimated time to complete the route (hrs or mins) for the average user. Any other information which provides the user with more detail about the route should also be provided where available. (e.g. total climb)

When combined, the information on the grading, the distance and the time to complete the trail will provide users with the key pieces of information required to make an informed decision about the suitability of the trail for their needs/ capability. The key information provided for a typical walking trail would be for example:

Type of route: Loop Walk

Distance: 10k

Total Climb: 50m

Estimated time to complete: 2hrs

Grading: Moderate

Walking Trails

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4.0

4.0 Walking Trails

4.1 Classification system for walking trails

Walking trails have been divided into five classes and are described in the tables 4.1 to 4.5 below. The five classes of trail are typical of the range of walking trails likely to be provided in Ireland.

Table 4.1

CLASS 1 - WALKING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> Specifically multi-access trails² which can accommodate users with reduced mobility. Will be serviced by a vehicle parking area. Can readily facilitate frequent two-way traffic. Will have minimal cross slopes and gradient Will have a firm surface. No steps, waterbars, stiles, barriers or trip hazards of any kind. Should have resting places with seating approximately every 100m. <p>Further detailed requirements for multi-access trails are provided Appendix 2.</p>
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Areas (see table 2.1) but some trails providing access to reduced mobility users may also be appropriate in other areas.
TRAIL SURFACE	Sealed non-slip surfaces, non-slip timber boardwalk, tarmac or compacted surface with no loose stone or gravel greater than 5mm.
TRAIL WIDTH	Range: 1800mm to 3000mm
TRAIL GRADIENT	Range: Flat to 5% (Up to 8% allowed for ramps where required) Desirable: Flat

Plate 4.1: Typical Class 1 Walking Trails



² Multi-access in this context refers to trails which are accessible to all, including people with reduced mobility, wheelchair users, people with a vision impairment, using crutches, with a buggy, with small children, older people and so on.

Table 4.2

CLASS 2 - WALKING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Essentially trails for casual use, by people of all ages. • Serviced by a vehicle parking area if appropriate. • Reasonably flat and wide enough to accommodate two-way traffic. • Will have a relatively smooth surface with minimal loose material. • No waterbars or climb over stiles should be used. Steps should be minimal and if used should be limited. • May use bridges and boardwalks. • Should have resting places with seating approximately every 500m. • May have lighting where provided in an urban area
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Areas or Rural landscapes/ forests (see table 2.1)
TRAIL SURFACE	Consistent sealed surfaces, non-slip timber boardwalk or compacted aggregate - 20mm to dust stone.
TRAIL WIDTH	Range: 1200mm to 3000mm
TRAIL GRADIENT	Range Flat to 8% Desirable: 5% average

Plate 4.2: Typical Class 2 Walking Trails



4.0

Walking Trails

Table 4.3

CLASS 3 - WALKING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Typically relatively narrow undulating trails • Will have moderate gradients. • Surface may be variable including loose material and can be uneven in places. • May include steps, protruding roots and rocks, water bars, stiles and gates. • May include bridges, bog bridges and boardwalks.
SITE SUITABILITY	Core Recreation Areas or Rural landscapes/ forests (see table 2.1)
TRAIL SURFACE	Variable surfaces including some loose material not greater than 50mm in size
TRAIL WIDTH	Range: 600mm to 1200mm
TRAIL GRADIENT	Range: Flat to 12% Desirable: 5% average

Plate 4.3: Typical Class 3 Walking Trails



Table 4.4

CLASS 4 - WALKING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Typically challenging, single file walking trails over mixed terrain. • Will have steep gradients. • Surface will be very variable and may include loose material, steps, protruding roots and rocks, water bars, stiles and gates.
SITE SUITABILITY	Rural landscapes/ forests or Upland and Remote (see table 2.1)
TRAIL SURFACE	Very variable and uneven surfaces including loose material up to 100mm in size; protruding roots and rocks.
TRAIL WIDTH	Range: 500mm to 1000mm
TRAIL GRADIENT	Range: Flat to 30% Desirable: 10% average

Plate 4.4: Typical Class 4 Walking Trails



4.0

Walking Trails

Table 4.5

CLASS 5 - WALKING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Challenging trails, surfaced or unsurfaced over variable ground, may be in exposed areas. • Can include rough steps, stiles, water-bars, side drains simple bridges or river crossings.
SITE SUITABILITY	Upland or Remote areas (see table 2.1)
TRAIL SURFACE	Extremely variable and uneven surfaces with large rocks, roots and other obstacles offering a challenging hike.
TRAIL WIDTH	Range: 500mm to 1000mm
TRAIL GRADIENT	No gradient constraints Desirable: Maximum 40% requiring steps

Plate 4.5: Typical Class 5 Walking Trails



4.2 Walking trail grading

4.2.1 Walking trail grading for trail managers

This section provides guidance for trail managers on establishing a grading (difficulty rating) for a route.

When assessing a route, the grading will be assigned based primarily on the classification of the trail which makes up the majority of the route. For example, a route which is made of predominantly a Class 4 trail, will be rated as “strenuous” even if sections of the route are on wider, smoother trails (e.g. Class 2 or Class 3). However, to ensure the user has an experience which meets his/her expectation, the inclusion of Class 2 or Class 3 trails on such a route should be minimised. Guidance for the use of each grading is provided in Table 4.6 below. It is not intended to give this information to users. Information for trail users is dealt with in the section 4.2.2 below.

4.0

Walking Trails

Table 4.6: Walking Trail grading system for trail managers

Grading	Classes of trail on the route	Generally suitable for
Multi-access	<p>Will include Class 1 trails only.</p> <p>Multi-access routes must be flat, have no obstacles such as gates, steps, stiles etc.</p>	<p>All users including people with reduced mobility, wheelchair users, people with a vision impairment, using crutches, with a buggy, with small children, older people and so on.</p> <p>Normal outdoor footwear can be worn.</p>
Easy	<p>Will include either Class 1 or Class 2 trails and flat sections of Class 3 and Class 4 trails.</p> <p>Routes can include some obstacles such as stiles, gates, steps etc. but these must be minimal. Should only have gentle slopes with no continuous climbing on the route.</p>	<p>Family groups including children and the elderly.</p> <p>May be suitable for parents with buggies (should be denoted at trail head) or very small children.</p> <p>Normal outdoor footwear can be worn.</p>
Moderate	<p>Will include predominantly Class 3 trails but can include sections of Class 1, Class 2 or Class 4 Trails (typically for no more 30% of the route distance).</p> <p>Overall the route will have rough underfoot conditions and may include uphill sections taking up to 10 minutes to walk.</p> <p>Note: in the case of exposed trails which may be exposed to poor weather, consideration should be given to moving the grading up a level.</p>	<p>People with a moderate level of fitness.</p> <p>Specific outdoor walking footwear and clothing required.</p>
Strenuous	<p>This will include predominantly Class 4 Trails but can include sections of Class 1, Class 2 or Class 3 trails (typically for no more 30% of the route distance).</p> <p>Overall the route will have moderately steep climbs for long sections (up to 20 mins). The going underfoot can be extremely rough and can include many obstacles.</p>	<p>People accustomed to walking rough trails and with a high level of fitness.</p> <p>Typically all day or multi-day walkers.</p> <p>Specific outdoor walking footwear and clothing required.</p>
Very Difficult	<p>This will include predominantly Class 5 Trails but can include Class 1, Class 2 or Class 3 or 4 trails in the route, (typically for no more 30% of the route distance).</p> <p>Overall the route will have difficult underfoot conditions, and may include long sections of ascent up to 1 hr duration. Can include exposed terrain</p>	<p>Only suitable for people accustomed to walking in remote areas and with a high level of fitness and navigation skills.</p> <p>Typically all day or multi-day walkers.</p> <p>Specific outdoor walking footwear and clothing required.</p>

4.2.2 Walking trail grading information for trail users

When providing information to trail users on the difficulty of a trail the description should include information appropriate to the user. The use of technical terminology or information related to the trail classification, should not be used.

Table 4.7: Walking Trail Grading Information for Users

Grading	Description
Multi-access	Flat smooth trails, suitable for all users including people with reduced mobility, wheelchair users, people with a vision impairment, using crutches, with a buggy, with small children, older people and so on. Normal outdoor footwear can be worn
Easy	Generally flat trails with a smooth surface and some gentle slopes or shallow steps. These trails are generally suitable for family groups including children and the elderly. Normal outdoor footwear can be worn.
Moderate	These trails may have some climbs and may have an uneven surface where the going is rough underfoot with some obstacles such as protruding roots, rocks etc. The routes are appropriate for people with a moderate level of fitness and some walking experience. Specific outdoor walking footwear and clothing is recommended.
Strenuous	These are physically demanding trails, which will typically have some sections with steep climbs for long periods and the going underfoot can be extremely rough including many obstacles. Suitable for users accustomed to walking on rough ground and with a high level of fitness. Specific outdoor walking footwear and clothing required.
Very Difficult	These routes are predominantly in remote upland areas. They will typically include steep slopes and very variable and rough underfoot conditions on sometimes indistinct trails. They may be unmarked so the use of a map and navigational skills will be required. Suitable only for the very fit and competent mountain walkers with a high level of experience. Specific outdoor walking footwear and clothing required.

4.0

Cycling Trails

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5.0

5.0 Cycling Trails

Cycling Trails can broadly be categorised as follows:

- **Off-Road/ Mountain Bike Trails**
- **Road based Trails**

The classification and difficulty rating systems for both off-road and road based cycling trails are described below.

5.1 Classification system for off-road cycling trails

Off-road cycling trails have been divided into five classes and are described in the tables 5.1 to 5.5 below. The five classes of trail are typical of the range of cycling trails likely to be provided in Ireland.

Off-road cycling trails by definition must be traffic free. However, if required to link two sections of forest together it may be appropriate for a trail to use a short section of public road open to motorised traffic. In such situations appropriate measures must be taken to ensure that it is not possible for a cyclist to cycle directly onto a road without first dismounting. Appropriate signage should be used both on the off-road bike trail and on the public road.

Table 5.1

CLASS 1 – OFF-ROAD CYCLING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Flat trails intended for use by all ages and all types of bikes including children’s bikes with stabilisers. • Wide enough to accommodate two-way usage. • Must be traffic-free • Even consistent sealed surface with no trail features³ or obstacles. • Has low gradient to ensure slow speeds and safe use in any direction. • May use bridges and boardwalks.
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Area (see table 2.2)
TRAIL SURFACE	Consistent sealed surfaces, or compacted material. Minimal loose material no larger than 6mm.
TRAIL WIDTH	Range: 2200mm to 3000mm
TRAIL GRADIENT	Range: Flat to Maximum 5% Desirable: 3%

Plate 5.1: Typical Class 1 Cycling Trails



3 A trail feature is a step, drop or grade reversal

5.0

Cycling Trails

Table 5.2

CLASS 2 – OFF-ROAD CYCLING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Small gradients but essentially level trails to ensure slow speeds and travel in any direction. • Wide enough to accommodate two-way usage. • Should be traffic-free. • Very minor grade reversals but no other trail features can be included. • Will be suitable for bikes with tag-a-longs, but not bikes with stabilisers or child seats.
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Area (see table 2.2)
TRAIL SURFACE	Consistent sealed surfaces, or compacted material. Minimal loose material no larger than 20mm.
TRAIL WIDTH	Range:1500mm to 2200mm
TRAIL GRADIENT	Range: Flat to Maximum 5% downhill, 10% uphill Desirable: 5%

Plate 5.2: Typical Class 2 Cycling Trails



Table 5.3

CLASS 3 – OFF-ROAD CYCLING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Moderate gradients and narrower trails suitable for use in one direction only. • Wide steep descents must not be included. • Require a basic level of competency in bike control. • Suitable for mountain bikes only. • May include some uneven surfaces with unavoidable obstacles or rock steps and protruding rocks and roots.
SITE SUITABILITY	Core Recreation Areas or Rural landscapes/ Forests (see table 2.2)
TRAIL SURFACE	Variable and slightly uneven surfaces including some loose material not greater than 50mm in size. Rock steps of not more than 60mm and protruding rocks and roots no more than 40mm above the trail surface.
TRAIL WIDTH	Range: 800mm to 1200mm
TRAIL GRADIENT	Range: 5% to Maximum 8% downhill, 15% uphill Desirable: 6%

Plate 5.3: Typical Class 3 Cycling Trails



5.0

Table 5.4

CLASS 4 – OFF-ROAD CYCLING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • These are technically challenging trails, which require high levels of competency in bike control and a high level of physical fitness. • Can include tight turns of up to 180 degrees, unavoidable rock steps, protruding roots and rocks. • May be narrow and tight but wide steep descents must not be used. • These trails should be used in one direction only • Not suitable for children under 11 years of age.
SITE SUITABILITY	Rural landscapes/ Forests or Upland and Remote (see table 2.2)
TRAIL SURFACE	Very variable and uneven surfaces including loose material up to 100mm in size; protruding roots and rocks and rock steps up to 150mm high.
TRAIL WIDTH	Range 500mm to 800mm
TRAIL GRADIENT	Range 8% to Maximum 25% downhill, 20% uphill Desirable:10%

Plate 5.4: Typical Class 4 Cycling Trails



Table 5.5

CLASS 5 – OFF-ROAD CYCLING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Extremely technically and physically challenging trails requiring high levels of competency in bike control and a high level of physical fitness. • These trails should be very narrow and tight, with extremely demanding gradients • These trails will have very large features and should be used in one direction only • Suitable for children over 11 years of age • Mountain bikes with suspension only.
SITE SUITABILITY	Upland and Remote areas (see table 2.2)
TRAIL SURFACE	Extremely variable and uneven surfaces with large loose rocks, boulders and roots up to 100mm. Rock steps of up to 600mm in height, protruding roots and rocks of up to 300mm.
TRAIL WIDTH	Range: 300mm to 500mm
TRAIL GRADIENT	Range 10% to maximum 50% downhill, 25% uphill Desirable: 15%

Plate 5.5: Typical Class 5 Cycling Trails



5.2 Off-road cycling trail grading

5.2.1 Off-road cycling trail grading for trail managers

This section provides guidance for trail managers on establishing a grading (difficulty rating) for a route.

When assessing a route, the grading will be assigned based primarily on the classification of the trail which makes up the majority of the route. For example, a route which is made of predominantly a Class 4 trail, will be rated as “difficult” even if sections of the route are on Class 3 trails. To merit a specific difficulty rating the route must contain a minimum percentage of trail of a classification which reflects the rating being applied.

Guidance for the use of each grading is provided in Table 5.6 below. It is not intended to give this information to users. Information for trail users is dealt with in the section 5.2.2 below.

Table 5.6: Off-Road Cycling Trail grading for trail managers

Grading	Class of trails on the route	Generally Suitable for
Family	Class 1 only	These are suited to all abilities of users and bikes, including families with small children and their bikes.
Easy	Class 1 / Class 2 Maximum 60% of route distance will be Class 2	Suitable for all including children capable of riding off-road bikes with wheels of not less than 20 inches and some basic bike control skills.
Moderate	Class 2/ Class 3 Minimum 40% and maximum 70% of route distance will be Class 3	These are mountain bike routes that require users with a moderate level of physical fitness and competency in bike control. The use of a good quality mountain bike with at least front suspension is recommended.
Difficult	Class 3/ Class 4 Minimum 20% and maximum 70% of route distance will be Class 4	These are physically and technically demanding routes that require a competence in bike control and a good level of physical fitness. Not suitable for children under 11 years of age. The use of a good quality mountain bike with at least front suspension is recommended.
Severe	Class 3/ Class 4/ Class 5 Minimum 50% of the route will be Class 4 Maximum 10% of the route will be Class 5	These are very demanding routes, sometimes in remote or exposed areas, that require a high level of competency in bike control and a high level of physical fitness. Not suitable for children under 14 years of age. The use of full suspension mountain bikes is recommended.
Very Severe	Class 4/ Class 5 Minimum 20% of the route will be Class 5	These are extremely demanding routes, sometimes in remote or exposed areas, that require a very high level of competency in bike control and physical fitness. Not suitable for children under 14 years of age. The use of full suspension mountain bikes is recommended.

5.2.2 Off-road cycling trail grading information for trail users

When providing information to trail users on the difficulty of a trail the description should include information appropriate to the user. The use of technical terminology or information related to the trail classification, should not be used. Grading information for users is provided in Table 5.7 below.

Table 5.7: Off-Road Cycling Trail grading information for trail users

Grading	Description
Family	Traffic-free trails suitable for all ages and all types of bikes. Very even surface (usually sealed) and essentially flat (very low gradient).
Easy	Consistent, generally even surfaces suitable for off-road bikes only. Low level of bike control ability required. Of low gradient with some features in trail such as minor dips or occasional minor pot-holes. Average gradient 1:20 or 5%
Moderate	Variable and slightly uneven surfaces suitable for mountain-bikes only. Low level of bike control ability and physical fitness required. May have some dips, hollows, pot-holes and protruding roots. May include some wide timber boardwalk sections and moderate gradients. Average 1:15 or 6%
Difficult	Very variable and uneven surfaces suitable for mountain bikes only. Not suitable for children under 11 yrs old. Requires a high level of competency in bike control and a high level of physical fitness. Technically challenging with features such as tight turns, small rock steps, narrow boardwalk sections and may cross steep exposed side slope. Average gradient 1:10 or 10%
Severe	Extremely variable and uneven including large loose material, large rock steps, protruding root systems, severe grade reversals and very narrow boardwalk sections. Requires extremely high levels of bike skill and physical fitness. May require climbs and descents greater than 600m over distances greater than 35km. Mountain bikes with suspension only.
Very Severe	Extremely and suddenly variable, rocky, very uneven surfaces with features of the above and also rock slabs and exposed severe gradient rock outcrops. Only to be undertaken by those with the highest levels of technical bike skills, physical fitness and personal survival skills in remote and very exposed environments. Mountain bikes with full suspension only.

5.3 Classification system for road based cycling trails

Because roads are already classified under the national road classification system, the classification of road based cycling trails using the same system as used for off-road cycling trails is not appropriate. The existing classifications of roads in Ireland applied by the Department of Transport is as follows:

- Motorways
- National Primary routes
- National Secondary routes
- Regional routes
- Unclassified roads

Road based trails can essentially use any class of road except motorways. However, trails should be designed to use the most traffic free roads possible thus ensuring the safest and most enjoyable experience for users.

In the absence of a classification system similar to that for off-road trails, a difficulty rating for road based trails can be established using the guidelines in Table 5.8 below.

Table 5.8: Road Based Cycling Trail grading for trail managers

Grading	Types of road, gradients and overall ascent on the route.	General suitability
Easy	Uses only dedicated cycle tracks or small virtually traffic free roads (typically unclassified roads). The trail will traverse relatively flat terrain with minimal gradient (up to 3%) and overall ascent on the route less than 50m.	All cyclists including those with a low level of fitness, family groups with well supervised children who are capable of cycling on public roads. Any sort of bike
Moderate	While sections of the trail may be on cycle tracks or small virtually traffic free roads (typically unclassified roads) some sections may use regional routes or have junctions which necessitate crossing such roads. The trail will traverse varying terrain with gradients of up to 15% and overall ascent of up to 300m.	Suitable for cyclists with a moderate level of fitness and experience cycling on public roads. Any sort of bike with a selection of gears.
Difficult	While sections of the trail may be on cycle tracks or small virtually traffic free roads (typically unclassified roads) some sections may use regional or national routes or have junctions which necessitate crossing such roads. The trail will traverse all types of terrain and significant and sustained slopes of any gradient may be encountered. Overall ascent is also unlimited.	Suitable for experienced cycling enthusiasts with a high level of fitness. Any sort of bike but typically a well maintained road bike equipped to cope with long climbs and steep descents.

Plate 5.8
Typical Road based
Cycling Trail - Easy



Plate 5.9:
Typical Road based
Cycling Trail- Moderate



Plate 5.10
Typical Road based
Cycling Trail - Difficult



5.0

Cycling Trails

Table 5.9 Road based cycling trail grading information for users

Grading	Description
Easy	Route uses cycle lanes or quiet virtually traffic free roads. The roads on the route are generally flat with some gentle slopes. Suitable for all cyclists including those with a low level of fitness and family groups with children over 11 years of age under supervision. (Not suitable for small children). Any sort of bike would be suitable.
Moderate	Some sections of the route or junctions on the route may be on regional roads. The roads on the route are undulating with some slopes requiring a reasonable level of effort to climb. Suitable for cyclists with a moderate level of fitness and experience cycling on public roads. Any sort of bike with a selection of gears would be suitable.
Difficult	The route may use national, regional or unclassified roads including mountain roads with steep gradients both to be ascended and descended. Overall ascent or gradient is unlimited. A bike, well maintained and suitably equipped to cope with long climbs and steep descents is recommended.

Horse Riding Trails

6.0

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6.0

6.0 Horse Riding Trails

6.1 Classification system for horse riding trails

Horse riding trails have been divided into three classes and are described in the tables 6.1 to 6.3 below. The three classes of trail are typical of the range of horse trails likely to be provided in Ireland

Table 6.1

CLASS 1 – HORSE RIDING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Intended for novices; social groups and those seeking a trail requiring a basic level of skill and horse & rider fitness. • Wide enough to accommodate two-way usage. • Likely to be multi-use and frequent encounters with other users including cyclists, walkers & runners can be expected. • Most likely to include fire roads or wide single track trails with gentle slopes and relatively obstacle free, and a hardened natural surface.
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Areas or Rural landscapes/ forests (see table 2.3)
TRAIL SURFACE	Generally a natural compacted surface. Hardened surfaces like concrete or asphalt to be avoided to minimize concussion on horse legs and poor traction for horses due to metal horseshoes. Hardened surfaces may be utilised where the trail is shared use and horses would generally only travel at walking speed.
TRAIL WIDTH	Minimum: 1500mm Minimum corridor ⁴ width: 3000mm Minimum corridor height: 3700mm
TRAIL GRADIENT	Maximum: 10% Maximum sustained pitch: 5% Out slope: 4%

Plate 6.1: Typical Class 1 Horse Riding Trails



⁴ "Corridor" is the clear space (i.e. free from branches etc.) available for a horse and rider to pass through

Table 6.2

CLASS 2 – HORSE RIDING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Intended for individuals or social groups seeking a trail requiring a moderate level of skill and rider fitness. • May be wide enough to accommodate two-way usage. • Likely to be multi-use and frequent encounters with other users including cyclists, walkers & runners can be expected. • Most likely to include a combination of fire roads and single track trails with moderate slopes, some obstacles and a variable surface. • Obstacles such as shallow fords, rocks, logs and gates that require dismounting are likely.
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Areas or Rural landscapes/ forests (see table 2.3)
TRAIL SURFACE	Generally a natural surface is desired and may include sections of ground with exposed rock, sand, clay or gravel.
TRAIL WIDTH	Minimum: 1500mm Minimum corridor width: 1500mm Minimum corridor height: 3700mm
TRAIL GRADIENT	Maximum: 15% Maximum sustained pitch: 10% Out slope: 4%

Plate 6.2: Typical Class 2 Horse Riding Trails



6.0

Horse Riding Trails

Table 6.3

CLASS 3 – HORSE RIDING TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Intended for individuals and small social groups seeking a very challenging trail requiring a high level of skill, fitness, and basic navigation skills. • Most likely to consist of challenging single trail and/or fire road with many obstacles, variable surface, and steep sections. Some trail routes may not be waymarked. • These trails may be multi-use so encounters with other users including cyclists and walkers should be expected, however, due to location in remote areas, encounters with others is expected to be minimal. • Obstacles may include challenging rock steps, logs and river fords.
SITE SUITABILITY	Rural landscapes/ forests or Upland and Remote (see table 2.3)
TRAIL SURFACE	Usually a very variable surface with sections of rock, sand, clay or gravel.
TRAIL WIDTH	Minimum: 300mm (1500mm recommended at the height of the riders stirrups) Minimum corridor width: 1500mm Minimum corridor height: 2500mm
TRAIL GRADIENT	Maximum: 20% Maximum sustained pitch: 10%

Plate 6.3: Typical Class 3 Horse Riding Trails



6.2 Horse riding trail grading

6.2.1 Horse riding trail grading for trail managers

This section provides guidance for trail managers on establishing a grading (difficulty rating) for a route.

When assessing a route, the difficulty rating will be assigned based on the most difficult section of the trail. e.g. a route which includes rough, narrow and steep paths and described as Class 3, will be rated as “advanced” even if sections of the route are on wider, smoother trails (e.g. Class 1). However, to ensure the user has an experience which meets his/her expectation, the inclusion of Class 1 or Class 2 trails on such a route should be minimised. To merit a specific difficulty rating the route must contain a minimum percentage of trail of a classification which reflects the rating being applied.

Guidance for the use of each grading is provided in Table 6.4 below. It is not intended to give this information to users. Information for trail users is dealt with in the section 6.2.2 below.

Table 6.4: Horse riding trail grading system for trail managers

Grading	Classes of trail on the route	Generally suitable for
Easy	This will include Class 1 trails only.	Novices with a basic level of riding skill and fitness coupled with riding on a trained, experienced horse.
Moderate	This will include predominantly Class 2 trails but can include sections of Class 1 Trails (typically for no more 30% of the route distance). Note: in the case of exposed trails which would normally be rated moderate, consideration of the impact of poor weather should be taken and a separate difficulty rating for such weather applied.)	Those with an intermediate level of riding skill & fitness and a horse with some trail experience & training.
Advanced	This will include predominantly Class 3 Trails but can include sections of Class 1, Class 2 trails (typically for no more 30% of the route distance).	Those with a high level of skill, fitness, extensive riding experience, navigation and personal survival skills.

6.2.2 Horse riding trail grading information for trail users

When providing information to trail users on the difficulty of a trail the description should include information appropriate to the user. The use of technical terminology or information related to the trail classification, as used by the trail manager in assessing the trail difficulty may not be understood by trail user.

Table 6.5: Horse riding trail grading information for trail users

Grading	Description
Easy	Trails with gentle slopes and a good surface throughout. Generally suitable for social groups and those with a basic level of skill and horse & rider fitness.
Moderate	These trails may have some moderate slopes and include variable surface conditions, gates and other obstacles. Generally suitable those with an intermediate level of riding skill & fitness and a horse with some trail experience & training. Knowledge of basic horse health including first aid is highly desirable.
Advanced	Challenging single trail and/or fire road with many obstacles, variable surface, and steep sections. Some trail routes may not be waymarked. Riders should have a high level of skill, fitness and extensive riding experience. Navigation and personal survival skills are highly desirable. Horse health knowledge is essential. An experienced guide is recommended for riders with limited remote area experience.

Water Based Trails

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7.0 Water Based Trails

7.1 Classification system for water based trails

Water based trails can be provided on any body of water and are typically canoe trails. In developing water based trails it is recommended that the primary focus is on the leisure user and that trails which are developed and promoted should use flat or slow flowing water only. This could include lakes, canals, enclosed estuaries or Grade I rivers. Users who want a more challenging experience on fast flowing water are likely to be involved in the canoeing community and will seek out appropriate stretches of river with a higher classification and they are unlikely to be reliant on the guidance and facilities provided on developed trails.

An international system exists for the classification or grading of rivers used for canoeing. This system classifies rivers from Grade I to Grade VI. (See Table 7.1 below).

Table 7.1: International River Grading System

Grade I - Easy

- fast water with ripples or waves
- all dangers are obvious, negligible risk to swimmers, easy self-rescue

Grade II - Novice

- straightforward rapids with regular waves
- easy to medium drop-offs (chutes, ledges, falls)
- eddies and shear zones are easily negotiated
- best passage evident without scouting

Grade III - Intermediate

- rapids with moderate, irregular waves, breakers, rollers and back eddies
- scouting in advance is advised for inexperienced parties

Grade IV - Advanced

- high, irregular waves, breakers, powerful back eddies, whirlpools and sharp bends
- powerful but predictable rapids requiring precise handling in difficult water, for experienced paddlers only
- "Must make moves", rapids that require skill
- moderate to high risk to swimmers, group rescue is often required
- advance scouting is required

Grade V - Expert

- extremely long and/or violent rapids, often containing large, unavoidable obstacles, holes, steep banks, and turbulent water
- very fast currents with powerful whirlpools and boiling back eddies
- rescue is often difficult for experts
- advance scouting may be difficult

Grade VI - Extreme

- upper limit of present-day skills and equipment and only for teams of experts, taking all safety precautions
- Unexplored or uncharted rapids where navigation may be very difficult to impossible.
- Luck often considered an important part of a successful negotiation.

From Irish White Water website - www.irishwhitewater.com

7.2 Grading

On the basis that the guidelines contained in this document will be applied and that water based trails will only be developed on waters suitable for inexperienced users, it is recommended that no grading or "Difficulty Rating" system is required for developed canoe trails, in the same way as it is defined for land based trails.

However, information boards should clearly state the risks pertaining to any water based trail and the potential impact of heavy rainfall or an increase in wind speed. The information board should also provide details of the length of the trail, the distance to the next access/egress point and any other risks or hazards pertaining to the trail.

Plate 7.1 Typical Canoe Trails



8.0

Shared Use Trails / Greenways

8.0

8.0 Shared Use Trails /
Greenways 50



8.0 Shared Use Trails / Greenways

The classification tables in the previous chapters provided details related to each category of trail and are generally specific to dedicated single use trails e.g. for walkers only, cyclists only etc. However, many trails have the potential to be shared use trails which can be used by two or more user categories. Such trails, sometimes known as “greenways” are typically shared by walkers and cyclists, and can also include horse riders.

Most shared use trails/ greenways will be similar to Class 1 or Class 2 walking, cycling or horse riding trails in that they are wide, well surfaced and have little or no gradients. These characteristics are essential because of the variety of users and bi-directional use of these trails.

Shared use trails may include more challenging gradients and surfaces but for the purpose of this document, it is assumed that the majority of such trails will be intended for the casual user. Table 8.1 below outlines the requirements of a typical shared use trail.

Table 8.1

GREENWAY/SHARED USE TRAIL	
GENERAL DESCRIPTION	<ul style="list-style-type: none"> • Relatively flat trails intended for use by walkers and cyclists of all ages (and possibly horse riders). • Wide enough to accommodate two-way usage. • Even, consistent, sealed surface with no trail features or obstacles. • Has low gradient to ensure slow speeds and safe use in any direction. • May include urban paths, canal tow paths, rural traffic free lanes, forest roads, etc
SITE SUITABILITY	Urban/ Urban Fringe or Core Recreation Areas or Rural landscapes/ forests (see table 2.1)
TRAIL SURFACE	Consistent sealed surfaces, or compacted material. Minimal loose material no larger than 20mm. May have dual surface – hard sealed surface for bikes and parallel softer compacted surface for walkers.
TRAIL WIDTH	Range: 2000mm to 3000mm Desirable: 2500mm
TRAIL GRADIENT	Range: maximum 5% downhill to 10% uphill. Desirable: 5% average

Plate 8.1: Typical Shared Use Trails



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Appendix 1: Useful References

Guidelines for proper trail construction to ensure an adequate surface is provided can be found in the following books:

- "Guide to Trail Design and Construction" - Mountain Meitheal (available through the website www.pathsavers.org)
- "Trail Solutions IMBA's Guide to Building Sweet Singletrack" Published by the International Mountain Biking Association, P.O. Box 7578, Boulder, CO 80306. (www.imba.com)
- "Footpaths a practical handbook" Elizabeth Agate, Published by British Trust for Conservation Volunteers, Conservation Center, Balby Road, Doncaster, DN4 ORH. (www.btcv.org.uk)
- Cycle Track Design – Guidelines Manual - Dublin Transport Office (www.dto.ie)
- The National Cycle Network - Guidelines and Practical Details Issue 2 – Sustrans (www.sustrans.org.uk)
- "A guide to creating a barrier free built environment for people with physical or sensory disabilities" – Irish Wheelchair Association – Oct 2004 (www.iwa.ie)
- "Accessibility Standards – A Good Practice Guide to Disabled People's Access in the Countryside – British Telecommunications PLC and Fieldfare Trust Ltd. (www.fieldfare.org.uk)
- "Building for Everyone" – National Disability Authority (2002) (www.nda.ie)
- "See It Right" – guidelines published by the UK charity Royal National Institute of Blind People (RNIB) (www.rnib.org.uk).
- "Equestrian Access Factsheets" – British Horse Society Scotland (BHSS) (www.bhsscotland.org.uk)
- "Countryside Access Design Guide" – Scottish Natural Heritage (2002) (www.snh.org.uk)
- "On the right track: surface requirements for shared use routes. Good Practice Guide" – The Countryside Agency (2005) (www.countrysideaccess.gov.uk)
- Irish National Disability Authority (NDA) IT Accessibility Guidelines (<http://accessit.nda.ie>)
- Access to Information for All – Citizens Information Board).

Appendix 2: Multi-Access Trail Requirements⁵

1	PARKING	<p>The trail must have a vehicle parking area that includes at least 1 disabled parking bay for every 25 spaces. The parking bay dimensions must be 4800mm by 2400mm. If adjacent disabled parking bays are provided add 900mm between parking bays for optimum access. Steps should be taken to ensure that disabled parking facilities are not abused.</p> <p>The route from the disabled parking bays to the start of the trail should be clear and level, with no high kerbs or other obstructions.</p>
2	TRAIL SURFACE	<p>The trail must have a smooth, non slip, hard, all weather surface, free from protruding stones, roots or other potential trip hazards. Some loose stones smaller than 5mm are acceptable.</p>
3	TRAIL SURFACE WIDTH	<p>Range: 1800mm to 3000mm.</p>
4	CORRIDOR WIDTH	<p>Vegetation must be cleared back at least to the width of the trail surface and to a minimum of 2100mm above the trail. No vegetation should encroach or protrude onto the trail.</p>
5	SLOPES OR RAMPS	<p>Gradient - Desirable: 1:20 (5%) and maximum 1:12 (8%).</p> <p>Width - Desirable: up to 1200mm and minimum: 1000mm</p> <p>Turning width at top or bottom of ramp - Desirable: up to 1700mm and minimum: 1500mm</p> <p>If gradient is greater than 1:20 (5%) a level landing (resting place) 1700mm 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.</p> <p>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).</p>
6	CROSS SLOPE ON TRAIL	<p>Maximum 1:45 (2%)</p>

5 Information in this table has been compiled from various sources including:
 "A guide to creating a barrier free built environment for people with physical or sensory disabilities" – Irish Wheelchair Association – Oct 2004
 "Accessibility Standards – A Good Practice guide to Disabled People's Access in the Countryside – British Telecommunications PLC and Fieldfare Trust Ltd
 "Building for Everyone" – National Disability Authority (2002)

Multi-Access Trail Requirements (cont.)

7	KERB EDGE	Maximum: 20mm marked with a strong colour contrast
8	BARRIERS	No stiles, steps, or unadapted gates on the trail route.
9	PASSING PLACES	Where the trail width is no greater than 1200mm passing places of at least 1800mm should be provided at least every 100m
10	RESTING PLACES	Resting places, with seating must be provided at least every 300m. Resting places can be combined with passing places.
11	SURFACE BREAKS	Breaks in the path surface (e.g. grills, grates, gaps in boardwalks) must not exceed 12mm
12	BRIDGES/ BOARDWALKS	Bridges, boardwalks must have handrails which meet the same requirements as slopes or ramps. The width should be wide enough for easy passing for two wheel chairs (i.e. up to 1800mm. The surfaces must be provided with a non-slip finish. Bridges or boardwalks should have a smooth transition from the trail surface to the bridge surface.

Appendix 3: Trail Material Suppliers

Coillte – The Outdoor Signs Range

Dundrum Saw Mills

Dundrum

Co.Tipperary

Tel: (062) 71101

Email: woodproducts@coillte.ie

Web: www.irishhardwoods.com

Can supply: Broad range of timber products

Highway Safety Development Ltd.

Knocktopher

Co. Kilkenny

Tel: 0567768702

Email: mail@hsd.ie

Web: www.hsd.ie

Can supply: Broad range of trail materials and furniture

Signiatec – Sign Technology Ltd

Castlehale

Co. Kilkenny

Tel: 051648484

Email: info@signiatec.ie

Web: www.signiatec.com

Can supply: Broad range of trail materials and furniture

Rennicks Sign Manufacturing

Kilbride,

Mulhuddart,

Dublin 15,

Tel 01 8859200,

Email: sales@rennicks.com,

Web: www.rennicks.com

Can supply: Signage

Gaelite,

18 Corrig Road,

Sandyford Industrial Estate,

Dublin 18,

Tel: 01 2940066,

E-mail: info@gaelite.com, Web: www.gaelite.com

Can supply: Signage / Information Boards etc

Wicklow Joinery

Rathdrum,

Co. Wicklow

T: 0404 43803

Can supply: Range of timber products, Oak frames & Routing etc

Ecoplastic / BPF Recycling Plastics

86 Annacloy Road

Downpatrick

Co. Down

Northern Ireland

BT30 9AJ

Tel: (048) 44831831

Email: info@ecoplastic.net

Web: www.ecoplastic.net

Can supply: a broad range of plastic recyclable products

Environmental Street Furniture

Valley Business Centre

67 Church Road Newtownabbey

Belfast

Northern Ireland

BT36 7LS

Tel: +44 (0)845 606 6095

Web: www.streetfurniture-uk.com

Email: sales@streetfurniture-uk.com

Can supply: a broad range of metal & plastic signage products

East West Mapping, (Cartography)

Clonegal,

Co. Wicklow

Phone/ Fax: 01- 54 77835

Email: eastwest@eircom.net

Can supply: Maps, Guidebooks etc

Ordnance Survey Ireland,

Copyright administration,

Phoenix Park,

Dublin 8

Tel: 01-802-5320

Email: copyright@osi.ie

Can supply: Maps (Print & Digital)

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