



**SMITHFIELD MOUNTAIN BIKE TRAIL EXPANSIONS AND SUPPLEMENTARY
LINKS REPORT**

PREPARED BY WORLD TRAIL PTY LTD

FOR CAIRNS MOUNTAIN BIKE CLUB

OCTOBER 2014

WORLDTRAIL
WORLDTRAIL

Disclaimer:

This document, *Smithfield Mountain Bike Trail Expansions and Supplementary Links Report* has been prepared by World Trail Pty Ltd for Cairns Mountain Bike Club. This document is the work of World Trail and does not necessarily reflect the final views or opinions of Cairns Mountain Bike Club or other stakeholders.



Contributing Authors: Dylan Jeffries and Grant Suckling

Field Researchers: Glen Jacobs

Document Name: Smithfield Mountain Bike Trail Expansions and Supplementary Links Report

Document Version: Draft

Release Date: 17th October 2014



CONTENTS

| | | |
|----------|---|-----------|
| 1 | <u>INTRODUCTION</u> | 3 |
| 2 | <u>TRAIL SUMMARY</u> | 4 |
| 2.1 | SMITHFIELD MTB PARK TRAIL EXPANSIONS | 4 |
| 2.2 | SUPPLEMENTARY LINKS | 6 |
| 3 | <u>INDIVIDUAL TRAIL DESCRIPTIONS</u> | 8 |
| 4 | <u>INFRASTRUCTURE REQUIRED</u> | 16 |
| 4.1 | TRAILHEAD | 16 |
| 4.2 | SIGNAGE | 16 |
| 5 | <u>COST ESTIMATES</u> | 17 |
| 6 | <u>APPENDICES</u> | 20 |
| 6.1 | IMBA TRAIL DIFFICULTY RATING SYSTEM | 20 |
| 6.2 | WORLD TRAIL CONTACT DETAILS | 22 |



1 INTRODUCTION

This report presents the trails proposed for construction to expand the existing Smithfield Mountain Bike Trails and supplementary linkages to iconic destinations. Whilst all concepts presented herein have been assessed by Glen Jacobs, they remain concepts only at this stage and have not been thoroughly tested on the ground. Prior to construction of these alignments, each trail proposed within this document will need to be carefully assessed to confirm final alignments.



2 TRAIL SUMMARY

In total, 31 alignments have been identified, totalling 49.94km of proposed new trail. This total trail distance can be broken up as follows –

- **26.84km** – Smithfield MTB Park trail expansions;
- **23.1km** – Supplementary links

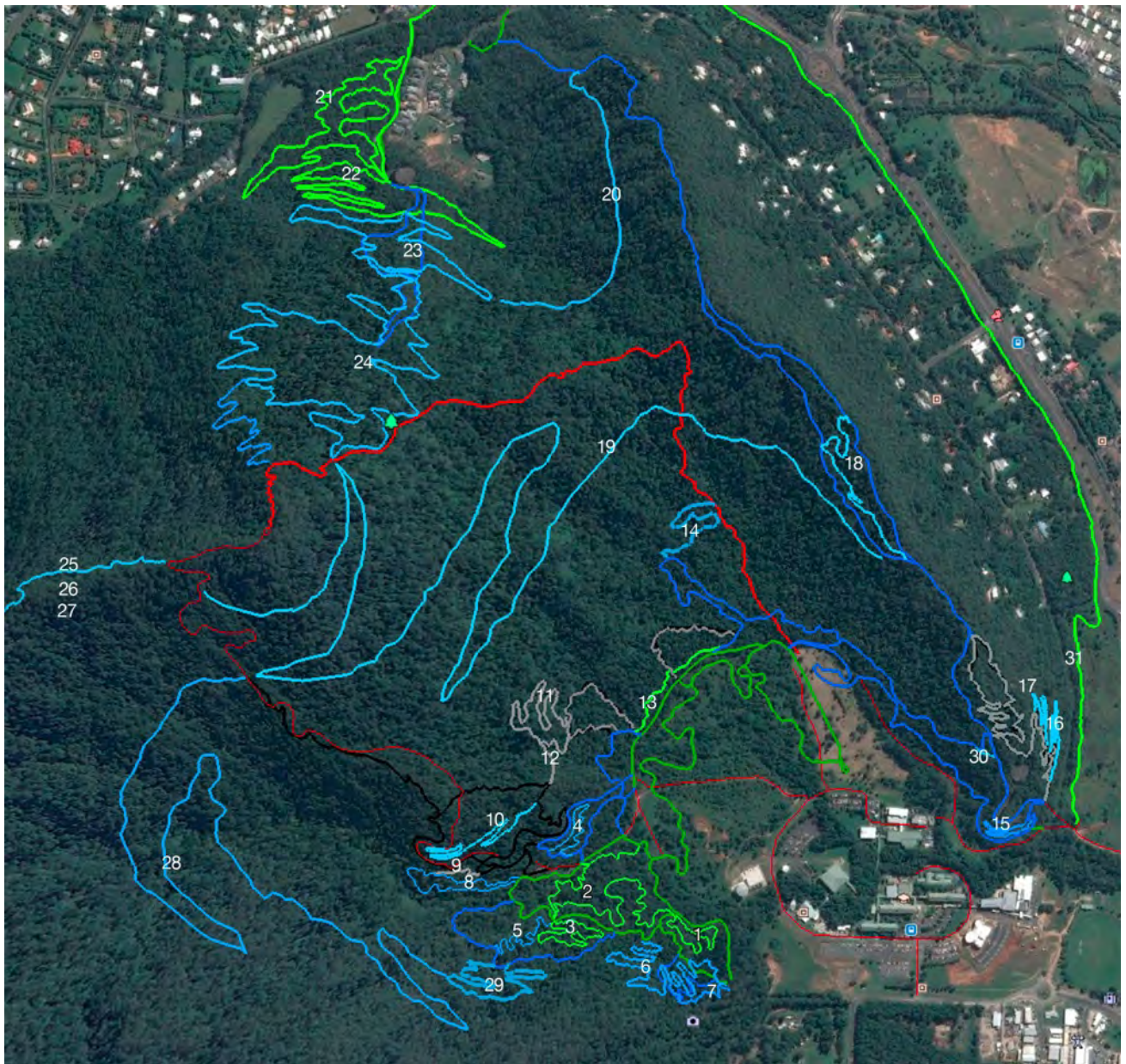
2.1 SMITHFIELD MTB PARK TRAIL EXPANSIONS

Table 1 below provides a summary of the trails recommended for construction to expand and improve the Smithfield MTB Park. All trails include both a number and their name. The numbers can be used to identify the location of each trail on the map provided on the following page.

Proposed Smithfield MTB Trails

| Trail | Estimated Length (m) |
|-----------------------------|----------------------|
| 1 - Small Frog | 420 |
| 2 - Second Green | 1,250 |
| 3 - Broken Arrow | 540 |
| 4 - Upper Stumpies | 400 |
| 5 – Second Blacksnake | 330 |
| 6 - Exit Trail | 1,260 |
| 7 - Bowhunters Link | 270 |
| 8 Quarry Gully | 630 |
| 9 - Cuss Cuss Link | 140 |
| 10 - Stimpies Revenge | 700 |
| 11 - Sushi | 830 |
| 12 - Happy Sushi Link | 130 |
| 13 - Ring Road Bypass | 370 |
| 14 – Old 96 Link Back | 480 |
| 15 - Cadet 2 | 400 |
| 16 - Whiskers Blue | 490 |
| 17 - Whiskers Blue 2 | 350 |
| 18 - Red Ringer Bypass | 680 |
| 19 - Minjin Link Climb | 3,990 |
| 20 - Moore to Germans House | 830 |
| 21 - Moore Beginner Loop | 2,130 |
| 22 - Moore 1 | 1,880 |
| 23 - Moore 2 | 1,530 |
| 24 - Moore 3 | 3,150 |
| 28 – Big Quarry Valley | 2,790 |
| 29 – Scorpions Ledge | 820 |
| 30 - Jacobs Bypass | 50 |
| TOTAL | 26,840 |





2.2 SUPPLEMENTARY LINKS

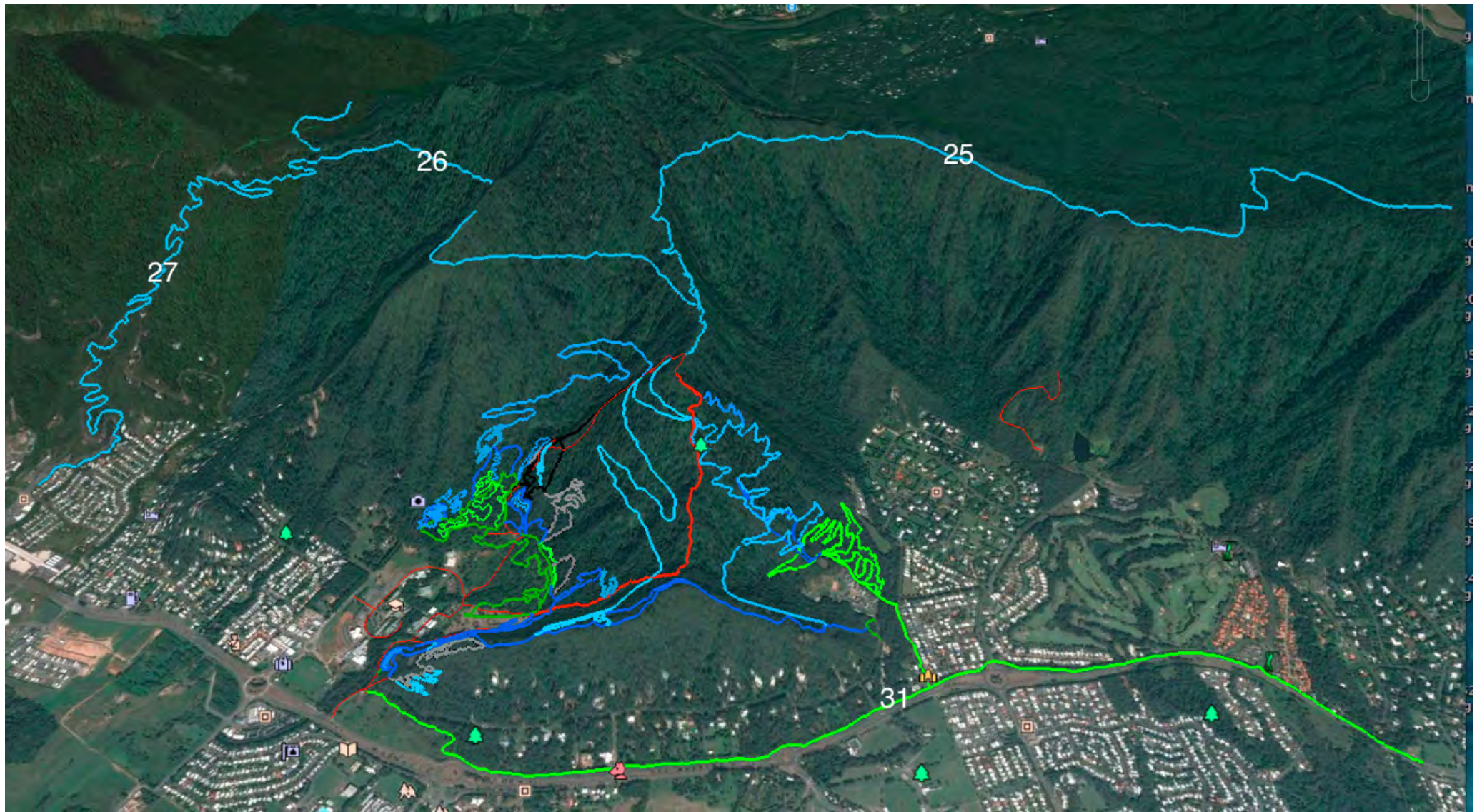
Whilst falling outside the scope of this project, the supplementary links included in this report provide essential links to both community recreation and tourism growth areas within the Tablelands and surrounding areas. These links will support tourism industry products such as Skyrail, and provide access to unique Tablelands experiences for all users, including potential future links from Kuranda, all the way through to Port Douglas.

Supplementary trails are listed in the Table below and are shown on the map on the following page.

Supplementary Trails

| Trail | Estimated Length (m) |
|----------------------------------|----------------------|
| 25 - Big Bom | 7,800 |
| 26 - Kuranda Link | 5,130 |
| 27 - Kuranda XC | 4,630 |
| 31 - Community Hwy Corridor Link | 5,540 |
| TOTAL | 23,100 |





3 INDIVIDUAL TRAIL DESCRIPTIONS

For each of the proposed alignments, the following information has been provided in this chapter –

- **Trail name and number** – note that the number included within the name of each trail is used only for reference purposes to enable identification of each alignment on the included map;
- **Estimated length** – the length provided for each trail is an estimate only. All estimates are based on the use of mapping software such as Google Earth and Mapinfo. Whilst these estimates are reasonably accurate, it should be understood that final distances will change due to a number of factors such as re-alignment due to construction difficulties encountered during future assessments, software accuracy and the need to be able to focus on creating the optimal alignment during detailed assessments;
- **Priority for construction** – all trails identified within this report have been rated as having either a low, medium or high priority for construction. Priority listings are intended to determine the order for construction and do not reflect the importance of each trail.
- **Proposed difficulty rating** – World Trail use the IMBA difficulty rating system to identify the difficulty of each trail. The IMBA difficulty ratings are provided in the Appendix of this document;
- **Expected construction difficulty** – World Trail uses an internal system to assess the expected construction difficulty for each trail we design. This system provides a ‘score’ for the construction difficulty of a trail, which is then used in conjunction with our pricing matrix to provide cost estimates to construct trails. Information about World Trails construction difficulty ratings and their affect on cost estimates has been provided in the Cost Estimates chapter of this document;
- **Description** - a brief description has been provided for each trail. This description discusses things like the features and benefits of each trail, as well as how it fits in with the existing network;

1 – Small Frog

| | |
|----------------------------------|---|
| Length | 420m |
| Priority for construction | High |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 1 |
| Description | This easy trail is an extension for beginner users, providing more easy options close to the trailhead. |

2 – Second Green

| | |
|----------------------------------|--|
| Length | 1,250m |
| Priority for construction | High |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 3 |
| Description | This easy trail traverses rainforest gullies and two creek crossings and provides an important linkage to all optional easy and more difficult trails close to the trailhead. Crossings would be treated with rock armouring, but may need to be closed during the monsoon season. |



3 – Broken Arrow

| | |
|----------------------------------|---|
| Length | 540m |
| Priority for construction | Medium |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 3 |
| Description | Broken Arrow follows old archery corridors in places, reducing the amount of vegetation clearance and excavation required to build parts of this alignment. This trail will build some more technical aspects into it, whilst maintaining the easy rating and will be a great trail for the skill advancement of beginner riders. |

4 – Upper Stumpies

| | |
|----------------------------------|--|
| Length | 400m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2 |
| Description | Upper Stumpies takes the opportunity to use some of the original trail from very early days, in conjunction with new trail, to create a large loop in a currently unused area. |

5 – Second Black Snake

| | |
|----------------------------------|--|
| Length | 330m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2.5 |
| Description | This optional climb makes it's way to quarry benches high above the trailhead. It is intended as an easier climb than the existing Black Snake trail and will be built on existing road bench. |

6 – Exit Trail

| | |
|----------------------------------|--|
| Length | 1,260m |
| Priority for construction | High |
| Difficulty Rating | More difficult |
| Expected Construction Difficulty | 2 |
| Description | This critical puzzle piece will provide the 'wow' factor for riders exiting the network. Passing the newly constructed freestyle jumps and onwards through a free-flowing bermfield through the pine forest to the carpark, this trail will be built to ensure riders end their ride with a smile. |



7 – Bowhunters Link

| | |
|----------------------------------|---|
| Length | 270m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2.5 |
| Description | This much needed link will ensure riders are funnelled into the energy area of the park that is currently being expanded. The construction of this trail will mean people are not tempted to use the descending Trail 6 (Exit Trail) in the wrong direction, and as such is an important risk management tool. This trail can be built as a dual direction trail. |

8 – Quarry Gully

| | |
|----------------------------------|---|
| Length | 630m |
| Priority for construction | Low |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | An additional loop that experiences the back of the quarry, following the creek bank to the end of the quarry before returning. |

9 – Cuss Cuss Link

| | |
|----------------------------------|---|
| Length | 140m |
| Priority for construction | Low |
| Difficulty Rating | Very Difficult, with Extremely Difficult features |
| Expected Construction Difficulty | 4.5 |
| Description | This link from Stingers and Cuss Cuss trails will send riders onto Quarry Gully. This trail provides technical features, whilst offering a bypass that allows people to continue using the trails while the club runs events. |

10 – Stumpies Revenge

| | |
|----------------------------------|---|
| Length | 700m |
| Priority for construction | Low |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | Added link to trails 11 (Sushi) & 12 (Happy Sushi Link) to keep riders high on the hill allowing for more options and variety. The primary purpose of this trail is to allow riders to maintain altitude while accessing descending trails. |



11 – Sushi

| | |
|----------------------------------|---|
| Length | 830m |
| Priority for construction | Medium |
| Difficulty Rating | Extremely Difficult |
| Expected Construction Difficulty | 4.5 |
| Description | Nasty single track climb and a rocky descent through a gully. Adding a challenging technical climb and descent to the Black Marlin trail. |

12 – Happy Sushi Link

| | |
|----------------------------------|--|
| Length | 130m |
| Priority for construction | Medium |
| Difficulty Rating | Very Difficult |
| Expected Construction Difficulty | 4.5 |
| Description | Optional two-way trail that links 11 (Sushi) to the current, existing trail network. |

13 – Ring Road Bypass

| | |
|----------------------------------|--|
| Length | 370m |
| Priority for construction | Low |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 4 |
| Description | This trail will be required if the University expands its footprint and MTB users need a return trail, in particular from trails such as Wobbygong and Barramundi. This is a new trail that will use no existing roads or corridors. |

14 – Old 96 Link Back

| | |
|----------------------------------|---|
| Length | 480m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |
| Description | Climbing trail that provides an opportunity for riders to return to current DH trail from Wobbygong. This trail includes a lot of the no longer used alignments from 1996 World Championships DH, in conjunction with new trail at the Wobbygong end. |



15 – Cadel 2

| | |
|----------------------------------|--|
| Length | 400m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2.5 |
| Description | The trail is a small loop that is an extension of the current Cadel single track. This would be a hand cut trail, keeping various skill options throughout. Trail is to be constructed in an open, dry area, beneath power lines. Note that this area is highly disturbed. |

16 – Whiskers Blue

| | |
|----------------------------------|---|
| Length | 490m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2.5 |
| Description | Optional easier climbing trail that allows riders to utilise portions of the WC climb (Whiskers O'Flarrey), whilst avoiding the most difficult aspects. |

17 –

| | |
|----------------------------------|--|
| Length | 350m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 2.5 |
| Description | As per Whiskers Blue, this is an optional trail that avoids the most difficult aspects of the World Cup climb. |

18 – Red Ringer Bypass

| | |
|----------------------------------|--|
| Length | 680m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |
| Description | Much needed bypass of the Red Ringer pinch, which is now a concrete road. This trail also offers up a shorter, optional return to Blakeys Bluff. |



19 – Minjin Link Climb

| | |
|----------------------------------|--|
| Length | 3,990m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |
| Description | Iconic link to entire park that lifts riders from the southern side of the park to the northern side, opening up huge opportunities for additional trails and expansion to Kuranda and Black Mountain. This trail may be considered as a dual direction trail. |

20 – Moore to German's House

| | |
|----------------------------------|--|
| Length | 830m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | Link trail providing access from Moore Road trailhead to north eastern side of Smithfield park. This will be a wilderness style trail, linking in with the existing Parks and Wildlife trails found in the area. There is scope to use old logging trail in the area to facilitate easier construction. This trail could be built as a dual direction trail. |

21 – Moore Beginner Loop

| | |
|----------------------------------|--|
| Length | 2,130m |
| Priority for construction | High |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 1 |
| Description | Departing the main trailhead servicing the northern beaches, This easy trail could be used as a fitness trail for all users. |

22 – Moore 1

| | |
|----------------------------------|--|
| Length | 1,880m |
| Priority for construction | High |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 2.5 |
| Description | Utilising some existing trails and roads, this easy trail provides a loop that will integrate some carefully advancing features for beginner riders as they move further from the trailhead. |



23 – Moore 2

| | |
|----------------------------------|---|
| Length | 1,530m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | The first of the rainforest trails on the northern side. This trail will follow some existing fire road and logging track benches, but will avoid existing fall-line roads that are un-sustainable in the area. |

24 – Moore 3

| | |
|----------------------------------|--|
| Length | 3,150m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | Lifts to a roundabout junction with trail 19 (Minjin Link Climb) high on the ridgeline from where riders will either return to the trailhead, head to southern area, or head up to the tablelands. |

25 – Big Bom *Supplementary trail outside the scope for this project.

| | |
|----------------------------------|----------------|
| Length | 7,800m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |

26 – Kuranda Link *Supplementary trail outside the scope for this project.

| | |
|----------------------------------|----------------|
| Length | 5,130m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |

27 – Kuranda XC *Supplementary trail outside the scope for this project.

| | |
|----------------------------------|----------------|
| Length | 4,630m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |



28 – Big Quarry Valley

| | |
|----------------------------------|--|
| Length | 2,790m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |
| Description | Utilising some old logging and quarry benches and incorporating new trails to link these benches, this trail provides a descending from the junction of trail 19 and the DH access road. This is an XC link that leads to the southern end of the park. Very much a wilderness trail, this trail ends at the highest point of the old quarry ledges. |

29 – Scorpion Ledge

| | |
|----------------------------------|--|
| Length | 820m |
| Priority for construction | Medium |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3.5 |
| Description | Utilising all of the highest quarry ledges around the old quarry, old quarry roads, and new single track, this trail will provide massive lookouts. Will include black and double black optional lines. This trail will extend the existing, iconic Black Snake Climb, with significant views to the reef. |

30 – Jacobs Bypass

| | |
|----------------------------------|---|
| Length | 50m |
| Priority for construction | High |
| Difficulty Rating | More Difficult |
| Expected Construction Difficulty | 3 |
| Description | This trail bypasses Jacobs Ladder, allowing riders to climb the reservoir climb and drop straight into Caterpillars trail, and therefore taking pressure off Jacobs Ladder. This is also a bypass for Whiskers O'Flarrey, allowing an easier option to return back to the trail system. |

31 – Community highway Corridor Link - *Supplementary trail outside the scope for this project.

| | |
|----------------------------------|--------|
| Length | 5,540m |
| Priority for construction | Medium |
| Difficulty Rating | Easy |
| Expected Construction Difficulty | 3.5 |



4 INFRASTRUCTURE REQUIRED

4.1 TRAILHEAD

A trailhead serves many purposes:

1. It is the starting and finishing point for all non-local riders. As such it is the place where friends will meet to begin their ride and where they socialise afterwards. It is also a location that can be signposted or advertised so that travelling mountain bikers can find it easily;
2. It is the key information point about the trails. Signage must adequately convey all the necessary safety and risk information about the trails, but also provide enough guidance that riders can plan their ride before leaving the trailhead;
3. It should provide the essential pre-ride needs of mountain bikers – water, toilets, information and car parking. In addition however, it should encourage positive social use of the site. Many riders will have non-riding companions who may want to wait at the trailhead, so the trailhead should be an enjoyable place to wait, which means considering additional infrastructure such as seating, shelters, landscaping etc.;
4. It should be a safe place to leave a vehicle while riding.

A trailhead will need to be developed at the northern end of the park. To fulfil its various functions and roles, a trailhead needs infrastructure. The nature and extent of the infrastructure depends largely on the available budget, but there are certain items that must be included at a trailhead.

In a survey of approximately 1300 mostly Victorian mountain bikers in 2013, World Trail asked what facilities and infrastructure should be present at a mountain bike trailhead. The responses are provided below, ranked in priority order:

- | | |
|-----------------------------------|--|
| 1. Car parking | (96.38% of respondents selected this option) |
| 2. Maps | (86.11% of respondents selected this option) |
| 3. Toilets | (80.98% of respondents selected this option) |
| 4. Drinking water | (72.14% of respondents selected this option) |
| 5. Picnic tables | (46.97% of respondents selected this option) |
| 6. Shelter | (45.03% of respondents selected this option) |
| 7. Notice board | (42.51% of respondents selected this option) |
| 8. BBQ | (32.74% of respondents selected this option) |
| 9. Café | (28.28% of respondents selected this option) |
| 10. Bike wash facilities | (16.75% of respondents selected this option) |
| 11. Local business advertisements | (16.50% of respondents selected this option) |
| 12. Bike shop | (14.81% of respondents selected this option) |
| 13. Bike racks: | (12.04% of respondents selected this option) |
| 14. Change room | (7.24% of respondents selected this option) |
| 15. Shower | (5.05% of respondents selected this option) |

Based on the survey results, items 1-4 should be considered essential, items 5-8 preferred and items 9-15 as optional.

4.2 SIGNAGE

Signage will be required throughout network, including updated trailhead signage at the Smithfield trailhead. A detailed signage plan should be undertaken while trails are under construction.



5 COST ESTIMATES

To determine a cost estimate to construct this trail network, World Trail has applied a 'construction difficulty' score to each trail and applied a per metre rate to that difficulty rating. The construction difficulty, and subsequent construction cost estimates have taken into account the level of vegetation clearing, soil type, the proposed IMBA difficulty rating and the overall topography and other challenges that may be encountered to construct a benched, natural surface, machine-built, 1m wide, mountain bike trail.

Note that all cost estimates provided are indicative estimates only. They should not be treated as quotes for construction. The cost estimates do not include GST, contractor expenses (i.e. mobilisation or accommodation costs), any costs associated with obtaining permits or approvals, further design or consulting costs, signage, trailhead design or construction costs and so on.

The matrix used to calculate the construction costs is shown in the Table below.

Construction Difficulty and Cost Matrix

| Difficulty Rating (1-5) | Approximate Cost (\$) Per Metre |
|----------------------------|------------------------------------|
| 0.5 | \$15.00 |
| 1 | \$20.00 |
| 1.5 | \$25.00 |
| 2 | \$30.00 |
| 2.5 | \$35.00 |
| 3 | \$40.00 |
| 3.5 | \$45.00 |
| 4 | \$50.00 |
| 4.5 | \$55.00 |
| 5 | \$60.00 |



The construction difficulty score for each trail within the Smithfield Mountain Bike Park is shown in Table 3 on the following page, along with the applicable, per metre rate for each type of construction. Note that cost estimates have only been provided for the trails to be constructed within the Smithfield MTB Park, cost estimates have not been provided for supplementary trails.

Note that these rates include all labour, the provision of the necessary equipment and machinery to construct the trails. These trails do not have to be built by machine – hand construction would achieve the same result. Typically though, most professional trail construction contractors build trails using excavators, as it is more cost effective.

Obtaining all relevant permits and approvals prior to construction is the responsibility of the relevant land manager. Depending on the approval process required, it may be necessary to engage independent experts to assess the impacts that trail construction could have on the ecological and cultural heritage values. Should any areas of high cultural or ecological significance be discovered on any of the proposed alignments for new trails, it may be necessary to adjust the alignments to avoid such areas.



Construction types and rates






| Trail | Construction Difficulty (rated from 1-5) | Trail length (m) | Typical Rate Per Lineal Metre of Trail | Total |
|--------------------------------|---|------------------------|---|--------------------|
| 1 - Small Frog | 1 | 420 | \$20.00 | \$8,400.00 |
| 2 - Second Green | 3 | 1,250 | \$40.00 | \$50,000.00 |
| 3 - Broken Arrow | 3 | 540 | \$40.00 | \$21,600.00 |
| 4 - Upper Stumpies | 2 | 400 | \$30.00 | \$12,000.00 |
| 5 - Second Blacksnake | 2.5 | 330 | \$35.00 | \$11,550.00 |
| 6 - Exit Trail | 2 | 1,260 | \$30.00 | \$37,800.00 |
| 7 - Bowhunters Link | 2.5 | 270 | \$35.00 | \$9,450.00 |
| 8 Quarry Gully | 3 | 630 | \$40.00 | \$25,200.00 |
| 9 - Cuss Cuss Link | 4.5 | 140 | \$55.00 | \$7,700.00 |
| 10 - Stimpies Revenge | 3 | 700 | \$40.00 | \$28,000.00 |
| 11 - Sushi | 4.5 | 830 | \$55.00 | \$45,650.00 |
| 12 - Happy Sushi Link | 4.5 | 130 | \$55.00 | \$7,150.00 |
| 13 - Ring Road Bypass | 4 | 370 | \$50.00 | \$18,500.00 |
| 14 - Old 96 Link Back | 3.5 | 480 | \$45.00 | \$21,600.00 |
| 15 - Cadel 2 | 2.5 | 400 | \$35.00 | \$14,000.00 |
| 16 - Whiskers Blue | 2.5 | 490 | \$35.00 | \$17,150.00 |
| 17 - Whiskers Blue 2 | 2.5 | 350 | \$35.00 | \$12,250.00 |
| 18 - Red Ringer Bypass | 3.5 | 680 | \$45.00 | \$30,600.00 |
| 19 - Minjin Link Climb | 3.5 | 3,990 | \$45.00 | \$179,550.00 |
| 20 - Moore to Germans House | 3 | 830 | \$40.00 | \$33,200.00 |
| 21 - Moore Beginner Loop | 1 | 2,130 | \$20.00 | \$42,600.00 |
| 22 - Moore 1 | 2.5 | 1,880 | \$35.00 | \$65,800.00 |
| 23 - Moore 2 | 3 | 1,530 | \$40.00 | \$61,200.00 |
| 24 - Moore 3 | 3 | 3,150 | \$40.00 | \$126,000.00 |
| 28 - Big Quarry Valley | 3.5 | 2,790 | \$45.00 | \$125,550.00 |
| 29 - Scorpions Ledge | 3.5 | 820 | \$45.00 | \$36,900.00 |
| 30 - Jacobs Bypass | 3 | 50 | \$40.00 | \$2,000.00 |
| TOTAL | | | | \$1,051,400 |

Note – Trails 25, 26, 27 and 31 are supplementary trails that do not form part of this project. As such, prices to construct those trail have not been included.



6 APPENDICES

6.1 IMBA TRAIL DIFFICULTY RATING SYSTEM

| Rating | Very Easy | Easiest | More Difficult | Very Difficult | Extremely Difficult |
|----------------------------|--|---|--|---|---|
| Symbol |  |  |  |  |  |
| Description | <p>Likely to be a fire road or wide single track with a gentle gradient, smooth surface and free of obstacles.</p> <p>Frequent encounters are likely with other cyclists, walkers, runners and horse riders.</p> | <p>Likely to be a combination of fire road or wide single track with a gentle gradient, smooth surface and relatively free of obstacles.</p> <p>Short sections may exceed these criteria.</p> <p>Frequent encounters are likely with other cyclists, walkers, runners and horse riders.</p> | <p>Likely to be a single trail with moderate gradients, variable surface and obstacles.</p> <p>Dual use or preferred use</p> <p>Optional lines desirable</p> | <p>Likely to be a challenging single trail with steep gradients, variable surface and many obstacles.</p> <p>Single use and direction</p> <p>Optional lines</p> <p>XC, DH or trials</p> | <p>Extremely difficult trails will incorporate very steep gradients, highly variable surface and unavoidable, severe obstacles.</p> <p>Single use and direction</p> <p>Optional lines</p> <p>XC, DH or trials</p> |
| Trail Width | 2100mm plus or minus 900mm | 900mm plus or minus 300mm for tread or bridges. | 600mm plus or minus 300mm for tread or bridges. | 300mm plus or minus 150mm for tread and bridges. Structures can vary. | 150mm plus or minus 100mm for tread or bridges. Structures can vary. |
| Trail Surface | Hardened or smooth. | Mostly firm and stable. | Possible sections of rocky or loose tread. | Variable and challenging. | Widely variable and unpredictable. |
| Average Trail Grade | <p>Climbs and descents are mostly shallow.</p> <p>Less than 5% average.</p> | <p>Climbs and descents are mostly shallow, but may include some moderately steep sections.</p> <p>7% or less average.</p> | <p>Mostly moderate gradients but may include steep sections.</p> <p>10% or less average.</p> | <p>Contains steeper descents or climbs.</p> <p>20% or less average.</p> | <p>Expect prolonged steep, loose and rocky descents or climbs.</p> <p>20% or greater average</p> |
| Maximum Trail Grade | Max 10% | Max 15% | Max 20% or greater | Max 20% or greater | Max 40% or greater |



| Level of Trail Exposure | Firm and level fall zone to either side of trail corridor | Exposure to either side of trail corridor includes downward slopes of up to 10% | Exposure to either side of trail corridor includes downward slopes of up to 20% | Exposure to either side of trail corridor includes steep downward slopes or free-fall | Exposure to either side of trail corridor includes steep downward slopes or free-fall |
|---|---|---|--|---|---|
| Natural Obstacles and Technical Trail Features (TTFs) | No obstacles. | <p>Unavoidable obstacles to 50mm (2") high, such as logs, roots and rocks.</p> <p>Avoidable, rollable obstacles may be present.</p> <p>Unavoidable bridges 900mm wide.</p> <p>Short sections may exceed criteria.</p> | <p>Unavoidable, rollable obstacles to 200mm (8") high, such as logs, roots and rocks.</p> <p>Avoidable obstacles to 600mm may be present.</p> <p>Unavoidable bridges 600mm wide.</p> <p>Width of deck is half the height.</p> <p>Short sections may exceed criteria.</p> | <p>Unavoidable obstacles to 380mm (15") high, such as logs, roots, rocks, drop-offs or constructed obstacles.</p> <p>Avoidable obstacles to 1200mm may be present.</p> <p>Unavoidable bridges 600mm wide.</p> <p>Width of deck is half the height.</p> <p>Short sections may exceed criteria.</p> | <p>Large, committing and unavoidable obstacles to 380mm (15") high.</p> <p>Avoidable obstacles to 1200mm may be present.</p> <p>Unavoidable bridges 600mm or narrower.</p> <p>Width of bridges is unpredictable.</p> <p>Short sections may exceed criteria.</p> |



6.2 WORLD TRAIL CONTACT DETAILS

Postal Address:

World Trail Pty Ltd
P.O BOX 6108
CAIRNS QLD
AUSTRALIA 4870

Head Office:

World Trail Pty Ltd
288 Kamerunga Road
CAIRNS, QLD
AUSTRALIA, 4870

ACN:

126 067 847

ABN:

93 794 484 623

Email:

info@world-trail.com

Website:

www.world-trail.com



Glen Jacobs

Director
Mobile: 0407 674 943
Email: glen@world-trail.com

Gerard McHugh

General Manager
Mobile: 0439 564 756
Email: gerard@world-trail.com

Dylan Jeffries

Director
Mobile: 0408 007 494
Email: dylan@world-trail.com

Grant Suckling

Project Manager/Consultant
Mobile: 0438 413 127
Email: grant@world-trail.com

