

# Cycle track service standards



## About this document

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# Contents

## Background

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i.	Purpose	4
ii.	Scope	4
iii.	Introduction/Context	4
iv.	Cycle track categories and visitor groups	5
v.	Principles for managing tracks for cyclists and walkers	7
vi.	How the standards will be used by DOC	10
vii.	Terms and definitions	11
1.	Grade 1 cycle track – Easiest	14
1.1	Target users	14
1.2	Recommended bicycle	14
1.3	Formation/marking	14
1.4	Maximum gradient	14
1.5	Surface/pavement	15
1.6	Radius of corners	15
1.7	Culverts	15
1.8	Surface width	15
1.9	Structures	15
1.10	Vegetation clearance	17
1.11	Toilets	17
1.12	Shelters	17
1.13	Seats, picnic tables and bike stands	17
1.14	Signage	17
1.15	Off-site visitor information	17
2.	Grade 2 cycle track – Easy	19
2.1	Target user	19
2.2	Recommended bicycle	19
2.3	Formation/marking	19
2.4	Maximum gradient	19
2.5	Surface/pavement	20
2.6	Radius of corners	20
2.7	Culverts	20
2.8	Surface width	20
2.9	Structures	21
2.10	Vegetation clearance	22
2.11	Toilets	22
2.12	Shelters	22
2.13	Seats, picnic tables and bike stands	22
2.14	Signage	22
2.15	Off-site visitor information	23
3.	Grade 3 Cycle Track - Intermediate	24
3.1	Target user	24
3.2	Recommended bicycle	24
3.3	Formation/marking	24

3.4	Maximum gradient	25
3.5	Surface/pavement	25
3.6	Radius of corners	25
3.7	Culverts	25
3.8	Surface width	25
3.9	Structures	26
3.10	Vegetation clearance	27
3.11	Toilets	27
3.12	Shelters	27
3.13	Seats and picnic tables	27
3.14	Signage	27
3.15	Off-site visitor information	28
<b>4.</b>	<b>Grade 4 Cycle Track – Advanced</b>	<b>29</b>
4.1	Target user	29
4.2	Recommended bicycle	29
4.3	Formation/markings	29
4.4	Maximum gradient	30
4.5	Surface/pavement	30
4.6	Radius of corners	30
4.7	Culverts	30
4.8	Surface width	30
4.9	Structures	31
4.10	Vegetation clearance	32
4.11	Toilets	32
4.12	Shelters	32
4.13	Seats and picnic tables	32
4.14	Signage	32
4.15	Off-site visitor information	32
<b>5.</b>	<b>Grade 5 Cycle Track - Expert</b>	<b>34</b>
5.1	Target user	34
5.2	Recommended bicycle	34
5.3	Formation/markings	34
5.4	Maximum gradient	35
5.5	Surface/pavement	35
5.6	Radius of corners	35
5.7	Culverts	35
5.8	Surface width	35
5.9	Structures	35
5.10	Vegetation clearance	37
5.11	Toilets	37
5.12	Shelters	37
5.13	Seats and picnic tables	37
5.14	Signage	37
5.15	Off-site visitor information	37
<b>6.</b>	<b>Grade 6 Cycle Track - Extreme</b>	<b>39</b>
6.1	Target user	39

7.	Table – Comparison of cycle track grades	40
8.	Related documents	54
9.	Document history	54

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# Background

## i. Purpose

This document sets out standards for new and existing off-road cycling tracks (almost all of which are dual use pedestrian and cycling tracks) on land managed by the Department of Conservation. It ensures that those responsible for the design, construction and maintenance of cycle tracks/dual use tracks can provide a consistent level of service that supports a safe and enjoyable experience for cyclists and others recreating in the outdoors. It also ensures that, through various sources of information, cyclists are provided with a clear picture of the level of service they can expect to find on tracks on public conservation land.

## ii. Scope

The focus is on standards for existing tracks, but the standards also cover construction of new tracks. The provision of off-site visitor information about cycle tracks is also included.

### **Exclusions:**

- Other track use (horse-riding, motorised vehicles), tracks for dirt jumping and pump tracks.
- Interpretation and facilities at the roadends and roadsides, such as carparks, toilets and shelters (apart from signs).
- Backcountry accommodation.
- Detailed track design and construction specifications. For these refer to DOC's 2008 Track Construction and Maintenance Guidelines and MBIE's NZ Cycle Trail Design Guide (2019).

## iii. Introduction/Context

Service standards for cycle tracks are poorly covered by the 2004 Tracks and Outdoor Visitor Structures Handbook (the Handbook) and cannot be used to maintain tracks or inspect them to determine whether they meet the needs of cyclists. Separate service standards for cycle tracks, including dual cycling/walking tracks are needed.

These standards draw on the design specifications for off-road cycle trails set out in the New Zealand Cycle Trail Design Guide (5th edition, August 2019), and on the NZ Mountain Bike Design and Construction Guidelines (May 2019). These documents have different purposes and are more focused on designing and constructing new tracks. The service standards, however, are generally consistent with both, particularly key aspects such as gradient. These standards will be used instead of the specifications for dual use tracks set out in the Handbook as they are far more comprehensive.



There are currently some New Zealand cycle trails and many other tracks on public conservation land that cater for off-road cyclists (and walkers) and they are listed on the DOC website. DOC has adopted the commonly used mountain bike track grading system (grade 1 to 6) and provides information for cyclists on-site and pre-visit on the grade applied to each track. This is based on a local assessment of the track against a variable understanding of the standard for each grade. A nationally consistent service standard and assessment/inspection process for cycle tracks is required to ensure cycle track grading is accurate and meets cyclists' needs.

#### iv. Cycle track categories and visitor groups

The Department's service standards for walking tracks set out in the Handbook describe six categories of track. These are based on six primary users or visitor groups (one of which, urban residents, is not used by the Department). These visitor groups, or more precisely a predominant visitor group for each site, "drive" the standard for that track. The visitor groups are used by DOC to determine the standard for pedestrian tracks, all structures on tracks and in assessing risks to visitors on tracks. They are not used in any information provided to visitors and users of tracks.

The six mountain bike track grades DOC uses describe six cycle track categories. There isn't a perfect fit between the cycle track categories and the visitor groups, and the definitions of the visitor groups do not encompass cyclists. Despite this, for DOC there needs to be an association between the cyclist (target user for each cycle track grade) and the current visitor groups. This is because visitor groups determine the requirements for structures, as set out in the Handbook, and they are used as the basis for assessing risks to visitors (both cyclists and walkers) through DOC's visitor risk management process. They will also be used to manage dual use tracks.

Table 1 below shows the association between cycle track grade, the target user of cycle tracks and the closest equivalent visitor group that is used to describe walkers in the Handbook.

Cycle track grade	Description of cyclist/target user	Closest equivalent visitor group for walkers
<b>1.</b> 	All ages and most fitness levels. Prefers “social riding” two abreast most of the time.	Urban resident (not used by DOC)  Short stop traveller
<b>2.</b> 	Riders of most ages, riding ability and fitness levels.	Short stop traveller
<b>3.</b> 	Mountain bikers with skills to ride and maintain balance on a narrower surface, control their braking and ride over small obstacles.	Day visitor
<b>4.</b> 	Advanced mountain bikers with skills to manage accurate line choice, control braking on edge of traction and overcome obstacles.	Backcountry comfort seeker
<b>5.</b> 	Expert mountain bikers with high level of skills and fitness to manage technically challenging tracks with big hills and a wide range of terrain.	Backcountry adventurer
<b>6.</b> 	Highly experienced and technically advanced mountain bikers who have supreme bike and tyre placement accuracy.	Thrill seeker  (not provided for by DOC)

**Table 1 – Cycle track categories and closest equivalent visitor groups**

## v. Principles for managing tracks for cyclists and walkers

Almost all cycle tracks are also used by walkers and so are ‘dual use tracks’. These tracks will be managed to these service standards and to those for walkers set out in the Handbook. The following principles will apply to management of dual use tracks.

1. Each track that is a whole experience for cyclists and walkers is assigned one predominant visitor group.
2. Each track that is a whole visitor experience can have up to three cycle track grades on it (see Table 2 below).
3. Information provided to visitors on and off-site on each track will list all grades on the track, but promote the track as being the highest (hardest) grade.
4. Assessment of risks to cyclists on cycle tracks will be based on the cyclist using the highest (hardest) grade of track. This is equivalent to the risks to walkers being assessed against the predominant visitor group for that site. Where there are significant numbers of cyclists/target users of lesser ability using the whole track, they should be treated as a “vulnerable visitor group” and risks should be assessed for that group.
5. Most aspects of the standard for a cycle track will be higher than the equivalent standard for walking tracks (e.g. gradient and track width). When applying the standards in the Handbook for walkers, and these cycle track standards for cyclists, a dual use track will need to meet the higher standard of the two (e.g. the maximum gradient for the relevant cycle track grade).
6. Cycle track grading is not influenced by the length, remoteness or altitude of the track. These are very important factors that will be included in pre-visit and on-site information but are not used to grade a track.







To illustrate with an example, the Timber Trail, which is at walking track standard and is roughly half grade 3 and half grade 2, could be regarded as one “whole” track or experience, or as two separate ones (the grade 3 experience and the grade 2 one). Analysis of counter data on different sections of the track will identify user numbers on each section and help to make this decision.

If it is determined that it is one whole track experience, then the principles above are applied as follows:

1. It is assigned a predominant visitor group (Day Visitor in this case).
2. It has two cycle track grades (consistent with Table 2).
3. Visitor information describes the grades for each part of the whole experience, but the track is promoted as a higher grade (grade 3) experience.
4. If there are significant numbers of grade 2 cyclists known to be riding the whole track, they will be treated as a “vulnerable visitor group” and risks will be assessed for that target user group, rather than intermediate cyclists.
5. The track will be inspected to walking track standard for walkers and to the standards in this document for grade 2 (on the grade 2 section) and for grade 3 (on the grade 3 section). Where the same aspect is inspected (e.g. gradient), the highest standard applies.



6. Pre-visit and on-site information make it clear that this is a long track (80+ km), reaches almost 1,000 m altitude and has a degree of remoteness. This doesn't influence the cycle track grading but gives cyclists important information to enable them to prepare for their trip.

Cycle track grade and target user	SST (Short-stop traveller)	DV (Day visitor)	BCC (Backcountry comfort seeker)	BCA (Backcountry adventurer)	Thrill Seeker (not provided for by DOC)
<b>1.</b>  All age cyclists					
<b>2.</b>  Cyclists of most abilities					
<b>3.</b>  Intermediate cyclists					
<b>4.</b>  Advanced cyclists					
<b>5.</b>  Expert cyclists					
<b>6.</b>  Extreme cyclists					

**Table 2 – Range of cycle track grades associated with visitor groups**

## vi. How the standards will be used by DOC

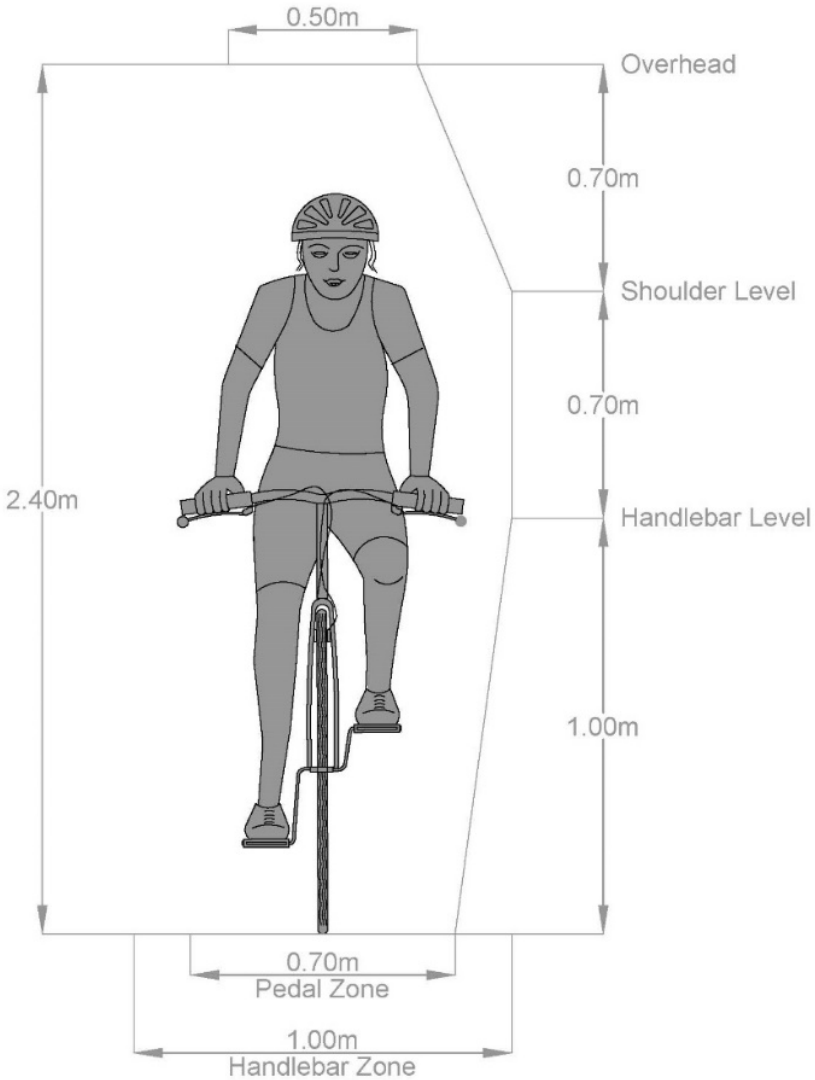
Following the adoption of these standards, implementation will be as follows:

- (a) They will be used for the construction of any new tracks (along with the detailed design and construction specifications set out in the 2008 Track Construction and Maintenance Guidelines and the 2019 NZ Cycle Trail Design Guide). The initial choice of cycle track grade for a new track should be based on the cyclist/visitor group to be catered for.
- (b) For all existing tracks that have been identified as suitable for cycling, an initial “desktop” assessment will be carried out to determine whether the current predominant visitor group, walking track category and cycle track grade match or should be changed. A process for undertaking this assessment will be developed.
- (c) Cycle track grades will be added into AMIS (DOC’s asset management information system database) so that dual use tracks can be managed using DOC’s asset management system.
- (d) A cycle track inspection process will be developed, using the visitor group and cycle track grade in AMIS, that integrates with the current (pedestrian-only) track inspection process which uses the Handbook. This will identify those aspects that require a one-off baseline inspection that do not change much (e.g. gradient) and those that require ongoing inspection (e.g. vegetation clearance).
- (e) Inspectors will be trained to inspect cycle tracks against these standards
- (f) A performance report derived from AMIS will be created that reports on “length of cycle track/dual use track to standard”
- (g) These service standards will be regularly reviewed, using the results of inspections, to ensure they are set at the right level and are fit for purpose
- (h) Information provided to visitors on cycle track grades both on and off-site will be updated to accurately reflect the assessment of the tracks against these standards

If, following inspection a cycle track does not meet these standards, options will include:

- a) Determining whether a more appropriate cycle track grade should apply to the track, or a section of it;
- b) Planning to upgrade (or possibly downgrade) the track, as funds permit, to meet the standards; or
- c) Manage the below standard aspects of track by way of visitor information, both on-site and pre-visit.

vii. Terms and definitions

Term	Definition
Double track	Two-way track where cyclists can ride side by side in the same direction or alternate directions.
Handbook	New Zealand Handbook – SNZ HB 8630:2004 – Tracks and Outdoor Visitor Structures
Horizontal clearances	<p>This is the horizontal “operating space” required for cyclists on either side of the maintained track surface that takes account of handlebar width and height and “wriggle room” or “shy space”. It is clear space on each side of the track extending beyond the maintained surface that is free of obstacles that could hinder a cyclist riding on the surface. In these standards, horizontal clearance is created through a combination of track surface width and vegetation clearance.</p> <p>See Figure 1 below.</p>  <p>The diagram illustrates the required horizontal operating space for a cyclist. It shows a cyclist on a track with a total width of 2.40m. The overhead clearance is 0.50m. On the right side, there are three vertical clearance zones: 0.70m from the overhead level to the shoulder level, 0.70m from the shoulder level to the handlebar level, and 1.00m from the handlebar level to the ground. At the bottom, there are two horizontal clearance zones: a 0.70m Pedal Zone and a 1.00m Handlebar Zone.</p>

**Figure 1 – Cycle operating space**

Term	Definition
	Sourced from NZCT Design Guide – 5 <sup>th</sup> Edition
May	There is a choice and the clause is optional.
Notifiable injury	<p>Notifiable injury is defined using the relevant parts of section 23 of the Health and Safety at Work Act 2015. Notifiable injury for the purposes of this document is:</p> <p>(a) any of the following injuries that require the person to have immediate treatment (other than first aid):</p> <p>(i) the amputation of any part of his or her body:</p> <p>(ii) a serious head injury:</p> <p>(iii) a serious eye injury:</p> <p>(iv) a serious burn:</p> <p>(v) the separation of his or her skin from an underlying tissue (such as degloving or scalping):</p> <p>(vi) a spinal injury:</p> <p>(vii) the loss of a bodily function:</p> <p>(viii) serious lacerations:</p> <p>(b) an injury that requires, or would usually require, the person to be admitted to a hospital for immediate treatment</p>
Shall	Refers to requirements that are mandatory for compliance with this document.
Should	Refers to requirements that are advised or recommended, but not mandatory.
Significant hazard	<p>A situation where, in a given year, one or more visitors has a high likelihood of dying or sustaining a notifiable injury. Factors to be considered in assessing whether, in the case of a fall from the track, the hazard is significant, and death or a notifiable injury could occur are:</p> <p>(a) Height of fall;</p> <p>(b) Secondary consequences of a fall (e.g. being swept away in a river);</p>

Term	Definition
	<p>(c) Width of track (e.g. a 2 m wide track will be less hazardous than a 0.3 m wide one);</p> <p>(d) Width from the outer edge of the track surface to the start of the fall zone</p> <p>(e) Track conditions (e.g. even, slippery or rough surface); or</p> <p>(f) Presence of hidden hazards (e.g. proximity to undercut riverbank).</p> <p>(g) Vegetation on the slope below the track (i.e. would it act as a barrier to slow or stop a fall)</p>
Single track	Track either designed for, or suitable for cyclists to ride single file
Vulnerable visitor group	Cyclists/target users of a track that do not have the abilities of the target user the track is managed for
Whole visitor experience	Track or section of track that a significant majority of cyclists ride as a single trip or experience. For example, Old Coach Road is a whole visitor experience, as is the Kaiwhakauka/Mangapurua Track; the Mountains to Sea Cycle Trail is several experiences.

# 1. Grade 1 cycle track – Easiest



<b>1</b> <b>Easiest</b>	<b>2</b> <b>Easy</b>	<b>3</b> <b>Intermediate</b>	<b>4</b> <b>Advanced</b>	<b>5</b> <b>Expert</b>	<b>6</b> <b>Extreme</b>
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## 1.1 Target users

Grade 1 cycle tracks (Figure 2) are suitable for all ages and most fitness levels. These people want a track that feels safe to ride and that is ideal as a first ride for non-cyclists. They want an easy gradient or experience on a track that is well formed, flat, wide and smooth. They want to ride two abreast most of the time as this provides a social component to the ride. They want to be able to ride the total distance of the track without dismounting for obstacles.



**Figure 2 – Example of a grade 1 cycle track**

## 1.2 Recommended bicycle

Most types of bicycle.

## 1.3 Formation/marking

The track formation shall be well defined, so that users can easily find their way in either direction in all weather and low light conditions. Markers will not usually be required. Any track markers used (other than poles) shall follow the specifications set out in Appendix B of the *Handbook*.

## 1.4 Maximum gradient

The maximum gradient shall be 2 degrees, with the following exceptions:

- A – Between 2° and 3° for slopes up to 200 m long.

- B – Between 3° and 4° for slopes up to 20 m long.

A and B combined shall not exceed 2 percent of the track length.

If the track is designed and promoted to be ridden predominantly in one direction, the downhills can be steeper (up to 4°) for up to 100 m.

## 1.5 Surface/pavement

The surface of the track shall be well formed, smooth and even and shall consist of durable material, such as concrete, chip seal or asphalt, or well bound aggregate of 20 mm maximum particle size. The surface shall be free of loose soil or aggregate that is picked up by wheels. Pavement profile shall have sufficient cross fall so that it is free of ponded water and there shall be no mud. In dry weather the track surface shall be such that it can be ridden on comfortably without getting wet or muddy.

There shall be no “walking” steps and no roots, ruts, rocks or obstacles greater than 30 mm high.

## 1.6 Radius of corners

The radius of corners should be no less than 6 m to the outside of the turn, measured from the inside centre to the outside riding line.

## 1.7 Culverts

Open culverts (i.e. either wooden or natural drains going across the track, with no cover) shall not be used on grade 1 tracks. Any existing open culverts shall be replaced with alternatives such as grade reversals/grade dips.

## 1.8 Surface width

*Riding surface width for a single track*

The minimum width of the maintained riding surface shall be 1.2 m.

*Riding surface width for a double track*

The minimum width of the maintained riding surface shall be 2.2 m.

*Horizontal clearances*

There shall be a minimum horizontal clearance of 0.5 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface in all other situations.

## 1.9 Structures

All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.



### 1.9.1 Structure width

The minimum width for new access structures, including cattle stops, shall be 1.2 m where there is a handrail or barrier on sides with a fall. The minimum width of new access structures shall be 1.5 m where there is no handrail or barrier on sides with a fall. The maximum width for new access structures shall be 2.0 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.

### 1.9.2 Boardwalks

Boardwalks shall be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.

Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.

### 1.9.3 Bridges

All watercourses shall be bridged, or culverted where passage for fish is not hindered. Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.

### 1.9.4 Guardrails or barriers

Where a significant hazard of falling exists for cyclists of all ages and abilities, and there is no other alternative, a barrier or guardrail shall be provided. Barriers and guardrails shall extend along the full length of the edge of the track exposed to the significant hazard. New barriers shall be 1.2 m high.

A significant hazard from falling for a section of track is identified by assessing the seven factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.

Alternatives to barriers include widening or realigning the track.

### 1.9.5 Viewing platforms

Viewing platforms may be provided in appropriate places along the track.

### 1.9.6 Cattle stops

Cattle stops should be used in preference to gates. They should have handrails and an approach ramp should be used to provide a relatively flat approach to the cattle stop deck. New cattle stops should be designed using the specifications in the NZ Cycle Trail Design Guide.

### 1.9.7 Stiles and access barriers

There shall be no stiles, turnstiles or kissing gates. Access barriers installed to prevent motor vehicles getting onto the track should be designed to allow disabled users to access the track.

## 1.10 Vegetation clearance

Vegetation shall be cleared 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface. Additional clearance is necessary on bends where riders lean into corners.

Vegetation clearance on corners shall be sufficient to allow good visibility (a minimum 10 m sight distance) for cyclists and walkers.

All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.

## 1.11 Toilets

Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 10 km or more.

## 1.12 Shelters

Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 10 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.

## 1.13 Seats, picnic tables and bike stands

Seats and picnic tables may be provided. Bike stands should be provided at popular stopping locations where space for bikes is limited.

## 1.14 Signage

Grade 1 tracks shall be clearly signposted with directional signs (which include grade, riding times and distances) at entrances and at all junctions. Significant points of interest along or at the end of the trail should be signposted. At locations where there is a change from a Grade 1 track to a higher grade, signs shall be provided with appropriate symbols and words to describe the change.

Where more than one riding option exists, an orientation/track information sign should be provided at entrances.

Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.

Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided. For all permanent hazard warning signs, refer to the Best Practice Guideline “Managing risks to visitors on public conservation and waters”.

## 1.15 Off-site visitor information

Pre-visit information on cycle tracks shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:

- Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.

- Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).
- Whether or not electric bikes can be used on the track.
- Distance (in kilometres) and cycling time for the predominant user.
- Key facilities provided (e.g. shelters, toilets, drinking water).
- Safety information relating to the track or specific sections of it, including remoteness and altitude reached.
- Cell phone coverage (where known).
- Special riding considerations (e.g. rideability when track is wet).
- Transport options from roadends.
- Cleaning bikes when riding in kauri forest.

## 2. Grade 2 cycle track – Easy



1 Easiest	2 Easy	3 Intermediate	4 Advanced	5 Expert	6 Extreme
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### 2.1 Target user

Grade 2 tracks (Figure 3) are suitable for most ages, riding ability and fitness levels. These cyclists want a track that is well formed, smooth and has some gentle climbs. They want a riding experience that is predictable, has no surprises and that is suitable for most beginner riders. They want to ride two abreast at times, as this provides a social component to the ride, but will accept riding single file.



**Figure 3 – Example of a grade 2 cycle track**

### 2.2 Recommended bicycle

Mountain bike, hybrid bike and other bicycles with tyres more than about 30 mm wide.

### 2.3 Formation/marking

The track shall be well defined to allow inexperienced users to easily find their way in either direction in all weather conditions. Markers will not usually be required. Any track markers used (other than poles and cairns) shall follow the specifications set out in Appendix B of the Handbook.

### 2.4 Maximum gradient

The maximum gradient shall be 3.5 degrees, with the following exceptions:

- A – Between 3.5° and 5° for slopes up to 200 m long.
- B – Between 5° and 6° for slopes up to 30 m long.

A and B combined shall not exceed 5 percent of the track length.

If the track is designed and promoted to be ridden predominantly in one direction, the downhill can be steeper (up to 6°) for up to 100 m.

## 2.5 Surface/pavement

The surface of the track shall be well formed, smooth and durable. Surface material may be well bound aggregate of 40 mm maximum particle size. The surface shall be free of loose soil or aggregate that is picked up by wheels. Pavement profile shall have sufficient cross fall so that it is free of ponded water. In dry weather the track surface shall be such that it can be ridden on comfortably without getting wet or muddy.

Where there are rocks, roots or ruts, they can either be avoided, or shall be less than 50 mm high.

Up to 2% of the track may be wet and muddy. These areas shall be no deeper than 50 mm. To ensure that wet or muddy sections are not excessively long, there shall be no more than 1 m in every 50 m of track.

There shall be no “walking” steps.

## 2.6 Radius of corners

The radius of corners should be no less than 4 m to the outside of the turn, measured from the inside centre to the outside riding line.

## 2.7 Culverts

Open culverts (i.e. either wooden or natural drains going across the track, with no cover) shall not be used on grade 2 tracks. Any existing open culverts shall be replaced with alternatives such as grade reversals/grade dips.

## 2.8 Surface width

*Riding surface width for a single track*

The minimum width of the maintained riding surface shall be 0.9 m and the maximum width should be 2 m.

*Riding surface width for a double track*

The minimum width of the maintained riding surface shall be 1.2 m and the maximum width should be 2 m.

*Horizontal clearances*

There shall be a minimum horizontal clearance of 0.5 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface in all other situations.

## 2.9 Structures

All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.

### 2.9.1 Structure width

The minimum width for new access structures, including cattle stops, shall be 1.2 m where there is a handrail or barrier on sides with a fall. The minimum width of new access structures shall be 1.5 m where there is no handrail or barrier on sides with a fall. The maximum width for new access structures shall be 1.8 m. The approach to the structure for a minimum of 10m leading to the structure shall be at least the width of the structure.

### 2.9.2 Boardwalks

Boardwalks shall be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.

Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.

### 2.9.3 Bridges

All watercourses shall be bridged, or culverted where passage for fish is not hindered, except for watercourses less than 100 mm deep in normal flow that can be easily ridden. Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.

### 2.9.4 Guardrails or barriers

Where a significant hazard of falling exists for cyclists who are of most ages and riding abilities, and there is no other alternative, a barrier or guardrail shall be provided. Barriers and guardrails shall extend along the full length of the edge of the track exposed to the significant hazard. New barriers shall be 1.2 m high.

A significant hazard from falling for a section of track is identified by assessing the seven factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.

Alternatives to barriers include widening or realigning the track.

### 2.9.5 Viewing platforms

Viewing platforms may be provided in appropriate places along the track.

### 2.9.6 Cattle stops

Cattle stops should be used in preference to gates. They should have handrails and an approach ramp should be used to provide a relatively flat approach to the cattle stop deck. New cattle stops should be designed using the specifications in the NZ Cycle Trail Design Guide.

### 2.9.7 Stiles and access barriers

There shall be no stiles, turnstiles or kissing gates. Access barriers installed to prevent motor vehicles getting onto the track should be designed to allow disabled users to access the track.

### 2.10 Vegetation clearance

Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface. Additional clearance is necessary on bends where riders lean into corners.

Vegetation clearance on corners shall be sufficient to allow good visibility (a minimum 10 m sight distance) for cyclists and walkers.

All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.

### 2.11 Toilets

Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 10 km or more.

### 2.12 Shelters

Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 10 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.

### 2.13 Seats, picnic tables and bike stands

Seats and picnic tables may be provided. Bike stands should be provided at popular stopping locations where space for bikes is limited.

### 2.14 Signage

Grade 2 tracks shall be clearly signposted with directional signs (which include grade, riding times and distances) at entrances and at all junctions. Significant points of interest along or at the end of the trail should be signposted. At locations where there is a change from a Grade 2 track to a higher grade, signs shall be provided with appropriate symbols and words to describe the change.

Where more than one riding option exists, an orientation/track information sign should be provided at entrances.

Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.

Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided. For all permanent hazard warning signs, refer to the Best Practice Guideline “Managing risks to visitors on public conservation and waters”.

## 2.15 Off-site visitor information

Pre-visit information on cycle tracks shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:

- Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.
- Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).
- Whether or not electric bikes can be used on the track.
- Distance (in kilometres) and cycling time for the predominant user.
- Key facilities provided (e.g. shelters, toilets, drinking water).
- Safety information relating to the track or specific sections of it, including remoteness and altitude reached.
- Cell phone coverage (where known).
- Special riding considerations (e.g. rideability when track is wet).
- Transport options from roadends.
- Cleaning bikes when riding in kauri forest.



### 3. Grade 3 Cycle Track - Intermediate



<b>1</b> <b>Easiest</b>	<b>2</b> <b>Easy</b>	<b>3</b> <b>Intermediate</b>	<b>4</b> <b>Advanced</b>	<b>5</b> <b>Expert</b>	<b>6</b> <b>Extreme</b>
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#### 3.1 Target user

Grade 3 tracks (Figure 4) cater for cyclists/mountain-bikers with moderate riding skills and that have a degree of off-road riding experience. They can manage tracks that are usually narrow and that have some hills to climb. They accept that there will be some exposure to steep slopes. These riders have the skills to maintain balance on a narrower surface, and to steer to avoid or ride over occasional obstacles up to 100 mm high or deep.



**Figure 4 – Example of a grade 3 cycle track**

#### 3.2 Recommended bicycle

Mountain bike or bike-packing bike.

#### 3.3 Formation/marking

The track shall be well defined.

The track shall be clearly marked, where necessary, to allow less experienced users to easily find their way in either direction in all weather conditions. Track markers (other than poles) shall comply with the specifications prescribed in Appendix B of the Handbook.

### 3.4 Maximum gradient

The maximum gradient shall be 5 degrees, with the following exceptions:

- A – Between 5° and 7° for slopes up to 200 m long.
- B – Between 7° and 10° for slopes up to 20 m long.

A and B combined shall not exceed 10 percent of the track length.

If the track is designed and promoted to be ridden predominantly in one direction, the downhill can be steeper (up to 10°) for longer.

### 3.5 Surface/pavement

The surface of the track shall be mostly well formed, even and generally firm. Tracks may have some loose sections where the surface is broken by rock, roots, scree or other obstacles. These sections shall still provide reasonably good riding conditions in most weather. Wet areas shall be drained. In dry conditions the track surface shall be such that it can be ridden on comfortably without getting wet or muddy.

Where there are rocks, roots or ruts that cannot be avoided, they shall be less than 100 mm high.

Up to 2% of the track may be wet and muddy. These areas shall be no deeper than 50 mm.

Steps on a Grade 3 cycle track are undesirable but can be used provided they meet the requirements of the SNZ 8630 Handbook for steps on a walking track and make up no more than one percent of the total track length. Any flights of steps, including landings, should have a vertical rise no greater than 8 m and be followed by some riding without steps.

### 3.6 Radius of corners

The radius of corners should be no less than 2.5 m to the outside of the turn, measured from the inside centre to the outside riding line.

### 3.7 Culverts

Open culverts (i.e. either wooden or natural drains going across the track, with no cover) are not desirable on grade 3 tracks. Any existing open culverts should be replaced with alternatives such as grade reversals/grade dips.

### 3.8 Surface width

The minimum width of the maintained riding surface shall be 0.9 m for at least 90 percent of the track length.

Up to 10 percent of the track may have a minimum maintained riding surface width between 0.6 and 0.9 m.

There shall be a minimum horizontal clearance of 0.5 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface in all other situations. Additional horizontal clearance is necessary on bends where riders lean into corners.

The maximum maintained width should be 2 m.

## 3.9 Structures

All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.

### 3.9.1 Structure width

The minimum width for new access structures, including cattle stops, shall be 0.75 m for the deck if the width at handlebar height is at least 1.2 m. The maximum width for new access structures shall be 1.2 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.

### 3.9.2 Boardwalks

Boardwalks should be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.

Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.

### 3.9.3 Bridges

All watercourses shall be bridged or culverted where passage for fish is not hindered, except for watercourses less than 200 mm deep in normal flow that can be easily ridden. Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.

### 3.9.4 Guardrails or barriers

Where a significant hazard of falling exists for cyclists with moderate riding skills and a degree of riding experience, and there is no other alternative, a barrier or guardrail shall be provided. Barriers and guardrails shall extend along the full length of the edge of the track exposed to the significant hazard. New barriers shall be 1.2 m high.

A significant hazard from falling for a section of track is identified by assessing the seven factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.

Alternatives to barriers include widening or realigning the track, or where installing a barrier is impractical, permanent signs recommending dismounting and walking.

### 3.9.5 Viewing platforms

Viewing platforms may be provided in appropriate places along the track.

### 3.9.6 Cattle stops

Cattle stops should be used in preference to gates. They should have handrails and an approach ramp should be used to provide a relatively flat approach to the cattle stop deck. New cattle stops should be designed using the specifications in the NZ Cycle Trail Design Guide.

### 3.9.7 Stiles

Stiles, turnstiles or kissing gates should be avoided but existing ones may remain. Access barriers installed to prevent motor vehicles getting onto the track should be designed to allow disabled users to access the track.

### 3.10 Vegetation clearance

Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface. Additional clearance is necessary on bends where riders lean into corners.

Vegetation clearance on corners shall be sufficient to allow good visibility (a minimum 10 m sight distance) for cyclists and walkers.

All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.

### 3.11 Toilets

Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 10 km or more.

### 3.12 Shelters

Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 10 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.

### 3.13 Seats and picnic tables

Seats and picnic tables may be provided.

### 3.14 Signage

Grade 3 tracks shall be clearly signposted with directional signs (which include grade, riding times and distances) at entrances and at all junctions. Significant points of interest along or at the end of the trail should be signposted. At locations where there is a change from a Grade 3 track to a higher grade, signs shall be provided with appropriate symbols and words to describe the change.

Where more than one riding option exists, an orientation/track information sign should be provided at entrances.

Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.

Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided. For all permanent hazard warning signs – refer to Best Practice Guideline “Managing risks to visitors on public conservation and waters”.

### 3.15 Off-site visitor information

Pre-visit information on cycle tracks shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:

- Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.
- Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).
- Whether or not electric bikes can be used on the track.
- Distance (in kilometres) and cycling time for the predominant user.
- Key facilities provided (e.g. shelters, toilets, drinking water).
- Safety information relating to the track or specific sections of it, including remoteness and altitude reached.
- Cell phone coverage (where known).
- Special riding considerations (e.g. rideability when track is wet).
- Transport options from roadends.
- Cleaning bikes when riding in kauri forest.

## 4. Grade 4 Cycle Track – Advanced



<b>1</b> <b>Easiest</b>	<b>2</b> <b>Easy</b>	<b>3</b> <b>Intermediate</b>	<b>4</b> <b>Advanced</b>	<b>5</b> <b>Expert</b>	<b>6</b> <b>Extreme</b>
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### 4.1 Target user

Grade 4 tracks (Figure 5) cater for mountain-bikers with good off-road riding skills and considerable riding experience. These cyclists have skills to manage accurate line choice and control braking on the edge of traction. They accept that there will be steep climbs with some obstacles that are difficult to avoid or jump over, that the track will be narrow and that some sections will be easier to walk.

**Figure 5 – Example of a grade 4 cycle track**



### 4.2 Recommended bicycle

Mountain bike or bike-packing bike.

### 4.3 Formation/markings

The track shall be well defined.

Marking, where required, shall be through use of poles or markers. Track markers (other than poles) shall follow the specification set out in Appendix B of the Handbook.

## 4.4 Maximum gradient

The maximum gradient shall be 7 degrees, with the following exceptions:

- A – Between 7° and 9° for slopes up to 200 m long.
- B – Between 9° and 12° for slopes up to 15 m long.

A and B combined shall not exceed 10 percent of the track length.

If the track is designed and promoted to be ridden predominantly in one direction, the downhill can be steeper (up to 12°) for longer.

## 4.5 Surface/pavement

The surface of the track shall be generally firm but may have some loose sections where the surface is broken by rock, ruts, roots, scree or other obstacles. These obstacles shall be no higher/deeper than 200 mm. The track should still provide reasonably good riding conditions in most weather.

Wet areas shall be drained. In dry weather the track surface shall be such that it can be ridden on comfortably without getting wet or muddy. Up to 2% of the track may be wet and muddy. These areas shall be no deeper than 50 mm.

Steps on a Grade 4 cycle track are undesirable but can be used provided they meet the requirements of the Handbook for steps on an easy tramping track and make up no more than 2 % of the total track length. Any flight of steps, including landings, should have a vertical rise no greater than 8 m and be followed by some riding without steps.

## 4.6 Radius of corners

The radius of corners should be no less than 2 m to the outside of the turn, measured from the inside centre to the outside riding line.

## 4.7 Culverts

Open culverts (i.e. either wooden or natural drains going across the track, with no cover) are not desirable on grade 4 tracks. Any existing open culverts should be replaced with alternatives such as grade reversals/grade dips.

## 4.8 Surface width

The minimum width of the maintained riding surface shall be 0.6 m for track sections on steep slopes or where room for passing is required. The minimum maintained track width shall be 0.3 m for track sections on flat terrain.

The maximum maintained width should be 1.0 m.

There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.15 m from the edges of the maintained track surface in all other situations. Additional horizontal clearance is necessary on bends where riders lean into corners.

## 4.9 Structures

All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.

### 4.9.1 Structure width

The minimum width for new access structures, including cattle stops, shall be 0.6 m for the deck if the width at handlebar height is 1.2 m. The maximum width for new access structures shall be 1.2 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.

### 4.9.2 Boardwalks

Boardwalks should be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.

Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.

### 4.9.3 Bridges

All watercourses shall be bridged, or culverted where passage for fish is not hindered, except for watercourses less than 300 mm deep in normal flow that can be easily walked across. Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.

### 4.9.4 Guardrails or barriers

Where a significant hazard of falling exists for cyclists with good riding skills and considerable riding experience, a barrier or guardrail shall be provided. Barriers and guardrails shall extend along the full length of the edge of the track exposed to the significant hazard. New barriers shall be 1.2 m high.

A significant hazard from falling for a section of track is identified by assessing the seven factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.

Alternatives to barriers include widening or realigning the track, or where installing a barrier is impractical, permanent signs recommending dismounting and walking.

### 4.9.5 Viewing platforms

Viewing platforms should not be provided.

### 4.9.6 Cattle stops

Cattle stops should be used in preference to gates. They should have handrails and an approach ramp should be used to provide a relatively flat approach to the cattle stop deck. New cattle stops should be designed using the specifications in the NZ Cycle Trail Design Guide.



#### 4.9.7 Stiles

Stiles, turnstiles or kissing gates should be avoided but existing ones may remain.

#### 4.10 Vegetation clearance

Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface. Additional clearance is necessary on bends where riders lean into corners.

Vegetation clearance on corners shall be sufficient to allow good visibility (a minimum 10 m sight distance) for cyclists and walkers.

All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.

#### 4.11 Toilets

Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 15 km or more.

#### 4.12 Shelters

Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 15 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.

#### 4.13 Seats and picnic tables

Seats and picnic tables may be provided.

#### 4.14 Signage

Grade 4 tracks shall be clearly signposted with directional signs (which include grade, riding times and distances) at entrances and at all junctions. Significant points of interest along or at the end of the trail should be signposted. At locations where there is a change from a Grade 4 track to a higher grade, signs shall be provided with appropriate symbols and words to describe the change.

Where more than one riding option exists, an orientation/track information sign should be provided at entrances.

Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.

Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided. For all permanent hazard warning signs – refer to Best Practice Guideline “Managing risks to visitors on public conservation and waters”.

#### 4.15 Off-site visitor information

Pre-visit information on cycle tracks shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:

- Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.
- Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).
- Whether or not electric bikes can be used on the track.
- Distance (in kilometres) and cycling time for the predominant user.
- Key facilities provided (e.g. shelters, toilets, drinking water).
- Safety information relating to the track or specific sections of it, including remoteness and altitude reached.
- Cell phone coverage (where known).
- Special riding considerations (e.g. rideability when track is wet).
- Transport options from roadends.
- Cleaning bikes when riding in kauri forest.

## 5. Grade 5 Cycle Track - Expert



<b>1</b> <b>Easiest</b>	<b>2</b> <b>Easy</b>	<b>3</b> <b>Intermediate</b>	<b>4</b> <b>Advanced</b>	<b>5</b> <b>Expert</b>	<b>6</b> <b>Extreme</b>
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### 5.1 Target user

Grade 5 tracks (Figure 6) cater for expert mountain bikers who have a high level of skills and fitness to manage technically challenging tracks with big hills, rocks and a wide range of terrain. They accept that they will need to walk some sections.



**Figure 6 – Example of a grade 5 cycle track**

### 5.2 Recommended bicycle

Mountain bike with full suspension

### 5.3 Formation/marking

The track should be defined, by use or by management, but may have small unformed sections defined by markers or poles.

Track markers (other than poles) shall follow the specification set out in Appendix B of the Handbook.

## 5.4 Maximum gradient

The maximum gradient shall be 10 degrees, with the following exceptions:

- A – Between 10° and 12° for slopes up to 200 m long.
- B – Between 12° and 15° for slopes up to 15 m long.

A and B combined shall not exceed 10 percent of the track length.

If the track is designed and promoted to be ridden predominantly in one direction, the downhill can be steeper (up to 15°) for longer.

## 5.5 Surface/pavement

The surface of the track shall generally be the natural surface and may include water, ruts, roots and embedded rocks. Major obstacles such as windfalls are to be removed or the track diverted around them. Generally minor obstacles up to 600 mm high/deep, such as rocks, tree roots and earth should remain.

Up to 10% of the track may be wet and muddy. These areas should be no deeper than 50 mm. To ensure that wet or muddy sections are not excessively long, there shall no more than 5 m in every 50 m of track.

Steps can be used provided they meet the requirements of the Handbook for steps on a tramping track and make up no more than two percent of the total track length.

## 5.6 Radius of corners

The radius of corners should be no less than 1.5 m to the outside of the turn, measured from the inside centre to the outside riding line.

## 5.7 Culverts

Open culverts (i.e. either wooden or natural drains going across the track, with no cover) are not desirable. Any existing open culverts should be replaced with alternatives such as grade reversals/grade dips.

## 5.8 Surface width

The minimum width of the riding surface shall be 0.25 m.

The maximum maintained width should be 1.0 m. There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.15 m from the edges of the maintained track surface in all other situations. Additional horizontal clearance is necessary on bends where riders lean into corners.

## 5.9 Structures

All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.

### 5.9.1 Structure width

The minimum width for new access structures shall be 0.6 m. The maximum width for new access structures shall be 0.8 m.

### 5.9.2 Boardwalks

Boardwalks are not generally provided on grade 5 tracks. Instead where muddy, sandy or swampy conditions exist tracks are to be drained, rerouted or raised. If there is no alternative, boardwalks may be constructed only where they are necessary to mitigate significant environmental effects.

### 5.9.3 Bridges

Watercourses shall be bridged where they cannot be safely crossed by expert mountain bikers during times of normal water flow.

Watercourses shall also be bridged where:

- a) No reasonable alternative wet weather track exists;
- b) They cannot be safely crossed unassisted when in flood;
- c) Floods occur with a frequency that means the watercourse is a barrier to progress or becomes a significant hazard to over 25 % of users a year; and
- d) There is no accommodation/shelter within two hours riding distance where visitors can wait until the river/stream conditions improve.

Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.

### 5.9.4 Guardrails or barriers

Where a significant hazard of falling exists for expert mountain bikers who have a high level of skills and fitness to manage technically challenging tracks, and there is no other alternative, a barrier or guardrail may be provided. Barriers and guardrails shall extend along the full length of the edge of the track exposed to the significant hazard.

New barriers shall be 1.2 m high.

A significant hazard from falling for a section of track is identified by assessing the seven factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.

Alternatives to barriers include widening or realigning the track, or where installing a barrier is impractical, permanent signs recommending dismounting and walking.

### 5.9.5 Viewing platforms

Viewing platforms should not be provided.

### 5.9.6 Cattle stops

Cattle stops or gates may be used.

### 5.9.7 Stiles

Stiles, turnstiles or kissing gates may be used.

### 5.10 Vegetation clearance

Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.0 m, giving riders a clear passage and an unimpeded view of the surface. Additional clearance is necessary on bends where riders lean into corners.

Vegetation clearance on corners shall be sufficient to allow good visibility for cyclists and walkers.

All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.

### 5.11 Toilets

Toilets may be provided in appropriate places along the track if the visitor numbers warrant it.

### 5.12 Shelters

Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 20 km the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.

### 5.13 Seats and picnic tables

Seats and picnic tables should not be provided.

### 5.14 Signage

Grade 5 tracks shall be clearly signposted with directional signs (which include grade and riding times and may show distances) at entrances and at all junctions.

Where more than one riding option exists, an orientation/track information sign should be provided at entrances.

Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.

Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided. For all permanent hazard warning signs – refer to the Best Practice Guideline “Managing risks to visitors on public conservation and waters”.

### 5.15 Off-site visitor information

Pre-visit information on cycle tracks shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:

- Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.

- Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).
- Whether or not electric bikes can be used on the track.
- Cycling time for the predominant user (and distance if this is available).
- Key facilities provided (e.g. shelters, toilets, drinking water).
- Safety information relating to the track or specific sections of it, including remoteness and altitude reached.
- Cell phone coverage (where known).
- Special riding considerations (e.g. rideability when track is wet).
- Transport options from roadends.
- Cleaning bikes when riding in kauri forest.

## 6. Grade 6 Cycle Track - Extreme



<b>1</b> <b>Easiest</b>	<b>2</b> <b>Easy</b>	<b>3</b> <b>Intermediate</b>	<b>4</b> <b>Advanced</b>	<b>5</b> <b>Expert</b>	<b>6</b> <b>Extreme</b>
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### 6.1 Target user

Grade 6 tracks cater for highly experienced and technically advanced mountain bikers who have supreme bike and tyre placement accuracy. They use purpose built extreme downhill, “free ride” tracks, often with large jumps and obstacles. DOC describes such cyclists as “thrill-seekers”.

*This grade is not used by DOC. These tracks are provided by others (e.g. volunteers, community groups and concessionaires) on public conservation land. For this reason, DOC has not set a standard for grade 6, leaving it up to those providing these tracks to do so.*



## 7. Table – Comparison of cycle track grades

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
<b>Target user</b>	All ages and most fitness levels. Want a track that feels safe to ride and suitable as a first ride for non-cyclists. Want an easy gradient or experience on a track that is well formed, flat, wide and smooth. Want to ride two abreast most of the time and want to be able to ride without dismounting for obstacles.	Most ages, riding ability and fitness levels. Want a track that is well formed, smooth and has gentle climbs. Want a riding experience that is predictable, has no surprises and suitable for most beginner riders. Want to ride two abreast at times but will accept riding single file.	Cyclists/mountain-bikers with moderate riding skills. Have a degree of off-road riding experience. Can manage tracks that are usually narrow and that have some hills to climb. They accept that there will be some exposure to steep slopes. Have the skills to maintain balance on a narrower surface, and to steer to avoid or ride over occasional obstacles up to 100 mm high or deep.	Mountain-bikers with good riding skills and considerable off-road riding experience. Have skills to manage accurate line choice and control braking on the edge of traction. They accept that there will be steep climbs with some obstacles that are difficult to avoid or jump over, that the track will be narrow and that some sections will be easier to walk.	Expert mountain bikers with a high level of skills and fitness to manage technically challenging tracks with big hills, rocks and a wide range of terrain. They accept some walking sections.	Highly experienced and technically advanced mountain bikers who have supreme bike and tyre placement accuracy. They use purpose built extreme downhill, “free ride” tracks, often with large jumps and obstacles. DOC describes such cyclists as “thrill-seekers”.

<b>Cycle Track Grade</b>	<b>Grade 1-Easiest</b>	<b>Grade 2 - Easy</b>	<b>Grade 3 - Intermediate</b>	<b>Grade 4 - Advanced</b>	<b>Grade 5 - Expert</b>	<b>Grade 6 - Extreme</b>
<b>Recommended bicycle</b>	Most types of bicycle.	Mountain bike, hybrid bike and other bicycles with tyres more than about 30 mm wide.	Mountain bike or bike-packing bike.	Mountain bike or bike-packing bike.	Mountain bike with full suspension.	
<b>Formation and marking</b>	Well defined, so that users can easily find their way in either direction in all weather and low light conditions. Markers not usually required.	Well defined to allow inexperienced users to easily find their way in either direction in all weather conditions. Markers not usually required.	Well defined. Clearly marked, where necessary, to allow less experienced users to easily find their way in either direction in all weather conditions.	Well defined. Marking, where required, shall be through use of poles or markers.	Defined, by use or by management, but may have small unformed sections defined by markers or poles.	
<b>Maximum gradient</b>	2°, with the following exceptions:  A – Between 2° and 3° for slopes up to 200 m long  B – Between 3° and 4° for slopes up to 20 m long.	3.5°, with the following exceptions:  A – Between 3.5° and 5° for slopes up to 200 m long  B – Between 5° and 6° for slopes up to 30 m long.	5°, with the following exceptions:  A – Between 5° and 7° for slopes up to 200 m long  B – Between 7° and 10° for slopes up to 20 m long.	7°, with the following exceptions:  A – Between 7° and 9° for slopes up to 200 m long  B – Between 9° and 12° for slopes up to 15 m long.	10°, with the following exceptions:  A – Between 10° and 12° for slopes up to 200 m long  B – Between 12° and 15° for slopes up to 15 m long.	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
	A + B shall not exceed 2% of the track length.	A + B shall not exceed 5% of the track length.	A + B shall not exceed 10% of the track length.	A + B shall not exceed 10% of the track length.	A + B shall not exceed 10% of the track.	
<b>Surface and pavement</b>	Shall be well formed, smooth and even and consist of durable material, such as concrete, chip seal or asphalt, or well bound aggregate of 20mm particle size. Shall be free of loose soil or aggregate that is picked up by wheels. Pavement profile shall have sufficient cross fall so that it is free of ponded water. In dry weather can be ridden on comfortably without getting wet or muddy.	Well formed, smooth and durable. Surface material may be well bound aggregate of 40 mm particle size. Shall be free of loose soil or aggregate that is picked up by wheels. Pavement profile shall have sufficient cross fall so that it is free of ponded water. In dry weather can be ridden on comfortably without getting wet or muddy.	Mostly well formed, even and generally firm. May have some loose sections where the surface is broken by rock, roots, scree or other obstacles. These sections shall still provide reasonably good riding conditions in most weather. Wet areas shall be drained. In dry weather can be ridden on comfortably without getting wet or muddy.	Generally firm but may have some loose sections where the surface is broken by rock, ruts, roots, scree or other obstacles. The track should still provide reasonably good riding conditions in most weather. Wet areas shall be drained. In dry weather can be ridden on comfortably without getting wet or muddy.	Shall generally be the natural surface and may include water, ruts, roots and embedded rocks.	

<b>Cycle Track Grade</b>	<b>Grade 1-Easiest</b>	<b>Grade 2 - Easy</b>	<b>Grade 3 - Intermediate</b>	<b>Grade 4 - Advanced</b>	<b>Grade 5 - Expert</b>	<b>Grade 6 - Extreme</b>
<b>Obstacles, including roots, rocks and ruts</b>	Roots, ruts, rocks or obstacles shall be no greater than 30 mm high.	Where there are rocks, roots or ruts, they can either be avoided, or shall be less than 50 mm high.	Where there are rocks, roots or ruts that cannot be avoided, they shall be less than 100 mm high.	Obstacles shall be no higher/deeper than 200 mm.	Major obstacles such as windfalls are to be removed or the track diverted around them. Generally minor obstacles up to 600 mm high/deep, such as rocks, tree roots and earth should remain.	
<b>Wet/muddy sections</b>	No mud.	Up to 2% of the track may be wet and muddy (no deeper than 50 mm). Wet/muddy sections shall be no more than 1 m in every 50 m of track.			Up to 10% of the track may be wet and muddy (no deeper than 50 mm). Wet/muddy sections shall be no more than 5 m in every 50 m.	
<b>Steps</b>	No steps.	No steps.	Steps are undesirable but can be used provided they are to walking track standard and make up no more than 1 % of the total track length.	Steps are undesirable but can be used provided they are at easy tramping track standard and make up no more than 2 % of the total track length.	Steps can be used provided they are at tramping track standard and make up no more than 2 % of the total track length.	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
<b>Radius of corners</b>	No less than 6 m - measured from the inside centre to the outside riding line.	No less than 4 m.	No less than 2.5 m.	No less than 2 m.	No less than 1.5 m.	
<b>Culverts</b>	Open culverts (i.e. either wooden or natural drains going across the track, with no cover) shall not be used. Any existing open culverts shall be replaced with alternatives such as grade reversals/grade dips.		Open culverts (i.e. either wooden or natural drains going across the track, with no cover) are not desirable on these tracks. Any existing open culverts should be replaced with alternatives such as grade reversals/grade dips.			
<b>Surface width</b>	<p>Single track: Minimum maintained width shall be 1.2 m.</p> <p>Double track: Minimum maintained width shall be 2.2 m.</p>	<p>Single track: Minimum maintained width <u>shall</u> be 0.9 m. Maximum maintained width <u>should</u> be 2.0 m.</p> <p>Double track:</p>	<p>Minimum maintained width shall be 0.9 m for at least 90 percent of the track length. Up to 10 percent of the track may have a minimum maintained surface width between 0.6 and 0.9 m.</p> <p>Maximum maintained width <u>should</u> be 2.0 m</p>	<p>Minimum maintained surface width shall be 0.6 m for track sections on steep slopes or where room for passing is required. Minimum maintained width shall be 0.3 m for track sections on flat terrain. Maximum maintained width <u>should</u> be 1.0 m.</p>	<p>Minimum width shall be 0.25 m.</p> <p>Maximum maintained width <u>should</u> be 1.0 m.</p>	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
		Minimum maintained width shall be 1.2 m. Maximum maintained width <u>should</u> be 2.0 m.				
<b>Horizontal clearances</b>	There shall be a minimum horizontal clearance of 0.5 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface in all other situations. Additional horizontal clearance is necessary on bends where riders lean into corners.			There shall be a minimum horizontal clearance of 0.3 m from the edges of the maintained track surface where there is a continuous obstacle such as a steep slope or parallel drain. There shall be a minimum horizontal clearance of 0.15 m from the edges of the maintained track surface in all other situations. Additional horizontal clearance is necessary on bends where riders lean into corners.		
<b>Structures</b>	All structures shall comply with the requirements set out in the Handbook, with exceptions as set out below.					

<b>Cycle Track Grade</b>	<b>Grade 1-Easiest</b>	<b>Grade 2 - Easy</b>	<b>Grade 3 - Intermediate</b>	<b>Grade 4 - Advanced</b>	<b>Grade 5 - Expert</b>	<b>Grade 6 - Extreme</b>
<b>Structure width</b>	Minimum width for new access structures, including cattle stops, shall be 1.2 m where there is a handrail or barrier on sides with a fall. The minimum width of new access structures shall be 1.5 m where there is no handrail or barrier on sides with a fall. Maximum width shall be 2.0 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.		Minimum width for new access structures, including cattle stops, shall be 0.75 m for the deck if the width at handlebar height is at least 1.2 m. Maximum width shall be 1.2 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.	Minimum width for new access structures, including cattle stops, shall be 0.6 m for the deck if the width at handlebar height is at least 1.2 m. Maximum width shall be 1.2 m. The approach to the structure for a minimum of 10 m leading to the structure shall be at least the width of the structure.	Minimum width for new access structures shall be 0.6 m.  Maximum width shall be 0.8 m.	
<b>Boardwalks</b>	Boardwalks shall be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.		Boardwalks should be used to achieve a stable dry surface for rider comfort and/or to protect the environment where the required surface/pavement cannot be achieved due to the presence of wet, swampy, sandy or muddy sections, or in locations where the track may be inundated with surface water for extended periods.		Not generally provided. Where muddy, sandy or swampy conditions exist tracks are to be drained, rerouted or raised. Boardwalks may be constructed only where they are necessary to mitigate significant environmental effects.	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
	Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.		Alternatives to boardwalks, such as installing drainage of wet areas, filled raised formation, or increased pavement depth should be used, if possible, in preference to installing boardwalks.			
<b>Bridges</b>	All watercourses shall be bridged, or culverted where passage for fish is not hindered.	All watercourses shall be bridged, or culverted where passage for fish is not hindered, except those less than 100 mm deep in normal flow that can be easily ridden.	All watercourses shall be bridged, or culverted where passage for fish is not hindered, except those less than 200 mm deep in normal flow that can be easily ridden.	All watercourses shall be bridged, or culverted where passage for fish is not hindered, except those less than 300 mm deep in normal flow that can be easily walked across.	Watercourses shall be bridged where they cannot be safely crossed by expert mountain bikers during times of normal water flow.  Watercourses shall also be bridged where:  (a) No reasonable alternative wet weather track exists;  (b) They cannot be safely crossed unassisted when in flood;	



Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
					<p>(c) Floods occur with a frequency that means the watercourse is a barrier to progress or becomes a significant hazard to over 25 % of users a year; and</p> <p>(d) There is no accommodation/shelter within 2 hours riding distance where visitors can wait until the river/stream conditions improve.</p>	
<b>Bridge handrails</b>	Bridge handrails or barriers should be sloped outwards from the bridge (5 degrees from the vertical) to provide handlebar clearance.					
<b>Guardrails or barriers</b>	<p>Where a significant hazard of falling exists for the target cyclists, and there is no other alternative, a barrier or guardrail shall be provided.</p> <p>Alternatives to barriers include widening or realigning the track.</p>	<p>Where a significant hazard of falling exists for the target cyclists, and there is no other alternative, a barrier or guardrail shall be provided.</p> <p>Alternatives to barriers include widening or realigning the track, or where installing a barrier is impractical, permanent signs recommending dismounting and walking.</p>	<p>Where a significant hazard of falling exists for the target cyclists, and there is no other alternative, a barrier or guardrail may be provided.</p>			

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
					Alternatives to barriers include widening or realigning the track, or where installing a barrier is impractical, permanent signs recommending dismounting and walking.	
<b>Significant hazard from falling</b>	A significant hazard from falling for a section of track is identified by assessing the 7 factors (a to g) set out in the definition in section vii and concluding that there is a high likelihood that a cyclist from this target user group would die or suffer a notifiable injury at least once a year.					
<b>Height of barrier or guardrail</b>	New barriers shall be 1.2 m high.					
<b>Viewing platforms</b>	Viewing platforms may be provided in appropriate places along the track.			Viewing platforms should not be provided.		
<b>Cattle stops</b>	Cattle stops should be used in preference to gates. They should have handrails and an approach ramp should be used to provide a relatively flat approach to the cattle stop deck. New cattle stops should be designed using the specifications in the NZ Cycle Trail Design Guide.				Cattle stops or gates may be used.	
<b>Stiles and access barriers</b>	No stiles, turnstiles or kissing gates. Access barriers installed to prevent motor vehicles getting onto the track should be designed to allow disabled users to access the track.		Stiles, turnstiles or kissing gates should be avoided but existing ones may remain.		Stiles, turnstiles or kissing gates may be used.	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
			Access barriers installed to prevent motor vehicles getting onto the track should be designed to allow disabled users to access the track.			
<b>Vegetation clearance</b>	Vegetation shall be cleared 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface.	Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.4 m, giving riders a clear passage and an unimpeded view of the surface.			Vegetation shall be cleared a minimum of 0.3 m and a maximum of 0.5 m from the outer edge of the track formation and to a height of 2.0 m, giving riders a clear passage and an unimpeded view of the surface.	
<b>Additional vegetation clearance</b>	Additional clearance is necessary on bends where riders lean into corners. Vegetation clearance on corners shall be sufficient to allow good visibility (a minimum 10 m sight distance) for cyclists and walkers.				Additional clearance is necessary on bends where riders lean into corners. Vegetation clearance on corners shall be sufficient to allow good visibility for cyclists and walkers.	
<b>Removing cut vegetation</b>	All cut woody vegetation shall be free of hazardous remaining sharp ends and removed from the track surface and, if practicable, out of view of the track.					

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
<b>Toilets</b>	Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 10 km or more.			Toilets may be provided in appropriate places along the track where the distance from the start or end of the track, or between toilets, is 15 km or more.	Toilets may be provided in appropriate places along the track if the visitor numbers warrant it.	
<b>Shelters</b>	Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 10 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.			Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 15 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.	Shelters may be provided where there is a significant level of exposure to adverse weather conditions on sections of tracks that are more than 20 km from the start or end of the track in either direction. Where shelters are provided, toilets should also be provided at that location.	

<b>Cycle Track Grade</b>	<b>Grade 1-Easiest</b>	<b>Grade 2 - Easy</b>	<b>Grade 3 - Intermediate</b>	<b>Grade 4 - Advanced</b>	<b>Grade 5 - Expert</b>	<b>Grade 6 - Extreme</b>
<b>Seats, picnic tables and bike stands</b>	Seats and picnic tables may be provided. Bike stands should be provided at popular stopping locations where space for bikes is limited.		Seats and picnic tables may be provided.		Should not be provided.	
<b>Signage</b>	Shall be clearly signposted with directional signs (which include grade, riding times and distances) at entrances and at all junctions. Significant points of interest along or at the end of the trail should be signposted.				Shall be clearly signposted with directional signs (which include grade and riding times and may show distances) at entrances and at all junctions.	
<b>Signage continued</b>	<p>At locations where there is a change to a track with a higher grade, signs shall be provided with appropriate symbols and words to describe the change.</p> <p>Where more than one riding option exists, an orientation/track information sign should be provided at entrances.</p> <p>Where the track is dual use, it shall be clearly labelled as suitable for pedestrians and cyclists by use of signs and symbols at track entrances. At junctions where the track changes from dual use to only walking or cycling there shall be symbols to inform the user.</p> <p>Warning signs in advance of where the track crosses a road, or where there is not good visibility in advance of a sudden stop, shall be provided.</p>					
<b>Off-site visitor information</b>	<p>Shall include printed publications and brochures, information on the DOC website and information provided by visitor centre staff. The following information shall be provided:</p> <ul style="list-style-type: none"> <li>• Cycle track grade for each track (or grades if there are sections with different grades) and descriptions of cyclists catered for on each.</li> </ul>				As for grades 1 to 4 except that distance (in kilometres) is not mandatory.	

Cycle Track Grade	Grade 1-Easiest	Grade 2 - Easy	Grade 3 - Intermediate	Grade 4 - Advanced	Grade 5 - Expert	Grade 6 - Extreme
	<ul style="list-style-type: none"> <li>• Whether the track is dual use (pedestrian/cycling), recommended to be ridden in one direction only and whether other users can also use it (e.g. horse riders, 4WD vehicle users).</li> <li>• Whether or not electric bikes can be used on the track.</li> <li>• Distance (in kilometres) and cycling time for the predominant user.</li> <li>• Key facilities provided (e.g. shelters, toilets, water).</li> <li>• Safety information relating to the track or specific sections of it, including remoteness and altitude reached.</li> <li>• Cell phone coverage (where known).</li> <li>• Special riding considerations (e.g. rideability when track is wet).</li> <li>• Transport options from roadends.</li> <li>• Cleaning bikes when riding in kauri forest.</li> </ul>					

## 8. Related documents

New Zealand Handbook – [SNZ HB 8630:2004 – Tracks and Outdoor Visitor Structures](#)

[New Zealand Cycle Trail Design Guide](#) - 5<sup>th</sup> edition, August 2019

[New Zealand Mountain Bike Trail Design and Construction Guidelines](#), July 2018

[Managing risks to visitors on Public Conservation Land and Waters SOP](#), May 2018

Best Practice Guideline – [Managing risks to visitors on public conservation land and waters](#), May 2018

[Electric bikes on public conservation land guideline](#), September 2018

## 9. Document history

<b>Date</b>	<b>Details</b>	<b>Document ID and version</b>	<b>Amended by</b>
23/10/2019	Draft version of document for approval	doc-5911101	Brian Dobbie
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