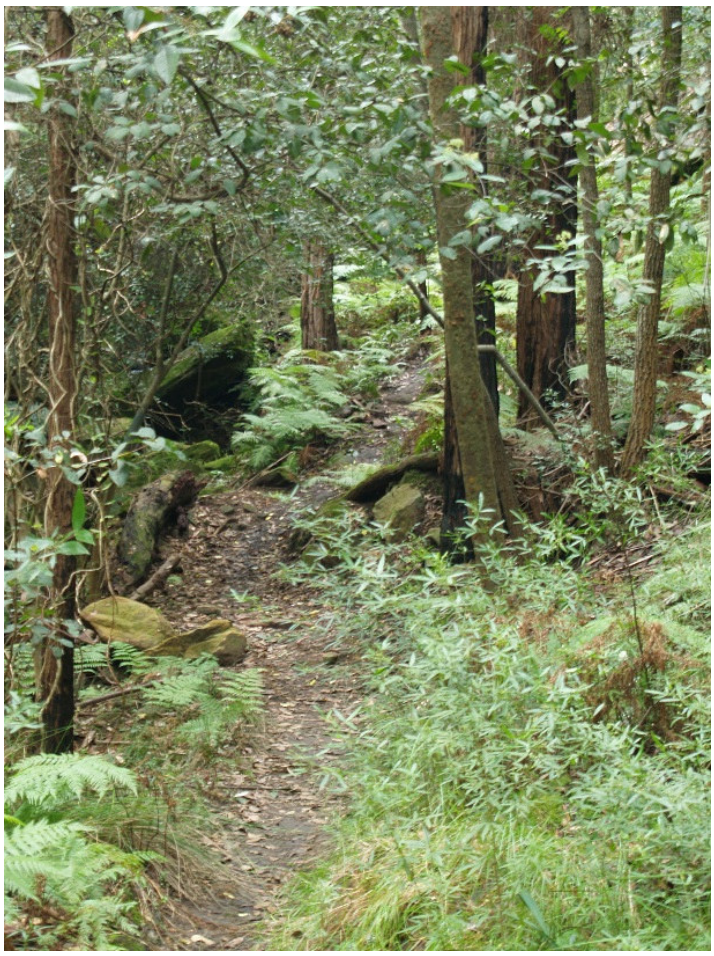
Proposed Mountain Bike Tracks at Knapsack Reserve October 2010



Introduction

This report provides options for the conversion of the existing Downhill (DH) and Cross Country (XC) mountain bike tracks to be established within the constraints of the Plan of Management for Knapsack Reserve [1] in the lower Blue Mountains by Blue Mountains City Council Staff.

The Blue Mountains Off Road Cyclists (BMORC) group has been engaged by Council and Staff to provide input into the preferred XC and DH trails in the reserve, with the view of establishing legitimate and sustainable trails in the Blue Mountains.

Existing Trail Network at Knapsack Reserve

Knapsack Reserve has two existing DH tracks and an interconnecting series of trails that are multi-user shared trails, used by walkers (particularly dog walkers), XC riders and the occasional service vehicle.

Map 1 shows the current DH tracks and the main trails used by XC riders.

A vague, de facto XC loop has been established over time by riders seeking to connect the various interconnecting trails and is used by riders in both directions. The area marked on the map as **A** is an area where trail proliferation has occurred as trail users have attempted to maximise trail length by joining up the network of existing trails and adding variety to the track.

Some of these trails are also used for access by riders to the main Knapsack area, either from Emu Plains **B**, Lapstone **C** or Glenbrook Oval **D** where there is easy parking.

Downhill Tracks

The existing DH tracks are not extensively used by riders as currently they are relatively short and uninteresting rides. The tracks appear to utilise old walking trails that traverse the slope and do not effectively use the available gradient or terrain in a manner suitable for DH purposes. This sudden loss of gradient and the straightness of the track also increases the unsustainable nature of the track. Further, the ‘Uplift’ required to bring the rider back to the start is relatively long when using a motor vehicle, and steep and arduous if the rider is to push back up. These factors contribute to the current usage rates being very low compared to the Old Bathurst Road tracks, which also benefited through ready access to public transport.

In Summary, the existing DH tracks:

- Are much too short – approximately 900 meters;
- Do not fully utilise the available gradient, losing their height very quickly over a short distance;
- Are currently unsustainable and would require substantial effort and raw materials to convert it to a sustainable footing and would require more frequent maintenance efforts;
- Have a long distance to travel for motor vehicle uplift and or a steep, difficult push back up, therefore enjoyable riding time is short versus the effort required to return to the top of the track, leading to low usage rates.

Proposed Realignment of Downhill Track - Option A

By adopting the principals of sustainable trail design as detailed by the International Mountain Bike Association (IMBA) [2], as well as looking at topographical and environmental constraint maps of the area, a proposed new route has been mapped. This proposed route both increases the overall length of the track by using a gentler and more sustainable gradient ratio, whilst also better using the natural features for improved sediment retention and rider challenge. This route can be seen in the *Map 2* and GPS file *'DH Option A.gpx'*.

The proposed route incorporates the more sustainable aspects of the existing track, and removes the steeper, straighter and ultimately less sustainable sections of the track. We believe that the proposed closed sections will readily accept rehabilitation via brush matting, or can be retained as a bushwalkers access track with diversion away from the downhill track.

The new track alignment is a definite compromise over a typical downhill track descent profile. As the track has a shallower gradient it will allow for a track that is negotiable for other types of bikes, not just downhill bikes. This will provide an interesting and definitely challenging descent for the experienced XC rider as well as the dedicated DH mountain biker.

Further, as the track can be negotiated on bikes that are not necessarily downhill bikes there is the option for riders to ride up Mitchell's Pass rather than shuttling, pulling off at the bridge and climbing some existing fire trail to the main Knapsack Reserve trail network or the proposed extension to the mushroom tunnels or to use the Zig Zag and return around the RAAF base.

Pros

- The proposed realignment of the "Stringline" DH track is more sustainable and utilises the existing gradient and terrain to both extend the trail length, reduce the construction of the track to a sustainable footing, reduce future maintenance efforts, whilst also allowing none DH riders to also use the track;

- These changes would double the length of the track, and would meet the requirements of the sport: specifically a drop of 120 m over a distance of 1.2–1.6 kms;
- Caters for riders with varying skill levels (i.e., the more effort you put in the more you will get out of the track);
- More track and trail network options for the more skilled riders;
- The trail contours follow best practice in sustainable trail design and does not exceed an average 10% of the total gradient of the slope;
- The proposed realignment has been reviewed by IMBA Australia director Nicholas Bowman and he agrees that the new alignment redresses obvious unsustainable qualities of the existing tracks;
- Substantial portions of unsustainable track can be closed off and rehabilitated in exchange for newer more sustainable sections being created.

Cons

- The existing tracks pass through Endangered Ecological Communities (EEC) with the proposed realignment requiring new sections of track to be created. These new sections can be offset with the closure and rehabilitation of the unsustainable tracks and sections in the park.

Proposed Realignment of DH Track Option B

Given the amount of new track required in option A, we mapped out an alternative track utilising more of the existing trail with smaller sections of realignment around areas of higher erosive activity. While this option does reduce the amount of new trail required, there is still a need to cut new sections to address the more unsustainable aspects of the existing trail. BMORC believe this compromise will limit the track's appeal as it does not meeting the specific downhill requirements, whilst also increasing the level and frequency of maintenance efforts compared to the realignment proposed in option A. This route can be seen in the *Map 2* and GPS file *'DH Option B.gpx'*.

In saying this, it will be better than the existing track and requires approximately half as much new track to be created.

Pros

- More of the existing track would be used, reducing the amount of new trail to be created compared to "Option A";
- New sections will be more sustainable than the current track layout, but only incrementally better.

Cons

- New track sections will need to be built in the EEC, and less of the unsustainable sections will be closed;
- Track length will be relatively short compared to the Uplift required.
- Rider usage may not be as high.

Pursue BMCC Staff recommendations Option C

As per Staff reports provided to the BMCC Ordinary Meeting dated 16 March 2010 [3], BMORC continues to support staff recommendations in support of the Old Bathurst Road site.

Understanding that impact to resident amenities are of the prime concern, given Knapsack reserve DH tracks also pass through EEC Turpentine IronBark Forests, BMORC would like to highlight that no Bowaga Ave, Old Bathurst Rd, Amaroo Ave, or Yoongali Tce residents have complained about impact of DH riders on their resident amenities. Instead Staff have had increased resident complaints with regards to the closure of tracks at the Old Bathurst road site, given the closure of walking trails.

The same trail building techniques employed to convert current Knapsack trails can be utilised at Old Bathurst Road for the betterment of the sport while minimising the overall effect on the escarpment.

Proposed Primary Cross Country Trail

A primary XC trail was determined using several constraints, whilst attempting to use as many of the preferred routes identified by local riders of the area. The attached *Map 3* and '*XC Primary.gpx'* covers many of these ideas.

Some of these constraints were:

1) Maximising Trail Length

Taking advantage of the existing trails and joining them together as per the attached Map 3 creates a trail that is approximately 6 km long. This is considered a short XC trail with the ideal trail being approximately 9 kms or longer. Some of these trails take in existing old, largely forgotten, vehicle access tracks that, with partial rehabilitation via brush matting, could be reverted to single track, which is the more preferable riding environment. It also allows for the closure of some of the more eroded trails that lead to nowhere and are considered uninteresting (e.g., trails to the SE of **16** in *Map 3*).

2) Bi-directional In Nature

It was planned with the idea of being ridden in both directions so as to add variety to riders seeking to extend track length via multiple laps. The trail is technical in nature which lowers rider speeds and given the nature of the bushland flora in the area, visibility is good, which supports the bi-directional nature of the proposal and also lends to increased multi-use tracks, with education of both walkers and riders as appropriate to the terrain.

3) Shared With Other Users

Shared use with walkers will primarily require awareness by both parties with adequate signage. Some areas will run parallel and can be dedicated rider or walking sections.

Bringing the trails together in the area around **6–16** allows for creating a section that is winding and interesting for riders, yet allows for a more direct route for walkers along its perimeter.

4) Allowing for access from multiple entry points

Many riders ride into the area from surrounding suburbs and need various access points in and out. The most important one of these is marked as **40-44** that leads around the old waterworks.

5) Easy to Follow Ride for Tourists

With the large number of tourist riders who visit Glenbrook every weekend due to the popularity of the Oaks Fire trail, there is an opportunity for them to extend their day by riding Knapsack Reserve. However, to do this, riders need clearly defined trails that are enjoyable and easy to follow. Having a primary start point at the Glenbrook Oval **1** where there is parking and toilets would further add benefit while not impacting local residents.

Sections **18** and **20** marked in yellow are areas that we view as being unsustainable, requiring realignment of the track in line with IMBA Australia standards. The options for these areas are to create alternate lines with lower gradients to reduce the impact of water on the trails. Unsustainable sections will be closed and rehabilitated, in line with discussions between IMBA Australia, Council Staff, and BMORC, where we see a direct trade off between trail closers and new trail realignment opportunities to increase trail sustainability. These realignments will also add to the flow of the trail and therefore the enjoyment of the rider.

Other sections marked in yellow (**3, 11, 12** and **15)** are ideas for ways of linking various sections of single track together to extend length with small sections of new trail. These also allow for closure of other areas. Essentially, the way trails are routed between **6** and **16** is only to be used as a guide and is just one possibility of many that could be determined.

A trail like this can be created over time, and in a phased approach, working on sections that most need attention and maintenance. Slowly, unused sections can be rehabilitated as new sustainable sections replace them. Lessons can also be learned as the project progresses.

Pros

- Opportunity to reduce existing trail widths in multiple areas and facilitate increased rehabilitation objectives;
- Rationalise a number of disused and or unsustainable trails;

- Rationalisation of trails to establish a clearly defined loop to help facilitate trail maintenance;
- Maximises the amount of trail available so as to reduce the need to deviate off the main trail and create unapproved tracks;
- Multiple entry points which facilitates both increased access to local riders and also parking options for those further a field;
- Link other popular areas and tracks with Knapsack to promote tourism opportunities;
- Sections of the track do traverse EEC and or other sensitive environments, however Staff, IMBA and BMORC have reviewed and agreed that any susceptible areas can be converted and made sustainable via the plan 'track care' program.

Cons

- The track is relatively short at around 6.9km in length, however, with the linking of other tracks (see secondary XC Trails below), ride lengths can be extended;
- Some new track extensions will be required to establish a clearly defined loop, and realign sections to a more sustainable footing. These extensions, however, will be clearly offset by trail closures and rationalisation opportunities through the reserve.

Proposed Secondary XC Trails

Means of access to the primary trail from outside the reserve as well as allowing for more advanced trails was also addressed.

The need for trails that meet the requirements of more advanced riders is important for adding depth to the trail network as well as preventing any subversive alterations to make lines more challenging.

The existing trail that is shown on *Map 3* and in "*XC Secondary.gpx*" in sections **40** and **41** covers some of these needs and is also a very popular and distinctive signature of 'Knapsack' riding. It is quite short and technical and would require some work to improve sustainability at its start (e.g., breezeblock armouring technique).

This trail also allows access to Glenbrook via **42**, Lapstone by **44** and down the Zig Zag to Emu Plains. With discussion in council of the possibility of opening up the Lapstone Railway tunnel to cyclists, this would provide an essential link.

With the addition of asphalt road sections, this could also allow the connection of loops back to the start of the primary loop. There are also options to create variations of this return route in the future, some of which are marked on the map.

Pros

- Links Knapsack reserve with other popular tourist oriented trails;
- Utilises disused infrastructure such as the sewerage treatment works, the Zig Zag railway cuttings and mushroom tunnels cited by Clr McCallum [4].

- Meets trail rationalisation and rehabilitation objectives as outlined in the Knapsack Reserve PoM [1];
- Staff, IMBA Australia and BMORC agree that any sensitive areas can be addressed with relevant IMBA trail building standards;
- Secondary trails, travel through high quality tourist attractions increasing the ability to make these trails into iconic XC and touring trails.

Cons

- Some sections in the secondary loop will require substantial effort to convert to a more sustainable footing. However, as above, there are established standards to mitigate these impacts.

Other issues

BMORC have laid a basic plan of these proposed trails over the council's environmental maps to loosely determine their impact see *Map 4*.

The majority of trail corridors do not cross into many critical areas although there are sections of EEC as outlined in the DH section above. We understand that BMCC Staff will undertake more thorough assessment of all proposed trails and extensions as part of their day to day responsibilities. Notwithstanding, all parties have thus far agreed that all issues can be addressed by responsible building to IMBA trail building standards. BMORC is happy to defer to the discretion of BMCC Staff as the relevant subject matter experts.

An important track is around section **9** on *Map 3* which is the Cave area. This is a very important trail in the area as it provides an important link to the primary XC trail and also the link to the secondary trail **40** discussed above. On discussions with BMCC staff, it has been identified that the existing tracks do not threaten the identified 'caves' and can be made more sustainable with minor realignment and trail maintenance.

I have attached a text report in Appendix 1 on each labelled section of this map to explain the thinking behind certain sections and provide further descriptions.

In Conclusion

BMORC feel that the realigned DH track “Option A” will alleviate the pressure being felt by downhill riders in the area, especially the younger ones without the transport to travel to other DH trails that a far away. Also it will provide a track that is vastly better than what currently exists. This meets sustainability objectives, and reduces the effort associated with maintenance allowing riders to ride more. Take up of the track is crucial as this will reduce the need to build unapproved tracks elsewhere, as BMORC and Council have effectively delivered a high quality, sustainable and more importantly legitimate trail riders can focus on.

The XC Network is really a multi-stage plan to concurrently create an excellent riding network while fixing the various sustainability issues along the way. BMORC envision a phased approach with ongoing works to be undertaken over time with continual assessment and reassessment as part of an approved trackcare and bushcare program.

Given the time constraints associated with producing an assessment report to Council by October 2010, we have not focused on track design *per se*, and have instead focused on trail corridors and trail concepts. We recommend, should the proposal be approved via public consultation and at the October 2010 ordinary meeting, that the actual trail design and subsequent construction be left to BMCC Staff, BMORC and appointed contractors, as part of Staff's day to day land management responsibilities.

BMORC are excited by the opportunity to work with council at Knapsack as a precursor to a long partnership of legitimate and sustainable mountain biking trails in the Blue Mountains.

Appendix 1 – Details of Sections in Map 3 for XC

Discussion follows an anticlockwise direction, though trail is intended to be suitable for riding in either direction.

1 - Starting point that can be ridden in from the Glenbrook Oval via **41** or **42**. Parking at here would minimise impact on local residents, be near toilets and leave **45** for any DH drop offs. It would also create a common start point for signage.

2 - An existing fire trail section, with a possibility to reduce to single track by brush matting.

3 - A section would need to cut here to provide an essential and interesting link. This would allow closure of many surround eroded fire trails that lead to nowhere.

4 to **5** - Good single track section leading down to the gully.

6 - After crossing the gully there is a steep gradient. It is very eroded and would need some work. Either a line change and closure of the main erosion section with brush matting or other armouring erosion prevention measures.

7 to **8** - Wide single track in good condition.

9 - Cave section. A very good ride and some nice technical sections which would need some rock armouring. Also an important link to the Secondary Trail at **40**.

10 to **13** - Good single track that follows after the 'Cave' section. Climbs up with two pinches that may need some realignment. With a few small new sections marked in yellow this area could be extended into a very good single track section.

14 - The fire trail descent is tending towards becoming single track. Its a good fast water barred descent, but with brushmatting could have some curves put in to make it flow nicely if as it appears it is a no longer used vehicle access trail.

15 to **17** - Cut a small connecting track off the fire trail **15**. After **16** is single track, **17** is fire trail.

18 - Good single track. The first gully crossing it is very eroded and will probably need some switchbacks to change the gradient and a proper creek crossing as marked in yellow.

19 - Possibility around this area to extend the track up into the bush if any extra sections are allowed in the future. Good terrain for any track extensions.

20 - Another very eroded section that will need to be made sustainable. Probably a switchback is required for the climb and the descent.

21 - Good long section of shared single track. Quite technical and interesting and probably the most interesting section of trail at Knapsack from **18–21** inclusively.

22 - The section that crosses the DH track. Want to try and only cross this once for safety reasons. Will need some warning signs and speed control features. Some very small cuts in this area to prevent any section repeats. Wide single track that could easily be improved especially seeing it isn't really a walking track as it goes nowhere.

23 to **26** - Usage of “Lovers Walk” to get to the fire trail climb at **24**. This climb is eroded and needs some work, so a good technical climb/descent could be routed through it at the same time. **24** and **25** are wide single track.

27 - Messy technical fire trail descent. Top part could do with some erosion work. Probably make sure there was a super technical line with drops maintained as well as making sure there is a more intermediate riding line for ascending and descending.

28 to **29** - Try and use the existing line that veers off to the right and then cuts back across the fire trail over onto the large flat rock. This makes the fire trail a little more interesting.

30 - The Rock Face where people can climb and descend how they want. A traversing line could be determined and marked with rock cairns to provide continuity. The top part once again has considerable erosion on the fire trail. There is a possibility to brush matt and make into a good single track.

31 to **34** - Starts with single track then to a little bit of fire trail and then ride along the rock ridge that is very nice, followed by some overgrown fire trail onto Lovers Walk for a short distance then fire trail descent.

35 - A nice section of winding single track.

36 to **37** – Fire trail that could be possibly brush matted to single track

38 – Single track through a grassy area. Good ride but tends to hold water and would require some minor work to fix.

39 – Good riding fire trail down to gate.

40 - Secondary Trail section starting with the “Chute” that will need rock armoring, possibly the breezeblock approach. Crosses a gully on a small bridge and has a steep climb. Some of this area will need to be looked at closely under IMBA guidelines.

41 - Single track that provides access beside RAAF base to Zig Zag, the highway or Lapstone.

42 to **42** - End of the Secondary Trail with **42** as single track that links on asphalt at **43** by the road to the start of the Primary Loop at **2**.

Appendix 2 - Maps