

# Downhill Trails



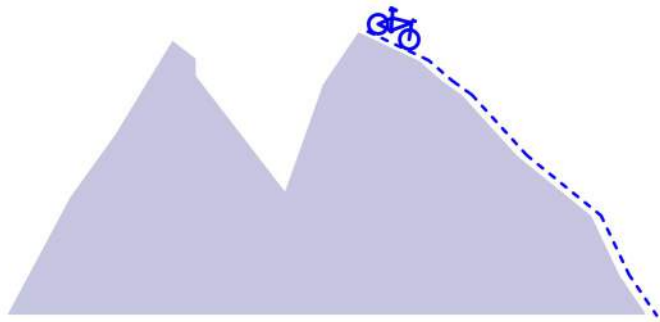
## Mountain Biking Design Guidance

This guidance has been developed by sportscotland, Scottish Cycling through its Developing Mountain Biking in Scotland project (DMBinS) & Forestry Commission Scotland.

The information held within these technical datasheets is intended as preliminary information for those wishing to develop a local/regional level, purpose built mountain bike facility. It is recommended that persons seeking to develop any project consult [sportscotland Project Development Checklist for mountain bike trails and training facilities](#) and engage the skills of a specialist trail designer.

## Downhill Mountain biking

Downhill styles of mountain biking use gravity and expert bike handling skills to negotiate a descent in the fastest time possible. The gradient and construction of the technical features of the track vary in line with local conditions.



## Uplift

It is common for downhill tracks to be on a site where a road, gondola, chairlift with bike racks are able to lift the bikes to the top. Safe uplift should be an early consideration when planning downhill trails. Forestry Commission and British Cycling have agreed safe methods of transporting cyclist and bikes separately using appropriate vehicles and trailers and any purpose build facility should support this.

Uplift may not be required at all facilities although may be necessary for adaptive bike use. Site planning should consider uplift as a priority for those sites to be used for competition or events.



## Downhill trails

Downhill (DH) trails descend with jumps, turns, technical features and often steep gradients resulting in higher speed than cross country events. The trails are typically rougher than cross country trails with technical trail features (TTF's) such as tree roots, banked sections, bumps, jumps and other natural obstacles. Riders have staggered starts and race based on their time to complete the course.

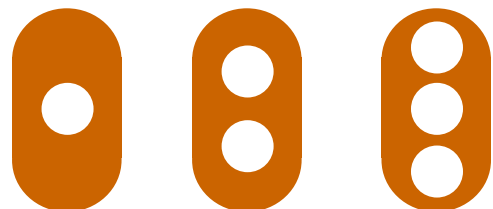
Scotland's Fort William is host to one of the UCI's annual World Cup Series Competitions. UCI regulations state that "The course comprises varied terrain sections: narrow and broad tracks, woodland roads and paths, field paths and rocky tracks. There normally are a mixture of fast and technical sections. The emphasis of the course is to test the riders' technical skills and their physical ability."



## Downhill 'Extreme' Grading

Downhill styles of mountain biking are considered to be at an 'extreme' level of riding suitable for expert mountain bike users with advanced level off-roading, technical bike skills & jumping ability. These trails are likely to have a higher level of exposure and risk than an 'extreme' cross country trail.

To differentiate between the 'extreme' cross country grading down hill trails are commonly marked with an orange lozenge shape with a dot system. The more dots indicate larger size of extreme features.



# Downhill Trails

## Four cross trails

Four Cross [4X, mountain cross, bikercross] tracks are much wider and much shorter than down hill trails but similar in gradient. Typically 6m wide, they are designed to accommodate four riders at a time in a head-to-head race format and feature various large technical features, jumps and turns. The winner is the first to cross the finish line. The four-cross races take place over several qualifying rounds. Four cross competitions are, largely, only held at national (UK) and international level. Tracks are considered to be at an 'extreme' level of riding suitable for expert mountain bike users with advanced level off-roading skills and technical ability .



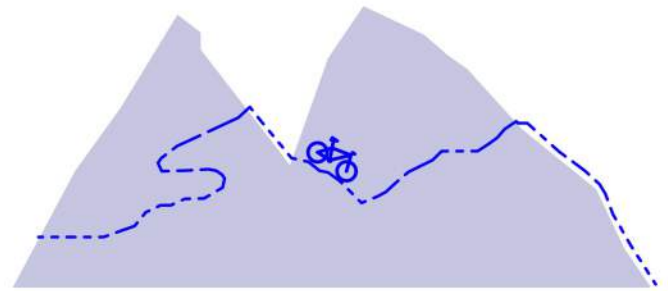
## Mini 4X trails

A mini 4X track is designed to give a gravity assisted descent taking in jump features and turns. The tracks are typically 3m wide with enough space for 2 riders to ride alongside and possibly race each other. Mini 4X tracks normally take 20-30 seconds to complete and are built as permanent facilities, which can sometimes be part of a cycle hub or centre. The jumps and turns are safe and allow users to experiment in a controlled manner. Tracks are considered to be at an 'extreme' level of riding suitable for expert mountain bike users with advanced level off-roading skills and technical ability .



## Enduro trails

Enduro (all mountain) races are hybrid of cross country and downhill mountain biking. They test the all-round mountain biker on big up and big down terrain, requiring the CV fitness of cross country racing and technical ability of downhill racing. [sportscotland DATASHEET 811](#) will provide information on cross country trails.



Trail centres can accommodate Enduro training and races by linking downhill trails with some routes up. These links may use existing infrastructure, paths and parts of cross country and downhill trails.

## Accessibility

As a service provider of a public facility any trail operator will have a duty under the 2010 Equity & Inclusion Act to make reasonable adjustments or provision to ensure that disabled participants are able to use your facility. Consideration should be given to the trail width and or route options to accommodate adapted wheelchairs & bikes. Trail design should also ensure the safety of those on mountain bikes on wider and potentially faster trails. Signage should be clearly identify trail suitability and risks.



# Downhill Trails

## Suitable for

Trail Type	Downhill Exteme (Extreme - Orange dot grading)	Four Cross (Extreme)	Mini 4X Track (Extreme)
People	Expert cyclists with advanced level of technical bike handling skills. Jumping ability will be required in the 2 and 3 dot trails.	Expert cyclists with advanced level of technical bike handling & jumping ability.	Expert cyclists with advanced level of technical bike handling & jumping ability.
Bikes	Off-road mountain bikes 4 wheel adapted bikes Downhill specific bikes	Off-road mountain bikes 4 wheel adapted bikes 4x specific bikes (some trails may require)	Off-road mountain bikes 4 wheel adapted bikes
Competition	Mini-DH events Advanced Mini-DH National race series International events	National and international 4X events	Local and regional 4X events

## Design Characteristics

Trail Type	Downhill Exteme (Extreme - Orange dot grading)	Four Cross (Extreme)	Mini 4X Track (Extreme)
Size	Trail with can be variable 2-3m width for fast sections tight 0.8m sections technical & slower Typical length: 0.5-3km	Typical width: 4-8m Typical length: < 1km	Typical width: 4-8m Typical length: < 1km
Suitable surfaces	Whindust path, dug path, compacted limestone or gravel, boardwalk timber, rock, boulders, logs	Whindust path, dug path, compacted limestone or gravel,	Whindust path, dug path, compacted limestone or gravel,
Site requirement	Gradient of 8 to 14%	Moderate slopes with regular gradients	Moderate slopes with regular gradients
Character	Fall line trails with steep gradients. Extreme downhill riding to 'big air' jumps. No sections that require pedalling.	Extreme downhill riding to 'big air' jumps. Normally no sections that require pedalling.	Extreme downhill riding to 'big air' jumps. Normally no sections that require pedalling.
Technical trail features	Extreme berms Large steps & drop-offs Extreme rollers Boardwalks Large rocks & rock gardens Challenging cambers Unavoidable jumps	Extreme berms Large steps & drop-offs Extreme rollers Boardwalks Large rocks & rock gardens Challenging cambers Unavoidable jumps	Extreme berms Large steps & drop-offs Extreme rollers Boardwalks Large rocks & rock gardens Challenging cambers Unavoidable jumps
Typical Cost per sqm	£10-£15	£30-80	£30-80

# Downhill Trails

## Scottish Access Legislation

The Land Reform (Scotland) Act 2003 gives everyone statutory access rights to most land and inland water. People only have these rights if they exercise them responsibly by respecting people's privacy, safety and livelihoods, and Scotland's environment.

For a greater understanding of access rights in Scotland see The Scottish Outdoor Access Code published by Natural heritage Scotland

[www.outdooraccess-scotland.com](http://www.outdooraccess-scotland.com)

For a greater understanding of access rights relating to mountain biking in Scotland see

'Do the ride thing' published by Scottish Cycling (DMBinS) [www.dmbins.com/files/Do\\_the\\_Ride\\_Thing.pdf](http://www.dmbins.com/files/Do_the_Ride_Thing.pdf)

This sportsScotland DATASHEET is intended to support only purpose built mountain bike trails. Facility developers and owners should be aware of access rights and should consider the needs of all users when developing facilities. We expect all purpose built mountain bike facilities to undergo a thorough scoping exercise, as part of the overall project management when developing facility, which will consult and consider other users as part of the process.

Guidance on general multi-use and upland paths is published by The Scottish Access Technical information network.

[www.satinonline.org](http://www.satinonline.org)

Guidance on multi use path construction is published by Paths for All.

[www.pathsforall.org.uk](http://www.pathsforall.org.uk)

## Landowner Liability

Land managers have to manage their land and water responsibly in relation to access rights. Any person / organisation with a responsibility for an aspect of management of the land / trail has a legal Duty of Care to all users. Facilities catering for visitors should have clear signs warning of hazards and ensure that facility is designed in such a way to minimise unwanted risk to participants.

The Visitor Safety in the Countryside Group have published guidance on landowner and participant responsibility [vscg.co.uk/guiding-principles/responsibility](http://vscg.co.uk/guiding-principles/responsibility)

For more guidance on landowner liability see:

A Brief Guide to Occupiers' Legal Liabilities in Scotland published by Scottish Natural Heritage 2005.

[www.snh.org.uk/pdfs/publications/heritagemanagement/occupiers.pdf](http://www.snh.org.uk/pdfs/publications/heritagemanagement/occupiers.pdf)

## Maintenance & Inspections

An annual budget of approximately 5% of the capital build cost of the facility is likely to be required to maintain the facilities.

Those with responsibilities for the trail must be able to show they have been suitably careful in its construction and maintenance in relation to the features of the trail and users' level of skill. Cyclists should be advised to cycle responsibly within their capabilities, and all users advised of the need to show consideration for other types of trail user. The landowner should undertake regular inspections in line with an appropriate risk assessment. Findings and action taken should be recorded to demonstrate due diligence.

## Additional Information

sportsScotland DATASHEET 810 will provide information on mountain bike skill & training facilities

sportsScotland DATASHEET 811 will provide information on cross country trails

sportsScotland Project Development Checklist for mountain bike trails and training facilities will provide information on how to develop a facility project.

## Endorsed by

These datasheets have been developed in partnership with and are endorsed by:

Scottish Cycling: Developing Mountain biking in Scotland  
Forestry Commission

