Brisbane Valley Rail Trail Plan

Queensland **the Smart State**

Queensland Government
Department of Infrastructure and Planning

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Executive summary

Regional recreation trails

The Queensland Government's 2006 Living the Queensland Lifestyle election commitment included initiatives to promote a more relaxed, healthy and less stressful lifestyle for Queenslanders. This commitment included:

- providing new walking, cycling, canoeing and kayaking trails
- providing alternative trails for horse riding
- delivering the South East Queensland Outdoor Recreation Strategy.

To help ensure delivery of these outcomes in South East Queensland (SEQ), the Queensland Government is funding the development of three new regional recreation trails in SEQ (Brisbane Valley Rail Trail, Boonah to Ipswich Trail and Maroochy River Canoe Trail). These trails are identified as regional outdoor recreation infrastructure projects under the SEQ Infrastructure Plan and Program 2007–2026, which supports the delivery of the SEQ Regional Plan 2005–2026.

The Brisbane Valley Rail Trail will recycle the now disused Brisbane Valley rail line to provide an outstanding 148 km regional trail for walking, cycling and horse riding, serving both local and regional communities (see Map 1).

The trail builds on the existing Fernvale–Lowood Rail Trail, managed by Esk Shire, and the Linville–Blackbutt Rail Trail, managed by Nanango Shire.

Map 1— Brisbane Valley Rail Trail

Source: Department of Infrastructure and Planning

Background

Railway heritage

The Brisbane Valley rail line was developed as a branch line from the main Brisbane to Toowoomba line. The line was surveyed in 1880 and the first section (Brisbane Valley Junction to Lowood) was opened in 1884. In 1886 the line was extended to Esk, then to Moorabool in 1904. By 1913 the line was completely opened to Yarraman. The Brisbane Valley rail line remained a 'blind' branch line, with no links to the rest of the rail network, from 1913 to its eventual closure in 1988.

Rail trail route

The rail trail route follows the old Brisbane Valley rail line along the western side of the Brisbane River valley through attractive rural landscapes, native and plantation forests, rural residential and country town settings.

The trail's southern-most point will effectively be at the Wulkuraka railway station in west Ipswich, although a dedicated trail-head is proposed to be constructed on rail corridor land 800 m north of the station. Wulkuraka station is linked to Central Ipswich by a shared pathway for cyclists and pedestrians. After passing through suburban Ipswich, the forest and rural lands of Pine Mountain, Borallon and Wanora, the trail reaches Fernvale, a popular tourist stop on the Brisbane Valley highway and a focal centre for the recreational horse riding community.

An existing section extends to Lowood in rural settings. The route north goes through Coominya before meeting the Brisbane Valley highway at Esk where a range of accommodation is available. More accommodation is available in Toogoolawah and Harlin. The township of Moore will provide another trail-head with parking and picnic facilities, as will the historic Linville Station. An existing section of the trail climbs from Linville up the Balfour Range to cross the Bicentennial National Trail at Commissioners View outside Benarkin. The trail then continues on to Blackbutt.

Current status

Although the old rail corridor has not been used regularly for 25 years, some rail infrastructure still remains. The steel track and many of the bridges have been removed. However, 26 bridges north of Lowood are still intact, although their condition varies greatly. Most railway signage, station platforms and goods sheds have also been removed.

A significant portion of the corridor is substantially overgrown by grasses and weeds. The corridor is relatively clear in areas where track has recently been removed.

The corridor is wholly owned by the state government, with Queensland Transport having the main head lease. The Department of Infrastructure and Planning (DIP) currently holds a sublease for the purpose of developing the rail trail in the corridor. Esk and Nanango Shires also hold subleases over certain sections. There are a number of access permits held by adjoining landholders on a short-term basis.

What is a rail trail?

A rail trail is a multi-user recreation trail using a disused rail corridor (public land) for non-motorised outdoor recreation. There are over 30 established rail trails in Australia, the majority of which are in Victoria. South Australia and Western Australia also have formal trails. There is one public rail trail in NSW, with further trails under consideration.

In Queensland, the Fernvale to Lowood Rail Trail has been open for a number of years, while the Linville to Blackbutt Rail Trail opened in May 2006. Both of these trails will become part of the Brisbane Valley Rail Trail.

Rail trails are different from each other, but a number of characteristics distinguish the good ones. The following distinguishing features are drawn from a number of published sources and the author's own extensive experience with rail trails.

- Many successful rail trails are accessible from large population centres, both for visitors and as a stimulus for local demand.
- There is existing or easily developed tourism infrastructure in or near townships along the rail trail—places to eat, explore and stay.
- Good rail trails have some heritage infrastructure in place such as historic stations, bridges, tunnels, goods sheds, sidings, platforms, switches, signals and mile posts. Rail trails elsewhere have used their railway history as part of their attraction. Stations in particular can provide a focal point for community activities as well as an interesting attraction for visitors. Remaining major elements of the railway infrastructure (e.g. formations, deep cuttings, high embankments, bridges and culverts) add significantly to the user's experience. Built and cultural heritage values are a critical part of the rail trail experience not often experienced on other types of recreational trails.
- A common feature is community and adjacent landholders' level of support for the project to move ahead. Many (although not all) adjacent landholders are initially suspicious of rail trails; they often become converts once a trail is opened and effectively managed to minimise the impacts on adjacent land uses.
- A unique experience is often important—such experience can relate to landscape, trail type or history.
- Many of the good rail trails are of regional or state tourism significance (some have national and international significance). Significance is elevated where extensions are made to

connect to services in towns. The best rail trails have natural terminuses in major centres or towns. Intermediate towns easily accessible along the trail are critical when a trail is long, and an added bonus when the trail is short.

- The best rail trails are located in highly scenic surrounds, with views of the surrounding landscapes.
- The best rail trails traverse places of cultural and natural heritage and provide opportunities to view wildlife, woodlands, forests and waterways.
- The good rail trails often provide opportunities for short, medium and long length rides and walks on the main trail.
- Railway corridors can provide a great insight into the history of the region—both European settlement and Aboriginal use. Good interpretation will mark out an excellent trail—this is the next frontier in all trail development. There are many good recreation trails (including rail trails) in Australia—few have good interpretation that adds significantly to the user's experience.
- In a similar vein, trails that emphasise local conditions—e.g. flora, fauna, history and construction materials—are very popular. Good interpretation will bring out this local flavour.
- Well signed and mapped trails—both on the trail and easily available elsewhere—are more successful than those that are not.
- Informed locals make a user's experience more pleasurable.
- The best rail trails offer a challenge, but also offer peace and solitude.
- A well maintained trail and a strong community support network add to the user's experience, primarily because the trail remains in good condition. A community network could include a dedicated management committee, a strong 'friends of the trail' group or even a full-time trail manager. Various rail trails in Australia feature at least some of these elements.

In addition, all rail trails have a number of positive features that make them stand out from other recreational trails.

- Rail trails are generally accessible for people with different levels of abilities, fitness and equipment.
- Rail trails are free of motor vehicles and are therefore safe for all types of trail users. Old rail corridors minimise major road crossings. Trails rarely interrupted by road crossings appeal more than those which constantly cross roads. Where necessary, well designed and marked road crossings enhance safety.
- Railway formations (through cuttings and along embankments) provide a gentle gradient and sweeping bends, suitable for a range of cyclists, walkers and horse riders.
- Rail trails offer increased safety for users compared with urban shared pathways with multiple driveways, light poles, blind corners, poor sightlines, and congestion in peak periods.

Rail trail benefits

Rail trails will deliver recreation, social and health benefits to urban users as well as adjacent rural and rural residential communities. They offer rewarding experiences to families, bicycle tourists, mountain bike riders, historical enthusiasts, horse riders and walkers. In selected sections, access can be provided for personal mobility vehicles.

Rail trails provide communities (both residents and visitors) with a diverse and free opportunity to explore and enjoy healthy recreational pursuits. Active recreation, in any form, will improve health. People can use trails in a variety of ways depending on their abilities and preferences. They yield significant health benefits both to the individual and society. In the USA, a comprehensive health economics study showed every US$1.00 invested in recreational trails for physical activity yielded a direct medical benefit of US$2.94 (Wang et al. 2005).

Through service industry opportunities such as refreshments, meals, accommodation, camping supplies and group transport, the Brisbane Valley Rail Trail has the potential to bring focused economic benefits to the communities along the line. Trails provide a significant economic benefit to communities where they are located.

Trails are a valuable tourism attraction, especially when marketed well. They can help instil a conservation ethic among users, and be a means of educating users about the attributes of an area, especially when good interpretation is a feature of the trail.

The Brisbane Valley Rail Trail will also bring connectivity benefits by virtue of its location. As well as functioning as a safe connecting 'spine' for horse trails along the lower Brisbane Valley, it gives a safe alternative route to the very challenging section of the Bicentennial National Trail through Emu Creek Gorge, south of Benarkin.

The community

Many landholders living and working alongside (or on) the trail corridor are greatly concerned about the prospect and the possible disruption to long established farming practices, and the possible invasion of their privacy. These people are disturbed by the prospect of change. The proposal for a recreation trail along the railway corridor has aroused quite understandable concerns—concerns that mirror those raised in numerous similar rail trail conversions around the world.

These concerns include:

- theft and vandalism of property
- reduced privacy
- hindrance to farming practices, notably the application of aerial fertilisers on an ongoing, frequent and unpredictable basis
- stock disturbance
- loss of access to grazing paddocks and machinery turn-around areas
- control of weeds
- fire risk
- interactions between livestock and trail users (including dogs)
- litter
- management of toilet waste
- liability concerns—who is liable for injury to straying trail users
- unauthorised use (notably by motor bikes)
- ongoing maintenance costs
- interactions between heavy vehicles and trail users.

Fortunately there is a wealth of experience from other very similar situations around the world, including numerous examples in Victoria and elsewhere around Australia. Almost without exception, that experience suggests that trails along disused rail corridors do not cause the problems and issues that are commonly anticipated

Numerous studies provide evidence that the problems feared by adjoining landowners rarely, if ever, actually occur. In fact, more often than not, people living next to rail trails discover that active management of the corridor is better than ongoing neglect and uncertainty. Many of these people, former opponents of a rail trail conversion, become strong supporters as they find the benefits actually outweigh the costs.

This is not to say that the concerns raised by landowners are not worthy of attention. In fact, quite the opposite is true. Many of these concerns are legitimate and warrant careful consideration. This is not a case of people raising unfounded issues, rather it is a case of people raising issues that need to be resolved.

Trail plan

The trail plan has five key elements:

- a trail development plan—recommends the types of works that should be undertaken along the corridor to allow its development as a trail, and addresses many of the issues raised by adjoining landholders, local communities and other stakeholders
- a trail interpretation plan—makes recommendations for the development of interpretive signage and contains a list of stories that could be told along the trail
- a trail management plan—addresses ongoing management issues affecting the day-to-day running of the trail
- an emergency response plan—addresses design and management requirements to ensure emergencies can be responded to quickly
- a trail maintenance plan—addresses ongoing maintenance requirements.

While every effort has been made to ensure information is accurate at the time of publishing, it is acknowledged that changing circumstances may alter benchmarks and assumptions made and influence the feasibility of the recommendations. Final decisions on how and when the trail is developed and managed will be made by DIP, in consultation with stakeholders.

Section 1. Introduction

1.1 Background

1.1.1 SEQ Regional Recreation Trails Program

The Queensland Government's 2006 Living the Queensland Lifestyle election commitment included initiatives to promote a more relaxed, healthy and less stressful lifestyle for Queenslanders. This commitment included:

- providing new walking, cycling, canoeing and kayaking trails
- providing alternative trails for horse riding
- delivering the SEQ Outdoor Recreation Strategy.

To help ensure delivery of these outcomes, the Queensland Government is funding the development of three new regional recreation trails in SEQ (Brisbane Valley Rail Trail, Boonah to Ipswich Trail and Maroochy River Canoe Trail). These trails are identified as regional outdoor recreation infrastructure projects under the SEQ Infrastructure Plan and Program 2007–2026, which supports the delivery of the SEQ Regional Plan 2005–2026.

These outdoor recreation infrastructure projects will:

- demonstrate the government's determination to deliver on election commitments
- support a partnership with local governments in developing and managing an integrated network of recreation trails in SEQ
- provide support for rural tourism and local businesses
- assist in promoting healthier lifestyles, to help address obesity and other critical community health issues
- help to deliver multiple outcomes of the SEQ Regional Plan, related to:
  - outdoor recreation
  - regional open spaces
  - rural futures

The investment of $8.8 million over five years will support:

- trails, corridor and facility planning
- design, development and management of three new regional recreation trails
- promotion and marketing
- the establishment of an SEQ Regional Trails coordinating committee.

1.1.2 The Brisbane Valley Rail Trail

The Brisbane Valley Rail Trail will recycle the now disused Brisbane Valley rail line to provide an outstanding 148 km regional trail for walking, cycling and horse riding, serving both local and regional communities (see Map 1).

The trail builds on the existing Fernvale–Lowood Rail Trail, managed by Esk Shire, and the Linville–Blackbutt Rail Trail, managed by Nanango Shire. The route provides opportunities for future recreational links to the Bicentennial National Trail, the Southern Caboolture Loop Horse Trail and Brisbane Forest Park.

With regular electric City Train services to Wulkuraka and bus services as far north as Toogoolawah, the trail will have easy public transport access for potential users, whether rural residents, urban visitors or travelling tourists. The existing range of services, accommodation and facilities in towns along the route will ensure that most types of approved trail users will be catered for as soon as each trail section is opened. Based on the success of well documented rail trail developments in Australia, New Zealand, the UK, Canada and the USA, the Brisbane Valley Rail Trail has the potential to become the premier rural recreational cycling experience in SEQ.

Map 1 – Brisbane Valley Rail Trail

Source: Department of Infrastructure and Planning

1.2 The trail planning process

In September 2007, the Department of Infrastructure and Planning (DIP) commissioned Mike Halliburton Associates as lead planning consultants for the preparation of the Brisbane Valley Rail Trail Plan.

The Brisbane Valley Rail Trail Plan investigates, identifies and describes the planning, development and management elements required to successfully establish the rail trail.

Plan formulation to date has involved:

- inspections of the corridor to assess constraints and opportunities
- public consultation including adjoining landholders
- meetings with project stakeholders, including Esk Shire, Nanango Shire and Ipswich City councils, the Western Pipeline Alliance (currently building the Western Corridor Recycled Water Pipeline) and Brisbane Valley community groups
- community meetings
- the development and opening of a 7 km pilot section of the rail trail between Moore and Linville.

The plan addresses a number of key elements:

- trail development (Sections 6, 7 and 8)
- trail interpretation (Section 9)
- trail management (Sections 10 and 11)
- partnerships (Section 12)
- trail maintenance (Section 13)
- emergency response (Section 14).

A more detailed property management plan and communications strategy are to be produced separately in 2008.

Section 2. The Brisbane Valley Rail Trail

2.1 History of the Brisbane Valley rail line

Steam train through Esk

A timeline of the development of the Brisbane Valley Rail Line between 1880 and 1912 can be found in Appendix 1, but this does not convey the hope and despair of these turbulent times in our state's history. It was initially intended that railway development in Australia would follow the British model of private ownership. Following the collapse of the privately owned Moreton Bay Tramway Co. in 1862, the Queensland Government of Sir R Herbert assumed responsibility for railway development, and brought the Irish engineer, Abram Fitzgibbon, to Queensland to be the Chief Railway Engineer and first Commissioner of Railways. Fitzgibbon recommended 'the use of sharp curves and a narrow gauge of 3 foot 6 inches to reduce costs' (Kerr 1998). Before its application in Queensland, this gauge had been untried internationally except for short distances in New Zealand and for coal haulage on the Festinig Railway in Wales. Fitzgibbon contracted with Petro, Brassey and Batts to build the rail line from Ipswich to Bigges Camp (now Grandchester). The first sod for this line was turned by Lady Diamantina Roma Bowen, wife of Governor Bowen, in 1864.

The Agra and Masterton Bank had lent money to Queensland to finance its public works, but in 1866 the bank collapsed, the Treasury was empty and railway navvies could not be paid. They marched on Brisbane amid rumours of looting, arson and general mayhem. When the 135 hungry railway workers arrived in Brisbane, the Riot Act was read by police who faced them with loaded rifles. Police officers were supported by 'special constables' from the Civil Service, who were armed with batons, and other citizens who were 'armed' with badges and rosettes. The railway men were persuaded to assemble on the bank of Windmill Hill where they were pleased to accept food and the promise of relief work at five shillings a week and rations. The strike was over, but railway development was halted indefinitely.

Fortuitously George Nash discovered gold at Gympie in the following year, and the Queensland Treasury slowly recovered. By 1873, the Brisbane–Ipswich rail line was commenced and it opened in 1875. The Albert Bridge over the Brisbane River had not been completed for the opening, and passengers were conveyed by punt over the river to complete their journeys until 1876, when this bridge was finally opened.

The Brisbane Valley Rail Line was developed as a branch line from the main Brisbane–Toowoomba line. It did not have an easy passage. In 1878, the surveyor died before completing the survey, but Premier McIlwraith was able to approve the building of several branch lines, including one to Esk in 1879. However, the original plans for these branch lines were withdrawn from parliamentary consideration in 1880 on the recommendation of FT Gregory, younger brother of Sir AC Gregory, explorer, surveyor, author, Commissioner of Crown Lands and MLA. In spite of this opposition, Premier McIlwraith prevailed and the branch line from Brisbane Valley Junction to Lowood was formally approved in 1881. The Chief Engineer was HC Stanley and the contractors were O'Rourke and McSharry.

Britain was in economic depression at this time, and British capital was freely available on loan to a resource rich colonial state for its public works. The railway to Lowood was opened in June 1884 with a free excursion train for 500 people who travelled to Lowood and returned to Fernvale for the formal celebrations. The newspapers of the day were somewhat disparaging. They reported that 'there is little attraction at Lowood' (*Queensland Times* 17 June 1884) and that the hearty lunch provided at Fernvale was 'partaken of in a somewhat primitive fashion' (*Queensland Times* 17 June 1884).

Almost immediately an extension of the line from Lowood to Esk was approved in August 1884 by Premier Griffith. HC Stanley remained as Chief Engineer, but the contractors O'Rourke and McSharry had been replaced by HA Brigg. O'Rourke and McSharry had taken the Queensland Government to court over a breach of their contract on the first section of the Brisbane Valley rail line, and Sir Charles Lilley found in favour of the contractors in 1886. Brigg had not completed railway contracts in Queensland before, but he had experience in buildings tramways in Sydney.

Between commencing and finishing the railway extension to Esk, commodity prices dropped worldwide, and between 1885 and 1895 the price exporters could expect for their wool clip was halved. This put great pressure on state governments in Australia to provide cheaper and more efficient transport to local and overseas markets. The rail line to Esk opened on 9 August 1886, complete with the now heritage-listed Lockyer Creek Rail Bridge at Clarendon, designed by HC Stanley.

It seems that the Esk Divisional Board was not best pleased with either the position of the line or delays in its formal opening. Local papers reported that 'the Minister for Works was received with little ceremony' because the Divisional Board 'could (not) be expected to squander the rate payers' money for such a purpose' (*Queensland Times* 10 August 1884). The Queensland Government may have thought it was squandering its money on the line to Esk, because it was not a financial success. The Chairman of the Divisional Board recommended that the line would begin to pay as it was extended into the Upper Brisbane Valley.

But the Minister for Works and Mines, W Miles MLA, would have none of this, and replied with the hope that 'the line would be remunerative now it was extended' (*Brisbane Courier* 10 August 1886).

There had been several derailments prior to the delayed opening at Esk, and, according to the Department of Railways, the contractor would neither finish the work nor keep the line in proper order. There was a major land slip at Vernor near Lowood in 1890 and flooding in 1893 that swept away the repairs that had been made three years earlier. The Brisbane Valley Rail line was proving costly to maintain without being financially viable.

The 1880s had been boom years, but in 1890, the old British banking firm of Barings was sent into bankruptcy when Argentina defaulted on its loan repayments. British investor confidence was shattered, and as commodity prices continued to slide, there were questions raised about Australia's ability to repay its British loans, and money for public works became much more difficult to raise. The economic bubble burst in Victoria first, where mortgages taken out on the basis of inflated land prices could not be repaid. Banks closed and Australia slipped into Depression. In 1893, the Queensland National Bank, the Bank of North Queensland and the Royal Bank of Queensland closed their doors within three days of each other.

All Queensland Government business had been conducted with the Queensland National Bank, so the government of the day offered a reconstruction scheme for the bank on what were allegedly fraudulent figures about the bank's solvency. By 1896 there was another crisis with the Queensland National Bank following the death of its long-time manager. This time, the rescue package locked up £2 million borrowed from overseas by the state for its works program, to be repaid between 1897 and 1921. Premier McIlwraith's dream of publicly funded branch lines now seemed impossible, and he resigned with his reputation tainted by allegations of corruption.

The next Premier, Hugh Nelson, had been Minister for Railways in the McIlwraith government, and he proposed a Railway Guarantee Scheme in 1895 so that railway development could proceed. An area or district that could be shown to benefit from the development of that section of the railway paid an increased land tax to cover some of the costs, and the state government sold off Crown land to cover the rest. It appears that this scheme was not part of the development of the railway from Esk to Toogoolawah between 1902 and 1904, when the line was opened to Toogoolawah and its eventual terminus at Moorabool. The proposed location for Moorabool Station was described by a political aspirant of the day, HP Somerset, as a 'swampy hollow' (*Queensland Times* 6 August 1888) in an election speech before he won the seat of Stanley in 1904. In that role, the Member for Stanley was a very active campaigner for the development of the rest of the Brisbane Valley Rail Line.

There were strikes of railway workers at Moorabool Station in 1908 after approval had been given to extend the line to Blackbutt under the railway guarantee scheme, and with day labourers who did not enjoy the privileges of permanent railway employment. The labourers were often English, Irish and Italian immigrants, and the conditions in the navvies' camps were unsanitary. There were frequent cases of typhoid, and even concerns about the potential for plague at one time. The rail line finally opened to Harlin, Moore and Linville in 1910, and HP Somerset arranged an excursion for local children on the government-owned SS Lucinda to celebrate the rail line reaching the base of the Blackbutt Range at Linville. Just five months later (8 May 1911), the railway had been constructed 300 m up an inhospitable and rocky range to what the politicians confidently thought might have been Blackbutt, but was actually closer to present day Benarkin. On this one occasion the Minister bowed to public opinion and the railway station being built at Well Holes was actually called Benarkin. Thus the Blackbutt extension of the Brisbane Valley Rail Line finished at Benarkin.

The promise of huge railway consignments of timber from the Blackbutt Ranges to local and Brisbane mills was finally being realised, and the Brisbane Valley Rail Line was paying its way. It had cost the lives of two Irish day labourers who were killed on the railway construction beyond Linville. James Macdonald was buried without a headstone in the Toogoolawah cemetery after his leg was amputated there, and Thomas Love (who died instantly) was buried with a simple wooden cross in the Benarkin cemetery outside hallowed ground. Approval for the next section of the line to Yarraman Creek was given immediately, but the day labourers for this final section were employed by the Department of Railways in 'dry' camps run by the YMCA. One hundred and forty workmen were transferred from Roma to complete the task.

Work commenced on 11 June 1911, with only one major steel bridge to be constructed over Cooyar Creek near the station at Pidna, where there was a 30 000 gallon tank and a water stop for steam engines. This section of the line, which proved to be the last one, was opened at Yarraman Creek on 1 May 1913. The station was renamed Yarraman in 1935 in spite of the station being more than 1 km from the town of Yarraman. Agitation to extend the line to its natural terminus of Nanango continued until well after World War II, but there was no extension from Yarraman. The Brisbane Valley Rail Line remained a 'blind' branch line with no links to the rest of the rail network from 1913 to its eventual closure in 1988.

By 1920, much of the forest timber had been cut out. Railways were still transporting cream to the various milk and butter factories along the Brisbane Valley line at Colinton (until 1921), Toogoolawah, Esk and Lowood. The steep

curves and light railway line were not best suited to transporting the large mobs of cattle being trucked at Linville Station, for example, and costly railway accidents were not uncommon. Every effort was made to reduce competition with the railway from motor transport, but the railway strike of 1948 encouraged the 'foreigners/border hoppers' to break the railway monopoly by offering door-to-door delivery of shop goods and avoiding the double handling at railway station and shop. This also proved attractive for consigning cattle to sales yards and abattoirs. Without these traditional customers, the services on the Brisbane Valley Rail Line were slowly reduced. All the Yarraman–Linville rail motors that had commenced service in 1931 were withdrawn on 8 January 1967, and the last Ipswich–Yarraman steam train came down the range for the last time on 29 November 1969. The very last Yarraman rail motor (102 hp RM73 with trailer) ran on 6 October 1988, and the Yarraman station master was replaced with a freight agent the following year. Only Toogoolawah Station retained a station master (Brian McAuliffe) to oversee deliveries by Q-Link trucks there until his retirement in 2006.

The removal of the rail line was commenced in 1993. Many of the station buildings on the Brisbane Valley Rail Line had been used on other lines or sold for removal. The only ones that still remain in their districts are Yarraman, Linville and Lowood (now serving as railway museums) and Toogoolawah, Esk and Coominya. The railway infrastructure from Blackbutt to Moore and from Wulkuraka to Lowood, with the exception of the heritage-listed Railway Bridge at Clarendon, has been removed. The last section was cleared to lay the Western Corridor Recycled Water Pipeline in 2007. The steel bridge over Cooyar Creek at Harlin Park has been reduced to its cement piers only. Work commenced on the development of the Brisbane Valley Rail Trail in 2007. With this work, a new chapter in the history of the Brisbane Valley Rail Corridor is being written.

There are now only three large structures left on the trail to remind visitors of the enormous challenge of bringing railways to Queensland. These are the wooden railway bridge over Lockyer Creek designed by HC Stanley (Chief Railway Engineer 1872 to 1901), the steel rail bridge over Maronghi Creek at Harlin and the Yimbun tunnel.

2.2 The current situation

Although the old rail corridor has not been used regularly for 25 years, some rail infrastructure still remains. The steel track and many of the bridges have been removed. However, many of the bridges north of Lowood are still intact, although their condition varies greatly. Most railway signage, station platforms and goods sheds have also been removed.

The corridor is wholly owned by the state government, with Queensland Transport having the main head lease. DIP currently holds a sublease for the purpose of developing the rail trail in the corridor. Esk and Nanango Shires also hold subleases over certain sections. There are a number of access permits held by adjoining landholders on a short-term basis. A significant portion of the corridor is substantially overgrown with grasses and weeds. The rail corridor is relatively clear in areas where track has recently been removed.

2.3 The rail trail route

The rail trail route follows the old Brisbane Valley rail line along the western side of the Brisbane River Valley through attractive rural landscapes, native and plantation forests, rural residential and country town settings.

The trail's southern most point will effectively be at the Wulkuraka railway station in west Ipswich, although a dedicated trail-head is proposed to be constructed on rail corridor land 800 m north of the station. Wulkuraka station is

Moving day for a railway family on the Blackbutt Range

linked to Central Ipswich by a shared pathway for cyclists and pedestrians. After passing through suburban Ipswich, and the forest and rural lands of Pine Mountain, Borallon and Wanora, the trail reaches Fernvale, a popular tourist stop on the Brisbane Valley highway and a focal centre for the recreational horse riding community.

An existing section extends to Lowood in rural settings. The route north goes through Coominya before meeting the Brisbane Valley highway at Esk where a range of accommodation is available. More accommodation is available in Toogoolawah and Harlin. The township of Moore will provide another trail-head with parking and picnic facilities, as will the historic Linville Station. An existing section of the trail climbs from Linville up the Balfour Range to cross the Bicentennial National Trail at Commissioners View outside Benarkin. The trail terminates at Blackbutt, a total of 148 km.

2.4 Future links

It is noted that the original Brisbane Valley Branch Line extended to Yarraman, 12 km past Blackbutt. Possible extension of the rail trail to Yarraman has been raised in public consultation. However, the section from Blackbutt to Yarraman is outside the scope of this plan. Previous work by Rosalie Shire Council has indicated that the corridor is intact (with the exception of bridges) and conversion to a rail trail is worthy of future investigation. It is recommended that this investigation be undertaken with a view to developing the rail trail along the entire Brisbane Valley rail corridor from Wulkuraka to Yarraman.

The Bicentennial National Trail crosses the Rail Trail at Benarkin. Other links with this national trail may be possible further south around Buaraba and Esk, and should also be investigated in the future.

In addition, there is the potential to link the Brisbane Valley Rail Trail to state forest reserves and trails around Jimna, north of Linville. The historic Jimna Fire Tower is a destination of some significance in this locality.

Finally, one of the other regional recreation trails being developed by the state government is to run between Boonah and Ipswich (Boonah–Ipswich Trail, 78 km). It is recommended future investigations be made as to possible links between the rail trail and the Boonah-Ipswich Trail.

Section 3. Rail trails explained

A rail trail is a multi-user recreation trail using a disused rail corridor (public land) for non-motorised outdoor recreation. There are over 30 established rail trails in Australia, the majority of which are in Victoria. South Australia and Western Australia also have formal trails. There is one public rail trail in New South Wales, with further trails under consideration.

In Queensland, the Fernvale–Lowood Rail Trail has been open for a number of years, while the Linville–Blackbutt Rail Trail opened in May 2006. Both of these trails are in South East Queensland, and both will become part of the Brisbane Valley Rail Trail.

3.1 Requirements for successful rail trail development

Rail trails are different from each other, but a number of characteristics distinguish the good ones. The following distinguishing features are drawn from a number of published sources and the consultants' own extensive experience with rail trails.

- Many successful rail trails are accessible from large population centres, both for visitors and as a stimulus for local demand.
- There is existing or easily developed tourism infrastructure in or near townships along the rail trail—places to eat, explore and stay.
- Good rail trails have some heritage infrastructure in place such as historic stations, bridges, tunnels, goods sheds, sidings, platforms, switches, signals and mile posts. Rail trails elsewhere have used their railway history as part of their attraction. Stations in particular can provide a focal point for community activities as well as an interesting attraction for visitors. Remaining major elements of the railway infrastructure (e.g. formations, deep cuttings, high embankments, bridges and culverts) add significantly to the user's experience. Built and social heritage values are a critical part of the rail trail experience not often experienced on other types of recreational trails.
- A common feature is community and adjacent landholders' level of support for the project to move ahead. Many (although not all) adjacent landholders are initially suspicious of rail trails; they often become converts once a trail is opened and effectively managed to minimise the impacts on adjacent land uses.
- A unique experience is often important—be it landscape, trail type or history.
- Many of the good rail trails are of regional or state tourism significance (some have national and international significance). Significance is elevated where extensions are made to connect to services in towns. The best rail trails have natural terminuses in major centres or towns. Intermediate towns easily accessible along the trail are critical when a trail is long, and an added bonus when the trail is short.
- The best rail trails are located in highly scenic surrounds, with views of the surrounding landscapes.
- The best rail trails traverse places of cultural and natural heritage and provide opportunities to view wildlife, woodlands, forests and waterways.
- The good rail trails often provide opportunities for short, medium and long length rides and walks on the main trail.
- Railway corridors can provide a great insight into the history of the region—both European settlement and Aboriginal use. Good interpretation will mark out an excellent trail—this is the next frontier in all trail development. There are many good recreation trails (including rail trails) in Australia—few have good interpretation that adds significantly to the user's experience.
- In a similar vein, trails that emphasise local conditions—e.g. flora, fauna, history and construction materials—are very popular. Good interpretation will bring out this local flavour.
- Well signed and mapped trails—both on the trail and easily available elsewhere—are more successful than those that are not.
- Informed locals make a user's experience more pleasurable.
- The best rail trails offer a challenge, but also offer peace and solitude.
- A well maintained trail and a strong community support network add to the user's experience, primarily because the trail remains in good condition. A community network could include a dedicated management committee, a strong 'friends of the trail' group, or even a full-time trail manager. Various rail trails in Australia feature at least some of these elements.

In addition, all rail trails have a number of positive features that make them stand out from other recreational trails.

- Rail trails are accessible trails for people with different levels of abilities, fitness and equipment.
- Rail trails are free of motor vehicles i.e. safe for all types of trail users. Old rail corridors minimise major road crossings. Trails rarely interrupted by road crossings appeal more than those which constantly cross roads. Where necessary, well designed and marked road crossings enhance safety.
- Railway formations (through cuttings and along embankments) provide a gentle gradient and sweeping bends, suitable for a range of cyclists, walkers and horse riders.

- Rail trails offer increased safety for users compared with urban shared pathways with multiple driveways, light poles, blind corners, poor sightlines, and congestion in peak periods.

3.2 Rail trails in the USA and the UK

The rails-to-trails movement began in the USA in the mid-1960s. Local people came up with the idea to convert abandoned or unused rail corridors into public trails. Once the rail tracks were removed, people naturally walked along the old grades, socialising, exploring, discovering railroad relics, marvelling at the industrial facilities such as bridges, tunnels, abandoned mills, sidings, switches and whatever else they could find. In the snows of winter, the unconventional outdoor enthusiast skied or snowshoed on the corridor. In the days before running and all-terrain bicycles were common, the predominant activity was walking. Of course, none of the corridors were paved or even graded—they were simply abandoned stretches of land.

'Rails-to-trails' is what people called the phenomenon. The name was catchy and descriptive enough to give the concept a tiny niche in the fledgling environmental movement that was gathering momentum. However, it was destined to move into the mainstream of the conservation and environmental movements. After all, it had all the ingredients: recycling, land conservation, wildlife habitat preservation and non-automobile transportation. It also had historical preservation, physical fitness, recreation access for wheelchair users and numerous other benefits.

Today, more than 40 years later, around 100 million users per year travel on over 22 000 kilometres of trail on 1453 rail trails (Rails-to-trails Conservancy website). The longest trail is in Missouri (360 km) while nine other trails are longer than 160 km. All American states have a rail trail network. In Seattle, more than 1200 people a day cycle along the 25 km Burke–Gilman Trail near Lake Washington. In Washington DC, the 72 km Washington and Old Dominion Railroad attract nearly two million users annually, including cyclists, runners, equestrians, people with disabilities, skaters and cross-country skiers.

In the UK, a number of disused rail corridors form part of the Sustrans long trail cycle network across mainland Britain. The Bristol to Bath Rail Trail, one of the first to be developed, now carries over a million visits a year. The High Peak Trail (28 km) and the Tissington Trail (21 km) are two of the best known and most popular routes in the country, offering a superb challenge in the heart of the Peak District. The Camel Trail (26 km) in Cornwall is the most popular recreational ride in the country and is particularly busy in July and August (COBR website).

3.3 Rail trails in Australia

In Australia, conversion of old rail corridors to rail trails is a recent phenomenon, driven by the closure of many railways in the 1980s and 1990s (although rail closures have been occurring continuously since the end of the Second World War).

In its 1995 report, the Ministerial Taskforce on Trails Network (Western Australia) recognised many of the attributes of rail trails, noting:

Disused rail reserves have exceptional potential for recreation and non-motorised transport—they encourage access by all population and user groups due to their gentle gradients and the absence of motor vehicles. Outdoor recreation has many positive attributes including community, physical health, and mental health, economic and social benefits. (1995; 9)

The most notable example of a rail trail in Western Australia is the Railway Reserves Heritage Trail in the Shire of Mundaring, in the hills above Perth, 30 km from the CBD. The rail trail was established primarily for horse riders and walkers some 30 years ago, making it one of the earliest known rail trail conversions in Australia. Subsequent upgrading of the trail surface has made it a true multi-use trail, catering for walkers, mountain bike riders and horse riders.

It is in Victoria that rail trail conversions have proven most popular. The Victorian Trails Strategy 2005–2010 reports that there are currently 463 km of rail trail in Victoria on 18 trails, while the 2nd edition of *Rail trails of Victoria and South Australia* lists 22 rail trails throughout Victoria. Some listed in the guidebook are still under construction, or require signage and/or publicity materials, although they are in use. Since the publication of the guide, more rail trails have been opened and many more are currently in the planning stages.

One of the best known of Victoria's rail trails is the Lilydale to Warburton Rail Trail which is situated 68 km east of Melbourne. This trail caters for all types of bikes, walking, horse riding and wheelchairs (for some segments) due to the outstanding surface material used. The trail passes by wineries, cafes, pubs and restaurants following the Yarra River valley.

The Murray to the Mountains Rail Trail, in northern Victoria, is the most developed of all Victorian rail trails, with a sealed surface for its entire distance (97 km). The trail follows the picturesque Ovens Valley, and has views of Mt Buffalo and a good climb to historic Beechworth.

In South Australia, the Riesling Trail is perhaps the best known rail trail. This trail is located in the Clare Valley, 130 km north-east of Adelaide. The trail passes several wineries and offers spectacular views from numerous points along the trail. The 27 km Riesling Trail allows visitors to experience the Clare Valley from end to end by foot or from the saddle of a bicycle.

The idea for the trail is attributed to local business people (winemakers) who saw the potential for the disused railway line from Riverton to Spalding that ran through their region. While the closure of the railway in the 1980s was regarded as a major loss to the area, the conversion of the former railway corridor into one of Australia's best known trails has benefited local businesses, as well as users. Local people named the trail after the grape that is so celebrated in the Clare Valley. Several wineries are now creating picnic locations along the trail. There are more than 30 bed and breakfast cottages and several hotel/motels and caravan parks close to the rail trail, enabling users to turn a comfortable one-day bicycle ride into several days. The Riesling Trail Management Committee is considering the possibility of extending the trail another 8 km north to Barinia Siding, the 'official' northern end of the Clare Valley.

3.4 Complementary uses of a rail corridor

Such a lengthy linear corridor does lend itself to a range of potential future uses—many of which are not excluded by the possibility of the corridor being converted into a recreation trail.

Former railway corridors are also ideally suited for the placement of utilities, such as wires, cables and pipes. The Western Corridor Recycled Water Pipeline is located under much of the rail corridor between the Warrego Highway and Coominya. The pipeline was laid in 2007 and work will be completed in the first half of 2008. The construction contractor, the Western Pipeline Alliance, has re-created the rail formation along much of the corridor by simulating the original earthworks. This use is complementary to the corridor's use as a rail trail. Energex is locating some major overhead transmission lines along part of the southern section of the trail from Wulkuraka Station to the Warrego Highway; its visual impact is significant but the location of these lines was agreed before trail planning occurred.

3.5 How do rail trails function and operate?

There are differences in the way rail trails function and operate across the country, primarily due to differing legislative regimes.

The next section examines how existing rail trails operate in the three Australian states with an established history of rail trails—Victoria, South Australia and Western Australia.

3.5.1 Victoria

Victoria has led the way in converting disused railway lines into recreation and tourism destinations. Consequently it has the most mature management processes. In Victoria, a rail reserve is gazetted under the Crown Land (Reserves) Act as a public recreation reserve. Gazettal as a public recreation reserve allows for the setting up of a formal committee of management which has vested management responsibilities for the corridor. Where the corridor traverses more than one local government, a special joint committee is required under the legislation.

The Department of Sustainability and Environment is the lead agency for the establishment of Victorian rail trails and supports the delegated managers.

The Victorian Government has set down a uniform process for establishing a rail trail committee of management. It involves an expression of interest period where applicants prepare and submit their applications. The state government, in consultation with relevant local governments, selects members depending on the skill sets required.

Under the Victorian guidelines, the committee of management has representatives of relevant local governments and individual people selected for appointment by the relevant minister. The term of appointment is for three years. The members must be an adult resident or ratepayer within the 'community of interest' of the reserve. The minister is also able to appoint nominees of various interest groups that may use a reserve or have an interest in its proper management.

Murray to the Mountains Rail Trail

One of the most developed rail trails in Victoria, the Murray to the Mountains Rail Trail, provides a good example of how the Victorian Government's rail trail legislative and management regime is put into action. The 97 km trail runs from Wangaratta to Bright through the Ovens Valley.

The trail has a full-time trail manager, the only paid trail manager on an Australian rail trail that the consultants are aware of. The trail development project was driven by the three local governments through which it passes: the Rural City of Wangaratta, Alpine Shire and Indigo Shire.

Management of the trail is in accordance with the Victorian Government guidelines. There is a General Committee of Management which has two representatives of each of the local governments through which it passes, one representative from the Technical Group (a sub-committee), and three representatives from the Advisory Group (a sub-committee). Its roles and responsibilities are:

- day-to-day management and ongoing development of the trail
- preparation and implementation of a business plan
- development and achievement of trail objectives
- financial management
- oversight of the Technical Group and facilitation of active participation of the Advisory Group.

Great Southern Rail Trail

The Great Southern Rail Trail provides a slightly different example of how the legislative and management regime has been implemented. The 53 km trail runs from Leongatha to Foster in the Gippsland region. The trail was entirely community driven. Proponents believe that there was, and continues to be, a need to engage a range of individuals, organisations and governments—this is a lot easier if the project is driven by the community rather than by government. The Committee of Management is made up of community volunteers and has responsibility for protection, maintenance and improvement of the railway lands. With the assistance of the Shire of South Gippsland, the committee designed and managed trail construction and facilities. The committee is responsible for the maintenance, preservation and enhancement of trail and natural vegetation. It receives assistance from the Friends of the Great Southern Rail Trail.

3.5.2 South Australia

South Australia has two significant rail trails—the Riesling Trail and the Coast to the Vines Rail Trail (formerly the Willunga to Marino Rail Trail)—and these are managed differently based on the involvement of the relevant councils. There are some similarities. In both cases, trail management is governed by a partnership between the Office of Recreation and Sport (ORS) (an agency of the South Australian Government) and another organisation. Land on the rail corridors was granted to the Office of Recreation and Sport by other agencies (notably Transport SA) to accommodate the rail trail.

The Riesling Trail

The 27 km Riesling Trail is located in the Clare Valley. It passes several wineries and offers spectacular views from numerous points along the trail.

Trail management is governed by a partnership between ORS and the Riesling Trail Incorporated (RTI), an incorporated association under the *Associations Incorporation Act 1985*. RTI is a community body with an interest in developing and promoting the trail and facilitating management at the local level. ORS has formalised the management roles and responsibilities of the association in overseeing and ongoing development of the trail through a partnership agreement. The Government of South Australia (through ORS) covers legal liability insurances as they relate to the trail.

There is also a partnership agreement between RTI and the Clare and Gilbert Valleys Council. The council will consider funding nominated projects where the trail traverses and interfaces with council roads, and will contract to do maintenance and repair work.

RTI is run by a Management Committee. Membership of the committee comprises representatives from ORS, Clare Valley Tourist Association Inc, Clare Valley Winemakers Inc, Clare and Gilbert Valleys Council, and five community members with experience in areas such as tourism, arts and culture, business and finance. Community membership is invited through public notice and is determined at an annual general meeting.

ORS has a $30 000 per year maintenance budget to cover both the Riesling Trail and the Riverton Trail network to the south. RTI is responsible for organising/overseeing the maintenance (done by their own hands or by contractors) for the Riesling Trail and the Riverton Trail network. RTI has the main role to pursue grants.

The Coast to the Vines Trail

This trail on the outskirts of Adelaide is jointly managed by two councils—the City of Onkaparinga and the City of Marion—in partnership with ORS. It is understood that there are no other special arrangements—the trail is managed as a recreation asset of the councils.

3.5.3 Western Australia

Mundaring Railway Reserves Heritage Trail

This 72 km multi-use trail opened in the mid 1980s. It is managed solely by the Shire of Mundaring as a recreational asset like all its other recreational assets.

Upgrading of the trail is in accordance with the *Railway Reserves Heritage Trail: Trail Development and Operational Plan*. As each section of trail is upgraded, a trail maintenance plan is prepared.

3.5.4 Overview

While legislative regimes differ, the operations of many rail trails across the country are marked by a common set of features. A discussion of successful rail trail development characteristics was included in Section 3.1. Some common characteristics of operation include:

- Most rail trails have incorporated committees of management; many (but not all) of these draw support from 'Friends of' groups.
- Community involvement in positions of 'power', i.e. on a committee of management, is critical to community buy-in.
- In Victoria in particular, all committees follow a template for setting up the organisation and, to a certain extent, pursue the same activities (due to the requirement under legislation and the guidelines).
- All trails predominantly use public land—mostly state government land (as they are on former rail corridors).
- There are no charges to enjoy any rail trails.
- Many offer leasing arrangements to adjoining landholders, as the trail rarely needs the (almost standard) 20 m corridor. This generates income for the trail, keeps the farmers onside and provides some maintenance.
- Most trails open section-by-section (i.e. a staged process) while keeping the big picture in mind. However, there is a need to be conscious of how stages are marketed. The *Spring 2004 RailTrails Australia* newsletter carries an interesting letter on the Ballarat–Skipton Rail Trail from a user. The person compliments the rail trail, but notes that some of the trail is in poor condition, and consequently they used the adjoining road. The user suggests that the rail trail guide should stress that the trail is slow and plenty of time should be allowed. The user suggests that significant work is still required. Promotional material needs to clearly articulate what sections are open and what this means for users.
- All trails make the most of official 'opening ceremonies'—e.g. bridges, trail-heads.

3.6 Rail trail benefits

Rail trails will deliver recreation, social and health benefits to urban users as well as adjacent rural and rural residential communities. They offer high rewards to families, bicycle tourists, mountain bike riders, historical enthusiasts, horse riders and walkers. In selected sections, access can be provided for personal mobility vehicles.

Rail trails provide communities (both residents and visitors) with a diverse, free opportunity to explore and enjoy healthy recreational pursuits. Active recreation, in any form, will improve health. People can use trails in a variety of ways, depending on their abilities and preferences. They yield significant health benefits both to the individual and society. In the USA, a comprehensive health economics study showed every US$1.00 invested in recreational trails for physical activity yielded a direct medical benefit of US$2.94 (Wang et al. 2005).

Through service industry opportunities such as refreshments, meals, accommodation, camping supplies and group transport, the Brisbane Valley Rail Trail has the potential to bring focused economic benefits to the communities 'along the line'. Trails provide a significant economic benefit to communities where they are located. For example:

- The Riesling Trail (a 27 km shared use rail trail in South Australia) injects $1.08 million per year into the Clare region (Market Equity 2004).
- Visiting trail users on the Mundaring (Western Australia) trails network, which includes the Mundaring Railway Reserves Heritage Trail, inject a total of $10.39 million annually into the local economy (Jessop and Bruce 2001).
- The Murray to the Mountains Rail Trail in north-eastern Victoria is one of the better known rail trails in Australia. Recent evaluation done on this trail found that average expenditure was $258 per person per day (Beeton 2006).
- The average expenditure on the Otago Central Rail Trail (an iconic rail trail in the Otago region of New Zealand's South Island) is NZ$92.80 per person per day, with an average length of stay of 3.8 days. Over 200 employment opportunities have been created (Otago Central Rail trail Trust 2005).
- Users of the Bibbulmun Track inject $21 million a year into the Western Australian economy. This is a very good return on an initial one-off $5 million investment for construction by the WA Government (Colmar Brunton 2004).

Trails are a valuable tourism attraction, especially when marketed well. They can help instil a conservation ethic among users, and be a means of educating users about the attributes of an area, especially when good interpretation is a feature of the trail.

The Brisbane Valley Rail Trail will also bring connectivity benefits by virtue of its location. As well as functioning as a safe connecting 'spine' for horse trails along the lower Brisbane Valley, it gives a safe alternative route to the very challenging section of the Bicentennial National Trail through Emu Creek Gorge, south of Benarkin.

Section 4. Landowner issues and solutions

4.1 Introduction

It is important to consider the issues raised by adjoining landowners and other interested and concerned people, and investigate what options are available for resolving these concerns.

Adjacent landowners are traditionally, and understandably, nervous about trails close to their properties. Many landowners resent having things imposed on them, or feeling as if they have no say in what is happening around them. Many landowners are resistant to change of any sort, let alone one they perceive will have detrimental impacts on their lifestyle as well as on their farming operations. It needs to be appreciated that opposition will never completely cease—some people will never be convinced.

Conversely, adjacent landowners who understand and support the reasons behind a trail, and who see that the trail is going to be well organised and efficiently managed, will prove to be extremely valuable partners in years to come. Indeed, some of them will take advantage of the business and social opportunities offered by the trail.

4.2 Issues

The following table (Table 4.1) documents the majority of issues generally raised about rail trails. Many of these have been raised in discussions with landholders and at various community meetings during the last six months. The table also contains some comments and possible solutions, and indicates where these issues are addressed in the document. Necessarily, it is a summary of individual concerns (rather than a detailed list of each landholder's every concern).

Table 4.1 Landowner concerns and possible solutions

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
Impacts on adjoining land owners lifestyles		
Crime—trespassing, vandalism, theft, and other unsocial activities	**Comments** *Crime* • Numerous studies have concluded rail trails do not generate crime. Research and anecdotal evidence suggests conversion of rail trails tends to reduce crime by cleaning up the landscape and attracting people who use the trail for legitimate reasons such as recreation and transport (it is recognised that, on many parts of the corridor at the moment, the crime rate is zero). • The South Australian Riesling Trail has had two incidents along the trail in over 10 years of operation (one of these, a burglary, would have occurred regardless of whether the trail existed at the rear of the property. The other, an incident involving an unrestrained dog attacking stock in an adjoining paddock, is one which can be avoided by trail users following trail rules). • The Linville–Blackbutt Rail Trail (in South East Queensland) had two incidents with trail bike access, but these were dealt with by the local police. • The Rails-to-Trails Conservancy work in the USA includes testimonials from law enforcement officers in a number of jurisdictions confirming expected/perceived crimes simply do not occur. (See sample testimonials in Appendix 2). **Possible solutions** *Crime prevention* • Design solutions to minimise theft include installation of security fencing and planting (see plans and drawings at Appendix 3 for illustrations of elements of good design, and ways of mitigating landowner concerns – both privacy and crime prevention). • Trail design can eliminate overgrown vegetation and tall shrubs which minimises hiding places and creates long sight lines. • Security lighting at trail-heads and parking areas adds security. • Emergency phone boxes and emergency vehicle access helps increase user security. • Keeping trail corridors clean and well maintained increases sense of community ownership and 'passive surveillance' reduces minor crime such as litter, graffiti and vandalism. • Plantings of tree-lined corridors along parts deemed 'vulnerable' by adjoining landowners could also provide a way of reminding trail users to stay on the trail—these provide a form of visual fence. Prohibiting motor vehicle use (by regulation and design) reduces property crime. Volunteer or professional trail patrols ranging from informal monthly clean-ups and maintenance crews to daily patrols. The Murray to the Mountains Trail has a full-time trail manager, part of whose responsibilities include a daily traverse along the trail on a 4-wheel motor bike.	**Design issues are addressed in Sections 6 and 7. At certain locations along the trail, screen revegetation is recommended based on conversations with landowners or inspections looking at the closeness of a house or shed to the corridor. At road crossings, gates are installed to prevent motorised users on the trail, while allowing emergency vehicle access.**

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
Loss of privacy for adjoining landowners— some farming residences and sheds have been constructed in close proximity to the railway corridor. Landowners living near to or alongside the proposed rail trail anticipate that reduction of privacy will occur	**Privacy** • Some effective design solutions are possible, and have been used to good effect on other rail trail projects. • Re-routing the trail off the formation away from the affected residence onto an adjacent road or elsewhere in the rail corridor. • Substantial additional vegetation planting to provide a visual barrier between the trail and the residence. • Installation of screen fencing to obscure views of houses from the trail.	**Design issues are addressed in Sections 6 and 7. At certain locations along the trail, screen revegetation is recommended based on conversations with landowners or inspections looking at the closeness of a house or shed to the corridor. In some cases fences and mounds have been recommended or installed. Developing the trail on one side of the corridor is recommended in a number of places.**
Impacts on farming practices For much of its length, the former railway corridor traverses agricultural land. Some adjoining farmers have a lease that allows them to use the railway corridor. Some farmers move stock from one side of the railway corridor to the other—from one paddock to another paddock.		
Chemical applications— farmers are often concerned that weed spray will drift across the trail (particularly given they spray on days that are slightly windy) affecting users who may later take civil action. Concerns about delays to spraying timetables as a result of trail users, although this issue is yet to be raised in the Brisbane Valley	**Comments** • Farmers have the same obligations as any other chemical user in preventing drift and potentially causing damage to adjacent land. • For other trails, this has not been an issue. On the Lilydale–Warburton Rail Trail, grapes and flower growers are in very close proximity to the trail—they are in fact tenants renting rail trail land. Spray drift has not been an issue of concern. The same applies to the Riesling Trail (again, most adjoining land owners are grape growers). **Possible solutions** • It is anticipated that heavy use of the trail in the 'agricultural sections' of a trail would primarily be confined to weekends. Spraying 'rosters' agreed to between farmers and the trail manager could manage spraying and confine it, as much as possible, to weekdays. It is acknowledged that this is not always possible due to nature of ownership, the lack of on-site presence of farm owner/manager (a significant issue in the Brisbane Valley), and climatic factors; it is one solution. • Notifications on trail literature (permanent and temporary—such as websites) can spell out issues about spraying and indicate to users what they are likely to encounter at any time on the trail. • It is understood that chemicals used in spraying are not of such toxicity that incidental exposure for short periods on a one-off or irregular basis (the likelihood of exposure of trail users) will cause any long-term health effects.	**This has not emerged as a critical issue in the corridor. The solutions may still be appropriate as the trail develops.**

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
The threat of fires starting on the railway corridor is often a concern expressed. Increased public access (including smokers) is seen as leading to increased risk.	**Comments** • Some fences have been erected across the publicly-owned sections of the corridor, providing a barrier to the movement of any emergency vehicles, such as fire trucks, which might need to access the corridor. • The closure of bridges along the corridor provides another major obstacle to the passage of emergency vehicles. **Possible solutions** • Development of an effective fire management plan in close consultation with Queensland Fire and Rescue Service. • Trail closure during periods of fire bans—as occurs on other tracks in high fire areas. The Hume and Hovell Track (in southern NSW) is one example of the use of specific closures. • Smoking on the trail prohibited. • Bridges with missing decks can be rebuilt, enabling all trail users (and emergency vehicles) access. • The development of the trail will in most cases require the removal of fences which have been put across the railway corridor. Their removal will result in unimpeded access along the corridor for emergency vehicles. • The management of grasses along the corridor (contributing to fire risk) is one which would be overseen by the trail manager. The choices will be to continue to allow grazing by cattle where appropriate, to slash the grasses at regular intervals, or to spray when and where appropriate. • Generally, the development of the rail trail will create a situation in which fire services will be better able to deal with any emergency situations which arise along the railway corridor. All emergency services will have access to all padlocks on all gates along the rail trail and locks should be keyed alike.	**The trail management plan at section 10 discusses grazing options for weed control and makes recommendations. A Property Management Plan (which will be prepared separately) will address further fire management issues.**
Weeds—there are weeds on the corridor at present—who will remove them and who will keep them under control? Will they be moved (unwittingly) by trail users?	**Comment** • The corridor is a mix of grazed and sprayed sections and overgrown weed-infested sections. **Possible solutions** • The management of grasses along the corridor is one which would be overseen by the trail manager. The choices will be to continue to allow grazing and cattle where appropriate, to slash the grasses at regular intervals or to spray when and where appropriate. • Parts of the corridors could be leased to adjoining landholders to allow grazing. • Grazing on trails (or sections of trail) could be allowed at regular intervals (overnight—controlled with electric fences, some weekdays when activity is quiet, some times of the year—either during low levels of activity or high growth periods). • Preparation of a regularly reviewed trail management plan covering all maintenance issues prepared in advance of construction. • The focus of maintenance work should be on erosion, vegetation regrowth, weed control and signage damage. • Division of maintenance into regular inspections and simple repairs and once or twice yearly programs undertaking larger jobs such as vegetation control.	**Section 10 discusses grazing options for weed control including options allowing farmers to lease areas of the corridor to facilitate weed control.**

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
Loss of access to grazing paddocks—adjoining landholders use the corridor to move cattle between one paddock and another and along the corridor between paddocks. A trail may interfere with this process, and there is also concern about gates being left open by trail users	**Possible solutions** 2 Use of old style railway gates that can be closed on either the rail corridor (to allow livestock to be moved across the corridor) or on the paddocks when the livestock are in one or other paddocks. This also reduces the human/cattle interaction. Self-closing gates on the trail are another option. 3 Construction of fences (if desired by the landowner). 4 There may be other farming practices, such as use of the railway embankment as an access driveway, and tracks for tractor movements, which could continue unhindered by the development of the proposed rail trail. 5 The overall width needed for the trail will be in the order of 10 m. 5–10 m either side of the original formation (containing the railway embankment and/or cuttings) could be regarded as 'surplus to requirements'. It may be possible for the 'spare' metres either side of the rail trail corridor to be re-fenced and be leased to the adjoining landowners—for grazing or machinery turn-around. An annual fee could be directed into trail maintenance activities. The land leased to the adjoining landowners would then be managed together with the rest of the farm.	**The trail management plan at Section 10 discusses options allowing farmers to lease areas of the corridor. A feedback form sought information from landholders specifically identifying that they are interested in this option and a number indicated they were. There was discussion about gating and fencing options between the consultant and the landholder. In specific locations, recommendations are made about farmers "sharing" the corridor.**
Interactions between nervous livestock and trail users including dogs—some farmers whose properties adjoin the corridor are concerned at interactions between children and adults and livestock, and between unrestrained dogs and livestock, causing difficulties for the farmers' livestock	**Comments** 6 It is well recognised that people walking dogs is a pastime with considerable physical and mental health benefits. **Possible solutions** • On other trails, dogs are usually banned altogether, or trail users are required by regulation to keep their dogs on a lead at all times. • Ongoing monitoring of dog walking use should occur. • With respect to interaction between people and livestock, appropriate information should discourage people from going off the trails onto farm property and thus placing themselves in close proximity to livestock.	**The trail management plan at Section 10 recommends that dogs be allowed on leads along the trail but if unacceptable conflict arises, consideration be given to limiting dogs to town/village sections only and banning them along the more remote sections of the rail trail.**
Threat to biosecurity—the issue of biosecurity is sometimes raised, notably the issue of quarantine zones and the movement of people through these zones, potentially limiting a farmer's ability to manage their property to address these issues (this has not been specifically raised in the Brisbane Valley)	**Comment** • A similar issue was raised on work done for the Goulburn River Rail Trail in Victoria and the Riverina Highlands Rail Trail. Advice from the Department of Primary Industries (Victoria) was that a trail should not jeopardise the landowner's ability to manage their farms to meet certain conditions. A rail trail would be considered in the same way as any public thoroughfare would be. Farmers have no control over who uses and what is done on adjoining roads so they have no knowledge unless they are notified. Trail users are no different to road users in that people may trespass onto private land but most are unlikely to cause significant damage, unless there is some malicious intent. Cars and particularly tractors moving at high speed would disperse more dirt from roads and tracks than collective effort of numerous bikes.	**No design solutions or management solutions appropriate.**

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
Impact of trail users		
Management of litter and toilet waste	**Comment** • Some landowners whose properties adjoin former railway corridors expect high levels of litter. • It has not been a problem elsewhere. The Lilydale to Warburton Rail Trail (Victoria) is kept spotless, with little or no visible signs of litter. The Gippsland Plains Rail Trail was involved with Clean Up Australia Day, but their involvement was curtailed because they effectively had nothing to do. The Clare Valley Riesling Trail (South Australia) is also litter free. **Possible solutions** • Thoughtful placement of rubbish bins at trail-heads and between stops on the trail. • Regular maintenance patrols by council staff or volunteers, or the trail manager. • While installation of composting toilets is one appropriate solution, these are costly and are generally recommended only where there are long stretches between towns. The accepted distance between toilets is 25–30 km (recognising that rail trails are used mostly by cyclists). As there is not this distance between any towns on any of the corridors and the towns located along all the corridors already have public toilets, there is no need to install trail-side toilets.	**Trail-head design is discussed specifically in Section 6 and trail-head designs for each trail-head are included at Appendix 4.** **Regular maintenance patrols are discussed in the trail maintenance strategy at section 13.**
Farm safety—landholders are sometimes concerned that farms are unsafe work places and people are being invited into such unsafe workplaces	**Possible solutions** • Good design and appropriate information (as discussed above) will discourage people from going off the trails onto farm property and thus placing themselves in dangerous work environments or in close proximity to unpredictable livestock. • Particular attention to the trail design issues around sites where agricultural buildings are close to the rail trail (some of these solutions are discussed above in the section on crime prevention).	**At least one location on the trail has farm buildings in very close proximity to the trail. Fencing and gating for this location are discussed in the trail development plan at section 6.**
Trail management issues		
Liability—who is liable for the safety of users both on-trail and when they stray off-trail (also related to issues with chemical spraying liabilities)?	**Comment** • In recent years, public liability has become a major issue right across the community. Trails are not immune from concerns related to liability, or from the resulting issues. Indeed, liability—who is liable and who will pay—is often raised as a potential 'problem' with rail trail projects. **Possible solutions** 13 Primary project partners must take responsibility and ensure that their role is clear and unambiguous. 14 Management body takes liability responsibility along the full length of the trail regardless of ownership. Farmers do not carry any additional liability. 16 Effective signposting at trail-heads and access points indicating trail regulations and trail use rules and user responsibilities. 17 Courts are increasingly ruling that people are responsible for their own actions, marking a different emphasis to that which occurred in the late 1990s/early 2000s when managing authorities were held responsible for inappropriate behaviour.	**The management body takes liability responsibility along the full length of the trail regardless of ownership.**

Impact/issue/problem	Solutions successfully used elsewhere/comments from experience elsewhere	Place issue is addressed in plan
Unauthorised trail users— unauthorised access to the trail and adjoining private property by motor bikes in particular was stated as one the major concerns of adjoining landowners (it is also a concern of potential trail users)	**Possible solutions** • Prohibit motor vehicle and motor bike use through motor vehicle exclusion barriers and effective signage at each road crossing. On the Lilydale to Warburton Rail Trail, as with other rail trails in Victoria, a standard gate configuration has been designed for use at all road crossings and trail-heads. The design allows unimpeded access by walkers, cyclists, people in wheelchairs, etc. The design is such that motor bikes cannot squeeze past the gate posts of the narrow maze. Access by authorised vehicles, such as management vehicles, adjoining landowners (where needed) and emergency vehicles is gained through an adjoining (locked) gate. • Installation of these gates and fences at all road crossings is recommended as they will effectively prevent access to the trail by unwanted and unwelcome people who may be intent on vandalism, theft, etc. • Encourage reporting of vehicle/bike registration numbers of illegal users. Experience on the Murray to the Mountains trail was that motor bikes tended to use the same sections at the same time—enforcement was therefore relatively easy.	**Design issues are addressed in Section 6. The Moore–Linville section of the trail tested one system of gates to limit access. The works list draws on the experiences of this and other trails in reaching recommendations (See section 7).**
Ongoing maintenance costs—who is responsible, who will pay, what effect will it have on rates?	**Comment** • There were concerns about the capacity of councils to maintain the trail, about who would undertake some of the maintenance work on the corridor now undertaken by adjoining landholders (who would not continue to do so if the trail was built), and a history of non-maintenance of other trails in the region. **Possible solutions** • Preparation of a regularly reviewed trail management plan covering all maintenance issues prepared in advance of construction is critical. • Proper design and construction will minimise ongoing maintenance costs. • Focus of maintenance—erosion, vegetation regrowth, weed control and signage damage. • A clear definition of who is responsible for what. • Division of maintenance into regular inspections and simple repairs and once or twice yearly programs undertaking larger jobs such as signage repairs, culvert cleaning or vegetation control. • Hazard inspection program (to limit liability and to define maintenance activities).	**Trail management and maintenance is addressed in the plan (sections 10 and 13).**
Responsibility for policing the trail	**Possible solutions** • Volunteer or professional trail patrols ranging from informal monthly clean-ups and maintenance crews to daily patrols. • Preparation of a regularly reviewed trail management plan contains a clear definition of who is responsible for what. • Police and/or council ranger patrols (including on bikes); or by trail manager on regular patrols.	**Policing of the trail is discussed in the trail management section 10.**
Road crossings—particularly interactions between heavy vehicles and trail users	**Possible solutions** • Good design of crossing allowing good sight lines and movements of people en masse (to avoid one at a time crossing). • Good signage on both road and trail. • Road crossing details to conform with Australian Traffic Engineering standards (*Guide to traffic engineering practice — Pt 14 – Bicycles - Austroads*) • Notifications on trail literature (permanent and temporary – such as web sites) can spell out issues about heavy vehicle movements and indicate to users what they are likely to encounter at various times of the year at road crossings and the need to be more vigilant at those times.	**Design issues are addressed in Section 6. The Moore–Linville section of the trail is testing one system of road crossings (noting these are relatively minor roads). The works list draws on the experiences of this and other trails in reaching recommendations (see section 7).**

Section 5. Consultation

Consultation with local communities is extremely important in building understanding, support and use—all vital elements in the successful delivery of recreation trails.

5.1 Preliminary consultations

In 2007, a number of preliminary consultation and community engagement activities were organised by the Department of Infrastructure and Planning (DIP). These activities included:

- preliminary meetings with affected landowners at Wanora, facilitated by the local member of parliament
- community meetings at Fernvale and Moore, where a number of issues were raised by attendees.
- detailed consultation on the interpretation plan. Signage relevant to the various sections of the line was developed and offered to a community workshop in October 2007, and then to members of Brisbane Valley Heritage Trails who served as focal groups for the signage as it was developed. Thirty eight signs with stories from Wulkuraka to Blackbutt were prepared.
- the official opening of the Moore–Linville section of the rail trail in November 2007, which allowed community members to ride and walk the facility and get a sense of how the entire trail could/should be developed
- meetings between both the consultant and representatives of DIP and concerned individual landholders along the trail as the draft plan was being prepared and during public consultation. Landholders had particular issues or problems they wanted to discuss—consequently, changes (notably to the works lists) were made to the final plan
- meetings between both the consultant and representatives of DIP and representatives of the Western Pipeline Alliance as it finalised work along the corridor from Pine Mountain to Coominya.

5.2 Consultation on the draft plan

The draft plan was placed on public display from December 2007 to February 2008, including:

- the draft plan being publicly available on the DIP website at www.infrastructure.qld.gov.au
- hard copies of the draft plan being available for viewing at the following locations
  - electoral office of Wayne Wendt MP, Member for Ipswich West, Brassall Shopping Centre
  - Office of Ipswich City Councillor Cheryl Bromage, Brassall Shopping Centre
  - Fernvale Futures Complex, Fernvale
  - Esk Visitor Information Centre, Esk
  - Nanango Council Office, Blackbutt.

The draft Interpretation Plan (prepared by the Brisbane Valley Heritage Trails Association) was also placed on public display on the association's website.

In addition to the general public and the communities of the Brisbane Valley, state agencies and the relevant local councils were also invited to make submissions on the draft plan.

As a result, a number of submissions were received, providing generally positive feedback and extra information. No formal submissions were received on the Interpretation Plan. Table 5.1 provides a summary of these comments and the consultant's responses. The responses have provided input to the final plan.

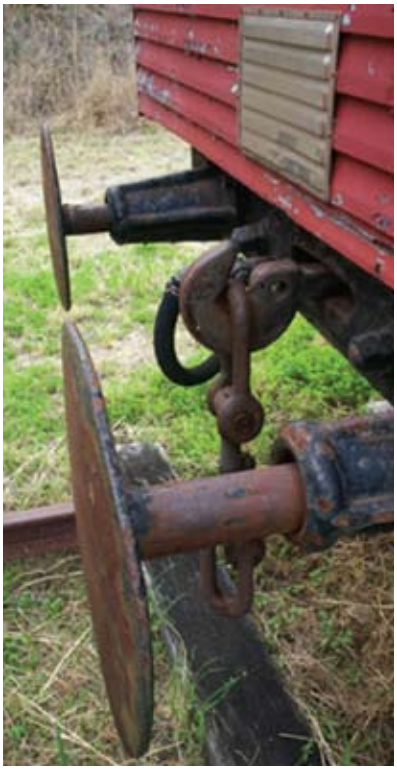


Table 5.1 Key points of submissions

#	Comment	Consultant's response
	General comments	
1	Informative well written draft plan.	Noted.
2	The proposed trail will enhance the tourism assets in the Brisbane Valley and has the potential to boost expenditure in communities along the trail.	Agreed.
3	Support for the plan's aim to construct the trail to a high standard, which will be necessary to attract visitors from interstate and even from the paved suburbs of Brisbane.	Noted.
4	Trail status—much of the steel track and many of the bridges have been removed, and the steel track will continue to be removed over the next six months. Leaving some rail in place would have complemented the project. Community meetings have indicated that the community want to keep as much of the infrastructure as possible. Keeping the rails in specific places—e.g. when the trail goes through an embankment—would have satisfied the community needs in this regard.	Noted and agreed. Unfortunately the contract to remove the rail was signed prior to planning work commencing for the rail trail. Despite this, DIP has negotiated for the track to be retained on existing bridges and has also purchased 2000 m of track for use on the trail.
5	Even though the former railway section from Blackbutt–Yarraman was not in the South East Queensland Trails Strategy, a future extension of the rail trail on to the former railway terminus at Yarraman should be kept in mind (raised by two submissions). One submission noted that Yarraman is the terminus of the branch line, and it is close to the Bunya Mountains, an important tourist destination.	Noted. Some preliminary investigations of possible funding of this proposal were undertaken. It was also recommended as a priority project in the Rosalie Shire Council's Trails Master Plan. At this stage, this section is outside the parameters of this project. However, further investigations may be made in the future.
6	The plan states that the Queensland Government has a five-year commitment to the rail trail, however it doesn't mention the government creating opportunities from the trail. Commercial users of the trail should be charged and the government will need to determine how this should be managed.	Noted. The plan states that in line with current government policies, no policies or actions are recommended at this stage regarding fees for commercial use of the Brisbane Valley Rail Trail. It is understood that other rail trails in Australia are free to access for all. It is recommended that all income streams for supporting the trail on an ongoing basis should be explored.
7	Complementary uses of a rail corridor. There is mention of major Energex overhead transmission lines located on the trail and that this is a suitable co-use. The report states in 16.4.10 that 'provided that co-use does not disturb the natural, scenic and historical qualities of the trail'. There is an argument that major overhead transmission lines and towers would destroy the 'natural and scenic' qualities of the trail.	Noted and agreed. The visual impact of the lines and towers is significant, but the location of these was agreed before trail planning occurred. Subsequent location of such infrastructure would need careful assessment so as not to detract from scenic amenity. The final plan has been amended to better reflect the existing situation.
	Landowner issues	
8	There were concerns about the capacity of councils to maintain the trail, about who would undertake some of the maintenance work on the corridor now undertaken by adjoining landholders. Using the significant washout problems with the Moore–Linville section as an example, how are those issues going to be rectified post the five-year government-funded mark? Are councils going to bear that kind of expense? Can funding be made available through the South East Queensland Outdoor Recreation Strategy?	All funding options will be explored over the next five years. It was not part of this study to explore subsequent funding.
9	Privacy of adjoining landholders protected from access and entry.	Trail design covered these issues and recommended works accordingly.
	Design issues	
10	The Blackbutt–Linville section has a very rough and uneven surface. Most users of this section have commented on the fact that blue metal used in the construction of the railway line has been left in place and this makes for a very rough trip.	Noted. Works on this section included in the final plan include trail surfacing works.

#	Comment	Consultant's response
11	The Moore–Linville section of the rail trail is 'trialling' different design solutions and these will be evaluated before decisions are made on design solutions for the remainder of the trail. Is there a mechanism to report on these 'solutions'? It has been noted that there is significant erosion of the trail from recent rains. If this is the design to be used, then significant wash-outs will be the norm (the trail surface in this section was raised by a number of submissions).	Esk Council and users are providing feedback on this issue. On surfacing, changes have been made to the Moore–Linville section where wash-outs have occurred (notably sealing the entry and exit points from major gullies). On other sections of the trail, the retention of bridges will reduce the incidence of wash-outs.
12	The decision to deviate the first part of the trail from original corridor is misguided. The trail grades are unacceptable and will increase the maintenance costs unless the surface is sealed with either concrete or bitumen at considerable cost and will detract from the experience. The trail-head can still be located in Moore along with all the facilities that are provided; however, it would not be difficult to move almost immediately from the park to the old corridor. Given the comments made on the RailTrails Australia Forum website, it would appear that the deviation is not popular with the initial users and likely to remain so. The deviation should be reviewed and relocated on the route of the original corridor.	Noted. The deviation was constructed for a range of reasons—notably ease of access, safety concerns with a road crossing on the original rail formation (limited sight lines) and the availability of an alternative. While the comment is valid, it is worth noting that this stretch is around 3 km long—a significant stretch in a 7 km rail trail, but a very minor proportion of the trail when finished (some 148 km). Further work is occurring to fix up the problems with this section. The lesson has been learned—stick to the old rail corridor wherever possible.
13	Asphalt surfaces do have a place on rail trails, particularly around higher use areas. While the initial cost is certainly higher, ongoing maintenance of the surface and weeds is reduced. We regularly hear from people that one of the main reasons they return to the 100 km Murray to Mountains Rail Trail is because of the sealed surface.	Noted. The most southern section is recommended for sealing (Wulkuraka to Muirlea) subject to available resources. Initial costs and user experience mean asphalt sealing is not a realistic option for the remainder.
14	The drawings in the appendix indicate that there will be Give way signs on the approach of the trail to the road crossing only. There should be a holistic approach to signage in reference to vehicles approaching the crossings also.	Minor road crossings are crossings where vehicle movement is irregular and infrequent (and often low speed). It is an unnecessary expense to place warning signs on minor road crossings for motorists. Major road crossings, on the other hand, do require signage for both trail users and motorists, as the risk of incident is much higher. Other rail trails have a variety of approaches.
15	Access gate at road crossings should use the Rural Addressing methodology for identification for emergency vehicles.	Discussions with the Queensland Ambulance Service in particular indicate that road crossings can be identified by GPS coordinates as all vehicles carry GPS systems. This has been adopted. This matter will be further pursued as the trail develops.
16	We strongly support the plan's recommendations to refurbish and use the existing bridges that remain. Having ridden the Moore to Blackbutt section of the rail trail, a major detraction from the experience is the low level crossings to deviate around removed bridges. Particularly on the Linville–Benarkin section, they make the trail inaccessible to quite a section of the community due to the steepness of the approaches.	Agreed. Works have been recommended for the Linville–Benarkin section to reduce slopes.
17	While reinstating bridges would be ideal, we realise the enormous cost involved and the reality that low level crossings will be required in some locations. We do not think the low level creek crossings trialled on the Moore–Linville section are sufficient. At a minimum, we believe the steep approaches need to be sealed to provide a safe descent/ ascent for cyclists, and culverts should be placed in the creek beds.	Agreed. Changes have been made to the Moore–Linville section—sealing the entry and exit points from the major gullies.

#	Comment	Consultant's response
18	Where the original bridges have been removed and the trail crosses a gully, it can detract from the trail experience. There should be a program to progressively replace the bridges with trail-type bridges. In some instances, the bridge abutments are still in place and they may be able to be used for the new structure. Given that the abutments were designed for the rail loads, engine and rolling stock etc., the loads imposed by essentially pedestrian traffic would be several orders of magnitude lower and therefore the structural integrity is not such an issue. Obviously there will be some structural checks to be made for general safety. In the meantime, any gully crossings where there are no bridges should be made as easy as possibly to replicate the original rail grades. In some instances, there may be alternatives to bridges, such as culverts, provided the hydraulic characteristics of the gully are preserved.	The report recommends that, where remaining bridges are structurally sound, they should be re-used as this is a reasonable option and provides a good experience. A structural assessment of each bridge needs to be carried out before they are used. Regardless of their condition, existing bridges should not be removed (even if not used). Along sections where there are no bridges (much of Wulkuraka Station to Coominya has no bridges), recommendations have been made to either build 'hard' crossings (similar to those constructed on the Moore–Linville section—noting additional works as discussed above) or replacement bridges.
19	Advise against the chained gates that have been used in the Moore–Linville section. These gates are okay if used occasionally, but are likely to annoy cyclists if they need to stop frequently to unlatch and relatch them. We were also concerned about the proximity of the hooks on these gates to the barbed wire fences. If gates are required, we recommend spring closures or a simpler latching mechanism.	Noted. Self-closing gates are a better option and should be used along the remainder of the trail. With regards to the barbed wire, where fencing is necessary for stock, barbed wire will need to be used (but the location of gate hooks carefully planned). Where stock is not an issue (such as immediately south of Linville), plain wire is recommended for use.
20	Need to place barriers at all access points to prevent access by vehicles and motor bikes and upgrade fencing to prevent access.	Recommended works include access barriers. Some fencing improvements have been recommended to prevent access.
21	Submission included drawings and photos from Otago Central Rail Trail for exclusion gates.	Noted.
22	The crossing (or underpass) of the Brisbane Valley Highway near Lloyds Road, shown on Plan 4, involves quite a long detour. This has obviously been done for the safety of trail users, but we wonder if trail users, particularly walkers, will use it after they realise a 1.5 km detour is necessary to cross the highway.	Agreed. Due to both likely user desire and high cost, this detour has been removed. Trail users would cross the highway in an almost direct line along the rail trail (although there is a slight deviation to the south). It is recommended that horses be banned from this section, thus maintaining consistency with the other section containing high-speed highway crossings (between Harlin and Moore).
23	Do architectural-grade etched anodised aluminium panels cause light reflection issues?	There have been no issues of this nature with this type of signage—it is the best signage for interpretive panels for a number of reasons detailed in the report.
24	Could include simple shelter sheds (seat, sign board and roof) at interpretive sign locations.	Noted. This can be a costly addition and is not included as a general rule at this stage. Some shelters have been recommended at key locations.
25	Signs should be informative and consider multicultural society.	Agreed.
26	Develop a website similar to Otago Central Rail Trail (NZ) and have a link on every bicycle website in the world.	Noted.
27	Otago Central Rail Trail (NZ) has concrete and steel donation boxes along the way.	An interesting idea—all funding options will be explored over the next five years.
28	Make the rail trail fully treed on both sides to create a wildlife corridor (also suggested vegetation planting at a particular site).	Revegetating the entire corridor would be an expensive exercise and may detract from the overall experience (the railway corridor would have been originally cleared). Revegetation at strategic locations would be a better option and is a matter for the property management plan.
	Implementation	

#	Comment	Consultant's response
29	The planned timing schedule seems well thought out and should be achievable.	Agreed.
30	Keen to see the trail finished so person can use it. Suggest use of Borallon prison crews to do some work, particularly on the bridges.	Minimum security prison crews have been used successfully on trails elsewhere in Australia, including the fabrication of structures in prison workshops. The Mannus prison in Tumbarumba recently signed an agreement with Tumbarumba Shire Council to provide labour for maintenance activities for five years on the proposed Riverina Highlands Rail Trail. This could be considered here.
31	The staging of the reconstruction appears to be haphazard in that the trail is mostly discontinuous until the last sections are completed. The staging of sections should be undertaken in such a manner that the trail is as continuous as possible. For instance, the next sections to be opened should be southwards from Fernvale, northwards from Lowood and southwards from Moore and progressively closing the gaps. In this way, users will gain maximum benefit from riding the trail without having to break their trip by either travelling on routes other than the Brisbane Valley Rail Trail or transporting themselves to the next section. The staging program should be revised accordingly.	Decisions on trail staging have been made for a number of reasons, one of which is enabling connectivity. Issues of facilities, attractiveness, likely user numbers and sources also apply. The final plan recommends an amended staging schedule.
32	While not in the scope of the draft plan, we do have concerns that the amount of funding committed, while substantial, may not be sufficient to complete the plan, given the scale of the task. Consideration could be given to seeking additional funding from federal bodies.	Agreed. Other funding partners should be sought as this will be a local, state and national resource.
33	Encourage the undertaking of a cultural heritage assessment of the corridor as there are many places of cultural heritage significance in the Brisbane Valley.	Noted.
	Management issues	
34	The cart before the horse syndrome appears to be place—i.e. there does not appear to be any clear direction on what legislation, regulation or agency the rail trail is to be managed under, even though there are a number of management models mentioned. It would be considered more appropriate for this detail to be finalised prior to expending any further funds on the rail trail to ensure that management issues are dealt with correctly and efficiently under tailored legislation.	The brief for the project requested consideration of models rather than a determination. The final plan makes some limited recommendations; this is a matter for DIP to deal with and progress within government.
35	There appear to be excessive duties, responsibility and accountability placed on one trail manager. Maybe the allocation of a trail manager for the length of the rail trail within each shire council boundary to disperse the load and help to ensure better maintenance/management should be considered.	Noted. Other long rail trails in Australia (such as the Murray to the Mountains Rail Trail) are managed by one agency (in the case of the Murray to the Mountains, it is on behalf of three councils).
36	One of the most important roles of the trail manager is promotion of the rail trail, both locally and at major events around the country.	Agreed. Plan amended accordingly.
37	In the principles of management, consistency and uniformity of signage and adherence to recognised standards is mentioned. What are these accepted standards, which ones will be complied with?	This is a design issue and signage is discussed at length. The critical signage is at road crossings and other warning signage. Australian Standards apply.
38	In the principles of management, it is mentioned that the trail will be regularly policed by trail manager or ranger. It would be useful to clarify under what authority/legislative power this will occur.	This level of detail is not appropriate for the plan as it stands. These matters will be resolved once the over-arching management structure is resolved.

#	Comment	Consultant's response
39	Short-term and medium- to long-term management arrangements—the Department of Local Government, Sport and Recreation is not mentioned within any of these management models. The agency is the recognised government lead agency on outdoor recreation policy and should be included within each of these possible management models.	The plan makes no recommendations for which body should be involved in any management arrangements beyond the affected councils and the state government. Once the management model is determined, the state government will work out its nominees.
40	The report recommends that dog waste is collected and disposed of by the dog handlers. However, horse manure is likely to cause more of an issue on a multi-use trail. This should also be expected to be collected and disposed of. It would be extremely hard to justify the enforcement of one and not the other.	There are many differences between dog and horse manure, mainly due to differences between a carnivore and a herbivore. These include the capacity to harbour harmful bacteria and diseases, biodegradability and assimilation in the environment. Other rail trails do not enforce the removal of horse manure. This issue will be monitored.
41	Central Otago Rail Trail prohibits dogs except for one section.	Noted. Different rail trails have different approaches.
42	Dogs on leash cannot be policed and will cause problems with stock and entry to private residences.	Noted. The approach of dogs on leads should be trialled to determine whether there are problems.
43	Dogs would not be allowed on connecting trains and buses.	Noted.
44	The report discusses exclusion of horses from the Harlin to Moore section due to the difficulties in providing safe road crossings. The trail will be most attractive to users if it can accommodate the greatest numbers of user groups. Excluding certain users for reasons of road crossings sends the wrong signals to that user group.	It is agreed that the trail should be open to all users as far as practicable and according to available resources. However, there is a significant safety issue for the trail manager with horses crossing high-speed major roads. The recommended exclusion is a prudent approach to risk management. Only two relatively short sections would be closed to horses. Over 100 km of trail would be available for horse riders.
45	Very dangerous for horses and riders on high bridges.	Trail literature is to include notification of bridge heights. Horse riders would make their own judgment based on this information.
46	Horses should be made to go down into gullies at bridges.	This would create either an erosion problem or a construction expense. The Lillydale–Warburton Rail Trail (Victoria) allows horses across all bridges.
47	Horses should be kept to the left of ballast area on soft ground.	If demand on the trail (and/or trail damage) warrants the development of a separate earthen horse trail off the main trail, this should be considered. The Lillydale–Warburton Rail Trail allows horses on the main trail surface (a crushed stone surface)—this is proposed here as the first step in trail development.
48	Riders are to dismount and walk their horses when crossing bridges and roads and where the trail goes under bridges. Can the requirements for horse riders when using/not using bridges please be clarified?	Trail literature and signage should request horse riders (and cyclists in some instances) to dismount on bridge approaches (and some gully crossings). This will be a request rather than a direction.
49	It is recommended that camping is not to be permitted on the rail trail. The original release said that there would be camp grounds. Is this practical? Major projects of this nature have camping grounds along them. Users will camp on private property if camping grounds are not provided. The model for this should be the Queensland Great Walks Project where fully constructed campsites are located along the trail. There is mention of use by cyclists and reference to the distance that they can travel in a day; pedestrian traffic is very unlikely to cover the same distances and consideration of the need for camping facilities should be reviewed in light of this.	Developing camping facilities along the way is a high cost and creates a significant ongoing maintenance issue. It is considered that the distances between towns/villages with accommodation facilities is reasonable for all users, although it is admitted that some sections will be a long day-walk. Rail trails elsewhere in Australia have not provided specific on-trail camping facilities, relying on private interests to do so in nearby locations. It may be that individuals will see a business opportunity and develop private camping facilities between towns/villages.
50	There is mention of the trail manager having a range of duties associated with grazing licences. It would be useful to clarify under what authority/legislative power this is intended to be done.	This level of detail is not appropriate for the plan as it stands. These matters will be resolved once the over-arching management structure is resolved. Until long-term management arrangements are finalised, DIP can manage licences and permits under the terms of its sublease.

#	Comment	Consultant's response
51	The report suggests that other rail trails have experimented with night closures of certain sections to allow stock from adjoining properties to graze the corridor. No other rail trail in Australia closes at night. This would be a major administrative challenge to implement. It would also pose safety issues for users.	The Lillydale–Warburton Rail Trail trialled night closures for some sections allowing stock onto the trail. The trial was not successful and night closures were stopped. It is agreed this would be difficult and therefore is not recommended.
52	The report expresses concerns that trail bikes in particular may gain access to farmland and property. This is relevant to all rail trail users, not just trail bike riders. Horses are a lot larger than a trail bike and rider, trail bike riders will still be able to access the length of the trail even with the intended chicanes in place. The chicanes will not be a barrier to illegal trail bike riders.	The chicanes recommended in the plan have been used successfully elsewhere on rail trails to deter trail bikes; use of the trail will also act as a deterrent. In addition, feedback from horse riders indicates that there are difficulties getting horses through the chicane at Moore. Consequently, it is recommended chicanes will be reduced in dimension (making it even more difficult for motor bikes) and cavaletti gates will be installed alongside chicanes to allow horse riders access.
53	Annual fees on the corridor for utilities should be investigated as a potential funding source.	Agreed. This will be a task for the trail manager.
54	On-trail advertising Do individual businesses need to be mentioned as opposed to just the fact that refreshments can be purchased in Linville (for example)? Are the plan and the trail going to direct users towards particular businesses under a contractual arrangement? Will there be restrictions on the type of advertising which may occur, i.e. inappropriate goods or services such as fast food chains?	Signage at trail-heads provided by the trail manager should be generic and point to the attractions of settlement—e.g. cafes, accommodation. The issue here is the provision of on-trail advertising similar to roadside advertising—it can be a source of revenue, and guidelines can manage its impacts as they do on roads. As for the appropriateness of advertising, this is a matter for the trail manager. However, there appears to be no legitimate or logical reason why products that are legally available and can legally advertise could not advertise on the rail trail as they would advertise elsewhere. It is noted that the state government (and some of its departments) have policies regarding appropriate advertising on government infrastructure. This will no doubt be considered by the trail manager.
55	Establish an emergency response group to develop an emergency response plan with representatives from emergency services.	Noted. This is appropriate as trail construction commences. There is a new section of the plan (Section 14) dealing with emergency planning. It has been prepared with input from the Queensland Police Service and the Queensland Ambulance Service. It is a good basis for discussion.

5.3 Future consultation

DIP has committed to further consultation with adjoining landholders and local communities as the construction of each section of the trail proceeds (see Section 8 for the recommended construction schedule).

Section 6. Trail development plan

6.1 General considerations

This section of the trail plan addresses a series of matters relating to trail design and development. It addresses how to construct the trail with minimal disturbance to the natural environment, and how to construct the trail in a way that ensures it is sustainable with minimal maintenance.

The Brisbane Valley rail corridor has many bridges, in various states of disrepair. Repair and restoration of the bridge surfaces with new timber decking and handrails is required.

Construction of the former railway involved cutting and filling to create a surface that was relatively flat to enable passage of steam trains. The result was a series of cuttings and embankments along the entire length of the rail corridor. Effective drainage will be required, especially within cuttings, to ensure stormwater is quickly and effectively removed from the sides of any trail (as it was when the trains were running).

Choosing appropriate materials for the trail's sub-base and topping (surface layer) is critical to the longevity and suitability of the trail for the intended user groups.

The Moore–Linville section of the rail trail is trialling different design solutions and these will be evaluated before decisions are made on design solutions for the remainder of the trail. The most significant pilot elements are:

- trail surfacing
- road crossings
- signage
- a gate system
- creek crossings (where bridges have been removed).

The following discussion on design solutions also includes commentary and photos of the solutions being trialled in the Moore–Linville pilot section.

6.2 Trail width and height

To function effectively as multi-use trails, a rail trail should have a standard trail width of 2.5–3.0 metres. If in some sections the surface is wider, this should not be a negative factor (unless this increased width reaches four metres or more, at which point the trail users' experience will begin to diminish). Some sections of a formation may be currently used as access to farming properties, or as access between paddocks, and this access can be retained without seriously diminishing trail user experiences. Passing opportunities for emergency service vehicles are required. Parts of the corridor may be leased to adjoining landholders, and they may choose to fence the sections they use, reducing the trail corridor. However, all other sections of the corridor should be in the order of 20 m wide, providing sufficient passing opportunities and turn-around points for emergency vehicles (at least a 10 m radius).

Overhead clearance should be maintained to approximately 3 m from the trail surface, to ensure that horse riders (on sections where horse riding may occur) have clear 'head space'. All overhanging vegetation—and that which intrudes from the sides into this 'corridor'—should be cut back on a regular basis. Care should be taken that sharp and dangerous 'points' are not left in this pruning process.

Drawings 1 and 2 of Appendix 3 illustrate typical cross sections for the proposed trail.

6.3 Screening for privacy

In places along the corridor, the railway corridor (and indeed the railway formation) is sometimes located quite close to adjacent houses. When the trains ran, this was not an issue, as the trains were part of the rural landscape and having a train line close by meant easier access for the farmer. Once the trains stopped running, the proximity of the corridor was no longer an issue. In addition, houses have been built close to the corridor after the trains stopped running.

This is a major concern for many adjoining landholders in both urban and rural environments. Drawings 3 and 5 (Appendix 3) illustrate two options for the protection of privacy of adjoining landholders. One involves the planting of screen vegetation, while the other involves locating the trail on the edge of the rail corridor on the far side of adjoining houses. Both these options have been recommended in the works lists in Section 7. In some locations, both techniques are recommended, while in some locations it is not possible to locate the trail on the edge of the formation. The works tables also specify that, in some cases, screen revegetation should be negotiated with the owner. Negotiation has been recommended where it is felt that screen revegetation will interrupt views and may not be something that a landowner necessarily wants.

6.4 Trail surface material

A relatively smooth compacted surface is most appropriate for a multi-use rail trail. The surface should be firm enough to provide cyclists with a relatively smooth ride. A separate horse trail could be developed parallel with the main bicycle/walking trail surface, if feasible.

The developers of the Lilydale–Warburton Rail Trail in Victoria have used 'Lilydale Toppings' (a locally available crushed stone) to produce a firm surface easily capable of accommodating walkers and cyclists. Most other rail trails developed in Australia use a locally available earth surface (e.g. gravel, decomposed granite, crushed limestone). Use of such material provides a high quality natural surface without the expense of a hardened surface.

Generally speaking, asphalt, concrete and

On the new trail section immediately north of Moore, a layer of crusher dust was placed over the existing base soil. This material source was sedimentary in nature—Esk Shire Council (the contractor) believes it will perform similarly to the material on the existing Fernvale–Lowood section of the trail.

In places along the Moore–Linville section (such as north of the old transfer station), the gravelly ballast material was mixed with excavation spoil (obtained from a creek crossing), graded and rolled to provide the finished surface.

A number of sections were found to have ballast that was reasonably fine. Esk Shire Council engineers decided to leave the surface as it was (no additives) to see how it performed, so these sections were reworked to give a smooth surface. Most of this material appears to have a high proportion of waste ash. This material is less cohesive than other sections. If it deteriorates under use in the trial section, it will be overtopped with crusher dust. This section is immediately north of the Moore Cemetery.

other such hard surfaces are not appropriate on trails such as these. It may be appropriate to seal the section between Wulkuraka and Bayley Road (Muirlea) if commuter use is likely to be high.

The cost of asphalt and/or concrete would be prohibitive and inappropriate on the remainder of the trail.

At the other end of the scale, it is also not appropriate to allow the trail surface to deteriorate into either a soft sandy material or a wet, boggy or slippery condition. Soft sand may be comfortable for horses but is not acceptable to cyclists or walkers.

Water-logged trails are quickly damaged and degraded, and are very unpleasant to traverse. Loose surfaces such as ball-bearing gravel are also unacceptable as they pose safety risks to all three user groups (walkers, mountain bike riders and horse riders).

The Rails-to-Trails Conservancy (USA) undertook a survey of 65 rail trails (1995) that found that many trails had re-used original ballast surfaces and it reportedly worked fine as a surface. The Fernvale–Lowood trail surface consists of a low-grade sandstone pavement placed over the existing ballast. Esk Shire Council has reported this has resulted in a very suitable surface for all users.

Three surface finishes have been trialled along the Moore–Linville section as illustrated right.

It is recommended that:

- final decisions on surfacing the section between Wulkuraka and Bayley Road (Muirlea) be made with reference to the likely future development of this locality for residential purposes and the opportunity to use this section of the rail corridor for a high-use commuter pathway.
- surfacing on the sections between Bayley Road and Coominya disturbed by the water pipeline be gravel road-base spread and rolled to an average 75 mm (+/-25 mm) deep.
- surfacing on the remainder of the trail be the minimum standard as determined by the trial sections along the Moore–Linville section (primarily gravelly ballast material mixed with excavation spoil).

6.5 Safety considerations

The most significant safety issue is the potential conflict between road users (cars and trucks) and trail users at road crossings. Another major safety issue is that of the bridges over the watercourses. When the railway bridges were constructed, handrails were not required in view of their use by trains. Now that use of these structures by horse riders, cyclists and walkers is being contemplated, the issue of safety railings on the sides of the bridges needs to be considered. Handrails will help ensure the safety of users of the bridges, preventing people from falling over the sides—a Standards Australia requirement. Handrails should be installed on all bridge crossings to provide safety, and give a sense of uniformity and consistency along the trail.

On the corridor, a 'dismount and walk' policy on bridges should be implemented, with signage directing horse riders to dismount. Adherence to such a policy would be adequate to manage any safety risks.

It is worth noting that some of the bridges are quite high—heights of 10 m above the gully or creek line are not uncommon. Some concerns have been raised about leading horses over bridges of such heights. The rail trail will have a number of high bridges and, if horse riders want to use the trail, they will need to be confident that their horses can be led over such bridges. If the users are not confident of their horses, they should not use sections of the rail trail that have bridges of such height. This information should be included in trail literature, notifying users of bridge heights in each section.

The Lillydale to Warburton Rail Trail provides for all users, including horses. Some of the bridges are more than 5 m above the ground. Appropriate handrail heights ensure safety for all users. Similar handrails should be provided on high bridges along the Brisbane Valley Rail Trail, such as this one at Jimmy's Gully.

The other significant safety issue relates to possible conflicts between different types of trail users—legal and illegal, e.g. horses (or walkers or cyclists) and trail bikes or 4WDs, or horses and cyclists (or walkers). Effective signage and vehicle exclusion barriers (management access gates) will greatly limit this potential problem. Both topics are discussed in more detail in the following sections.

Dogs can also be a potential safety consideration on rail trails, as trails usually pass a number of private properties which may have dogs and which may have cattle or horses. Conflict between horses on the trail and on adjacent landholdings has also been raised as a concern by landowners.

6.6 Road crossings

Road/trail crossings always present a special hazard which must be addressed carefully. A crossing should have enough space cleared and levelled on both sides of the road to allow cyclists or riders travelling together to gather in a group and cross en masse. One-at-a-time crossing greatly increases the overall time in the roadway and therefore increases the likelihood of encountering a vehicle. The crossing should ideally be at a straight, level area, allowing both trail user and vehicle driver good visibility and the driver ample stopping distance (if possible). In some cases (such as on the D'Aguilar Highway), this will require that users deviate from the rail formation as it does not facilitate 'straight ahead' crossing.

VicRoads (Victorian Main Roads Department) notes that rail trails often cross roads in more rural environments. On roads of this type, drivers do not expect to encounter a crossing or to give way to pedestrians, cyclists or horse riders. They also do not expect to encounter zebra crossings or signalised crossings. For these reasons, most rail trails cross roads using a general road treatment where path users are required to give way to motorists. The key to providing safe road crossings is to increase the conspicuousness of the crossing through the use of signs, line marking and road markings (VicRoads Cycle notes no.16).

Signs required to create safe road

crossing are outlined in the next section of this report. The trail should be clearly marked on each side of the road for easy recognition, and the crossing be designed to move the trail user away from the road reserve as quickly as possible.

If at all possible the trail should not slope down or up to the road. Such slopes elevate danger levels considerably.

Conformity with road crossing detail as specified *in Austroads Guide to traffic engineering practice–Pt 14–Bicycles* is recommended.

Generally along rail corridors, two types of road crossing treatments are used:

- at-grade crossings of major roads (for example across the Brisbane Valley Highway and the D'Aguilar Highway)
- minor road and 'lane' crossings.

Drawings 6–9 of Appendix 3 illustrate these types of crossing at a generic level. Drawings for each of the major road crossings in high speed zones have been included in Appendix 4. It is worth noting that the level of safety and design proposed for the highway crossings (of both the Brisbane Valley Highway and the D'Aguilar Highway) in high speed zones are significantly better than similar road crossings elsewhere in the area. For example, the Wamuran D'Aguilar Loop Trail in nearby Caboolture Shire crosses the D'Aguilar Highway twice in high speed zones—signage is very limited and there are no specific design solutions to aid crossings.

6.7 Signage

Several kinds of signage are required on a rail trail, including distance, directional, warning, promotional, etiquette and interpretive signs. Each should be standardised along the trail and, where appropriate, concordant with relevant local or Australian 'standards' or practices. The chosen colours of all signs should be uniform throughout the trail.

A range of signage is being trialled on the Moore–Linville section of the trail. The following discussion is provided for background information.

6.7.1 Visual impact

Care must be taken with all forms of trail signage to minimise any negative visual impact. This is particularly important in areas of natural vegetation where the priority should be to preserve the 'natural feel' of the trail.

6.7.2 Directional signage

Markers do not need to be placed at frequent intervals along straight sections of trail as the formation is clear and obvious, and even the most inexperienced of users will feel confident that they can remain 'on track'. On the Moore–Linville section they will be placed where directions change.

Recognising that users may join a rail trail at any number of points, installing distance and direction signs at road crossings will not only benefit those joining the trail at that location, but provide additional information for users already on the trail.

6.7.3 Warning signage

There are a number of locations along the proposed trail which demand warning signage, primarily at the many road crossings facing trail users. Warning signs are 'standardised' using the red triangle featuring an 'exclamation mark'. Alternatively, as is the case for road crossing, a 'road ahead' yellow diamond warning sign 50–70 m before a crossing, with a triangular give ay sign on the verge at the road crossing could be used. In the works lists, minor road crossings only have the give way signs, whereas major road crossings employ both the 'road ahead' and give way signs. All road crossings should also have a GPS reference/identifier on the post (underneath the give way sign) for use in emergencies.

6.7.4 Promotional signage

Although the railway corridor may be quite familiar to many local residents, it is recommended that a number of 'promotional' signs be erected at major road crossings to give prominence to the trail. The installation of these signs will make motorists and other road users more aware of the trail, hopefully inducing greater care when in the area.

This style of promotional signage has been used to great effect on other trails throughout Australia, increasing general awareness of the trail among the broader community.

6.7.5 Distance signage

Signs indicating distances between towns help users to guide their trip along the trail.

In addition, such signage provides good reference points for emergency services. See 6.7.9 below.

6.7.6 Road crossings

The rail trail has a number of road crossings along its route, and some of these provide both challenges and opportunities for the trail development program.

The challenges come in ensuring that these crossings are safe for future trail users, while the opportunities surround the passing traffic who can be alerted to the trail's presence. Such 'opportunistic' promotion can only be good for raising awareness of the trail and increasing user numbers.

To facilitate a high level of information, and therefore a high level of safety and amenity, standard signs (e.g. Austroads Guide to traffic engineering practice – Pt 14 – Bicycles) should be used on the trail. In most cases, all or some of these signs should be located in and around these crossings at appropriate locations. Each style of sign serves a distinct and different purpose, and each has a specific location at which it will best serve its intended purpose.

6.7.7 Other attractions

Signs should be installed along any trail clearly directing visitors to other attractions which may lie nearby (e.g. bed and breakfasts, cafés, delis, cemeteries, natural attractions such as the Brisbane River).

6.7.8 User etiquette

User etiquette or 'code of conduct' signage should be installed at every trail-head in recognition of the expected pattern of use (potentially) by all three primary user groups (walkers, cyclists and horse riders). These signs should inform all groups about appropriate behaviour when in the vicinity of each other.

6.7.9 Emergency response

As stated above, distance signage provides good reference points for emergency services. It gives anyone who needs emergency assistance an easy reference point. Consultation with ambulance officers in particular highlighted this need. When people panic (as they often do in an emergency situation), normal cognitive processes do not work. On-trail signage should be as helpful as possible and minimise likely stress. Consequently, the works list has included distance signs every 500 m (with distances to the next trail-head) on either side of the post. This enables people to quickly identify where they are by travelling no more than 250 m from the emergency situation. All road crossings should also have a GPS reference/identifier on the post (underneath the give way sign) for use in emergencies, again as a location aid for those in stress. There is also a need to include the emergency telephone number at all trail-heads (on the trail-head sign) and clearly identify that one number will contact all three emergency services (police, ambulance, fire). While the emergency number from a landline is 000, the emergency number that works best from a mobile phone is 112. Information on what to do in an emergency, the location of public phones (there would be none on the trail itself), and the capacity for a flip-down sign indicating trail closure (due primarily to fire, flooding or maintenance work) should also be included on trail-head signage.

The proposed emergency signage in summary is:

- distance signs every 500 m showing distances to next trail-head (double-sided)
- GPS identifiers at all road crossings (attached to the give way sign posts)
- trail-head signage specifying what to do in an emergency, the numbers to call, the location of public phones, and the capacity for a flip-down sign indicating trail closure (due primarily to fire, flooding or maintenance work).

Attractions signage (both official and non-official) provides trail users with useful information (note the Give way signs in the background).

Road crossing signage is very important for both trail users (top row) and road users (bottom row). On all major road crossings, both sets of signs are warranted. On minor road crossings and lanes, warning the trail user of the road ahead may be sufficient. On-road signs can also serve promotional purposes.

6.8 Drainage and erosion control

Proper drainage is of considerable importance in constructing a lasting, maintenance-free facility.

Culverts and other drainage controls should be used to direct run-off away from the trail where possible. It should be noted that some slope is desirable on shared trails. A perfectly level trail will hold water (ponding), creating mud holes which then become maintenance problems. Rail trails, by their very nature, tend to deal with these problems relatively well. Water must drain freely, and where possible, pass beneath the trail without impact on either the base formation or the surface itself. Particular care must therefore be given to reinstating the side drains through any cuttings. Regular cleaning of culverts under the railway formation is also essential.

It may be necessary to clear existing drains on a regular basis or to install additional culverts in some locations to remove standing water effectively. If this is done, care must be taken to ensure the surface is soundly patched afterwards. The location of existing culverts has been noted in Section 7; with few exceptions, these are relatively clear (the need for clean-outs is noted in the works lists).

6.9 Bridges and creek crossings

Bridges are one of the most obvious reminders of the heritage value of disused railways, one of the most significant attractions of trails along disused railways, and also one of the most costly items in the development of trails on former railways. Unfortunately for rail trail development, railway corridors often have many bridges which fall into disrepair once the railway lines are closed. The Brisbane Valley rail line is no exception. While all bridges (with the exception of the heritage-listed bridge over Lockyer Creek) have been removed along the corridor from Wulkuraka to Coominya as a result of previous demolitions and more recent work on the Western Corridor Recycled Water Pipeline, north of Coominya most of the bridges remain. There are 26 bridges, mostly of timber pile construction.

Locating the trail on the formation of the former railway is important, and reinstatement of bridges where they have fallen into disrepair or have been washed away is important for the continuity of the trail.

Retention of old railway bridges (above) is highly desirable from a historical and user experience perspective. In situations where bridges have been removed, a concrete floodway such as that in place on Boundary Creek between Moore and Linville (below) is one option for providing creek and gully crossings.

Reinstatement and/or refurbishment of the bridges together with installation of handrails (in compliance with Australian Standards for bridge safety) will be a major component of the cost of developing the rail trail. Handrails will be required if the fall from the bridge decking to the ground is greater than 1 m (which applies to most of the bridges). Timber handrails are best, providing a more aesthetic finish and more in keeping with rail trail heritage values.

The cost of re-decking and any other necessary structural repairs to existing bridges needs to be offset against the cost of building viable alternatives. Alternatives include reinstating a bridge at the same level or constructing a new bridge, a boardwalk or a concrete floodway lower down in the watercourse. Lower level crossings will need to be built at a height that ensures that the crossing is not underwater at regular flow levels.

It is worth noting that railway bridges were constructed to hold heavy steam locomotives and that, provided the bridge structure is sound, weight is not a significant factor when considering the re-use of rail bridges for walkers, cyclists or horse riders.

The recommendation to retain and repair the bridges in the attached works tables has been made without an assessment of their structural soundness. In preparing the works tables, field work simply noted the presence of bridges and whether there is any visible major damage which would render them unsuitable for use on the rail trail. The decision to retain was also based on whether there are viable alternatives to cross the creek or gully that the bridge presently crosses.

To ensure safety and suitability, bridge assessments will need to be carried out by a qualified structural engineer.

It is recommended that unless there is an obvious reason for not doing so, all bridges should be retained on the assumption that they are potentially structurally sound pending a structural engineering assessment to confirm their capability to carry the weight of trail users. Where necessary, bridges which are sound enough to carry the weight of a 4WD emergency services vehicle (up to 4 t) or a rural fire appliance (13 t) should be maintained in that condition.

Existing rail bridges are generally 2 m wide. If they are to be re-used for a rail trail, rails would need to be removed, the bearers/beams would be re-used, and decking to 2.5 m wide would be

installed. The proposed work allows for the sleepers to be left in place and timber bearers to be attached over them to provide a 'clean' surface to attach decking and handrails. Decking should be attached at 45 degrees to the sleepers (recommended by Rails-to-trails Conservancy, USA). Decking timbers should never be fixed parallel to the direction of travel.

Each bridge has an abutment at either end as a way of retaining the earth of the embankment. Most bridge abutments on the Brisbane Valley Rail Trail use a combination of timber and concrete in the structure. Inspections reveal the abutments to be in varying states of disrepair. The bridge assessments carried out by a qualified engineer (as discussed above) should include assessment of the stability of the abutments.

It is recommended that, where bridges are to be retained, abutments should be replaced and rebuilt where necessary (decisions on replacement should be based on engineering inspections).

6.9.1 Costs and benefits

As stated above, reinstatement and refurbishment of the bridges will be a major component of the cost of establishing the rail trail. Estimates for re-decking and the attachment of handrails indicate that the costs of restoring the bridges for use are around 25% of the overall project cost. The requirement for new bridges (as discussed below) brings the cost of 'at-level' river, creek and gully crossings (i.e. at the same level as the rail corridor) to around 35% of the project costs. It should be noted that this does not include any engineering assessments of existing bridges and is based on the assumption that the remaining 26 bridges are in suitable condition.

It is acknowledged that this is a significant cost factor, and may not have been envisaged when the capital works budget for this project was originally proposed in 2005.

The lower cost option of a concrete floodway has been used in the Moore–Linville section out of necessity, as all bridges were removed soon after the closure of the line in 1988. Trialling this option showed that the approaches to gully or stream crossings need to be hardened as they are often steep and will erode in major storm events. This is initially a cheaper option than refurbishing bridges. However, not using the bridges means the loss of an essential part of the rail trail experience. There is a strong case for retention of bridges for their heritage and convenience/utility value. Riding down a steep path to cross a creek then up an equally steep climb on the other side presents at least some trail users with daunting technical and physical challenges, and necessitates careful design, construction and to provide for safety and prevent erosion. Retention of the bridges also retains the positive experience of riding along the top of old bridges with panoramic views of the surrounding landscape.

User feedback on the Moore–Linville section has indicated that riding in and out of gullies is a negative experience, both visually and physically. Not using the bridges also creates a long-term maintenance issue; in times of high water flows, floodways and approaches (in particular) will be damaged, thus creating the need to restore or, in some cases, replace them. The rail bridges were originally built in their locations primarily because railways need very gentle grades or slopes and the same principle applies to re-use of railways as recreation trails. Bridges also provide a safe crossing when water is flowing in gullies, creeks and rivers.

The works tables include a 'ranking' of the desirability of retaining bridges—essential, highly desirable or desirable. This ranking is determined by a number of factors, notably user experience, heritage value, landscape value, feasibility and likely cost of developing alternative crossings and managing drainage, a bridge's location, and a bridge's visibility and its likely value in promoting the rail trail.

In certain locations (e.g. at Wallaby Creek between Harlin and Moore), the construction of a new bridge is the most desirable solution. The consultancy team has recently completed work on a shared-use trail (the Coast to Crater Trail) along the Great Ocean Road in Victoria. To complete the trail, a new bridge needed to be constructed over a river. A suspension bridge was determined to be the most appropriate solution. In this situation, the main span was estimated to be about 35–40 m long, with a 10 m approach span on one side and a 15 m approach span on the other side. Cable Bridge Constructions provided a cost estimate for the suspension bridge on the Coast to Crater Trail. The estimated cost was $230 000 for a 65 m suspension bridge ($3500/m). This figure has been adopted as an indicative figure for the purposes of works costing.

6.10 Trail furniture and facilities

There are a number of locations, such as trail-heads, well suited to the placement of furniture and facilities which would benefit all trail users. This furniture could include tables and seating in appropriate locations with attractive outlooks. Care should be taken in the selection of styles of seating and tables. Many styles commonly used on trails are more suited to backyard gardens, or city parks. Few look 'right' in the natural environment. It may well be appropriate to have a local furniture maker or woodworker build something suitable to the situation if the decision to proceed is taken.

Infrastructure including seats and picnic tables, signage, composting toilets, and other facilities can also be installed at trail-heads (discussed below). While installation of composting toilets is one solution, these are costly and are generally recommended only where there are long stretches between towns. The accepted distance between toilets is 25–30 km (recognising that rail trails are used mostly by cyclists). As there is not this distance between any towns on any of the corridor, and the towns located along the corridor already have public toilets, there is no need to install trail-side toilets, although this should be monitored in relation to use rates.

6.11 Trail-heads and parking

Given that many of the users of the rail trail are likely to be from other areas, or horse riders who float horses to the trail, formal 'trail-heads' are important (Note: a 'trail-head' is a 'starting point' with parking, signage, toilets, etc.). Trail-heads should be located at strategic locations. Former railway stations are recommended, as these are easily accessible, have facilities already in place, and have readily available space for the development of any necessary additional facilities.

Basic facilities such as parking are important and will prove useful to all trail users. Designs for each trail-head are included in this report.

6.12 Suitability for multi-use

The flat grades and sweeping bends typically found on abandoned railway formations make them ideally suited for development of recreation trails– especially when developed with a trail surface that can accommodate all user groups (walkers, cyclists, horse riders [where permitted] and possibly users in gophers or off-road wheelchairs, etc).

The suggested trail surface is eminently suitable for walkers, cyclists (using mountain bikes) and horses. Drawing 1 (Appendix 3) illustrates a typical cross section of a rail trail, with a 3 m wide trail surface.

Horses' hooves damage unsealed trail surfaces, to the detriment of other trail users. It may be necessary in the future (depending on use rates) to develop a separate horse trail parallel with the main bicycle/walking trail surface. Drawing 2 (Appendix 3) illustrates one method for accommodating a horse trail in suitably wide sections of a corridor. This enables horse riders to stay off the walking/cycling trail surface and avoid damage to the main trail surface. Narrow cuttings, narrow (and steep sided) embankments and tunnels would result in all three user groups potentially needing to use the same section of formation. The damage to surfaces at these locations in particular should be monitored and a hard wearing surface considered if damage becomes too great or too much of an ongoing maintenance expense.

It is worth noting there are several concerns commonly raised by walkers and cyclists regarding horses using rail trails:

- potential damage to trail surface caused by horses' hooves—the passage of horses along an unsealed trail surface will inevitably cause surface damage, and soft, boggy conditions will render the trail unsuitable for use by cyclists
- the additional engineering costs inherent in structures such as bridges—the additional weight of horses will require that bridge structures be designed to permit these expected heavier loads. An alternative may be to have the trail route for horses at a lower level than the bridge, though still keeping horses out of the water
- the perceived dangers involved on the major road crossings
- the potential conflicts between other trail users and horse riders. Although there are ways of educating trail users about their rights and responsibilities, and the rights and responsibilities of others, isolated incidences of inappropriate behaviour of one user group towards others can result in conflict and injury.

6.13 Other users and trail etiquette

Managing interaction between user groups is a primary prerequisite on all trails, and standard signage and protocols already exist. Providing adequate signage is installed and users are well aware of the likelihood of meeting other user groups, such interactions should generally be non-threatening and relatively safe.

It is evident that the potential for unauthorised motorised use of sections of the proposed rail trail is regarded as a major problem to adjoining landowners—fearful that trail bikes in particular may gain access to farmland and property. This comment was a feature of community meetings and one-on-one conversations with adjoining landholders.

Every attempt must be made to ensure the trails are not used by either 4WDs or trail bikes.

The use of 'cavaletti' gates at road crossings (see Drawing 10 of Appendix 3) where other chicanes and management access gates are installed is another method of enabling horse riders to access the railway corridor trail, and still keep unwanted trail bike riders out. The 'chicane' designs (Drawing 9 in Appendix 3 – the design for the photograph below) are effective motor vehicle and motor bike barriers. The recommended chicane gates will be narrower than the design as they will only be designed for cyclist and pedestrians—horse access will be managed by parallel cavaletti gates.

Education through signage and use of locked gates or other vehicle exclusion barriers will help, as will encouraging bona fide users and local residents to report registration numbers of illegal users.

A combination of cavaletti and chicane gates has been recommended at all major road crossings. The gating combination (cavaletti and chicane) has also been recommended for minor road crossings in 'remote' areas where a lack of passive surveillance will not deter motorbikes.

Gates/chicanes on the Lilydale–Warburton Rail Trail are effective in allowing legitimate trail users, and excluding unwanted and unwelcome users such as motorcyclists. A similar gate was installed on the Moore–Linville section near the Moore Cemetery.

6.14 Codes of conduct

A code of conduct for each user group, especially for horse riders and mountain bike riders, provides users with guidelines to minimise their impact on the environment, and on other trail users. Codes of conduct help to:

- prevent soil erosion
- minimise trampling
- prevent the introduction and spread of noxious and exotic plants
- protect waterways
- protect significant and environmentally sensitive sites
- minimise potential conflict with other users of the trail
- ensure the safety of both horse and rider.

On a rail trail, horse riders in particular should:

- stay on the marked trail
- clean horses' feet before a ride to reduce the chance of carrying any soil containing weeds into bush areas
- feed horses with processed food (not hay) if staying overnight, because hay can spread weeds

A different system was also trialled on the Moore–Linville section; this one is near the Moore–Linville Road crossing. Some feedback from trail users indicated a reluctance to be constantly hopping on and off bikes (in particular) to open and close gates. This gate will stay; other crossings will use a gate combination (as discussed below).

Feedback from horse riders indicated that the chicane gate was difficult to manoeuvre horses through (although it is understood that there have not been difficulties on the Lillydale–Warburton Rail Trail). One of the issues was getting the dimensions of openings exactly right. Consequently, both narrower chicanes (bike and pedestrian only) and cavaletti gates at all major and remote road crossings are now recommended.

- tie horses to something other than trees to avoid damage to trees
- use designated areas for picnics and leave the area clean and tidy
- wear helmets—they may be uncomfortable on long rides, however their use is encouraged, especially for children
- act in accordance with signposting
- check all saddlery before a ride to ensure there are no faults and that safety gear is present
- ride horses that are easily handled and keep horses under control at all times

- attend organised rides to find out where other trails are in your area and to learn correct trail etiquette.

Typically, a code of conduct for equestrians would read as follows:

Riders may meet walkers, dogs, mountain bike riders, trail bike riders and others who are unfamiliar with horses and unsure about passing them on the trail. It is important that all trail users are courteous and understanding, ensuring an enjoyable time for all.

When other users wish to pass or overtake you on a narrow trail, always ensure the hindquarters of your horse are facing away from them. Preferably move to the side of the trail and give them as much room as possible to pass.

Ensure all horses in your group are walking quietly when passing others on the trail. Please thank other trail users for any courtesy they show.

Horse riders may also meet those who are unsympathetic to riders enjoying the bush. Try to avoid conflict in these situations by explaining the existence of this code and its purpose in helping to protect the bush environment.

If you meet riders who are acting contrary to the Code of Conduct, politely explain to them that by following the code they can help ensure that horse riding remains a legitimate activity on bridle trails in bush areas. If necessary, report such incidents to relevant authorities, such as the local council or trail manager.

6.15 Heritage issues

A number of structures along a rail corridor may have historical or heritage value. These include bridges, culverts, cuttings and embankments, mile pegs, goods sheds, station buildings, other buildings at sidings, station name boards, signals and switches.

Items such as old mile pegs are of considerable social value, even though they may not be significant enough to rate as 'heritage value'. These often remain along railway lines. A cultural heritage assessment of the corridor was suggested in consultation and will be carried out as part of the detailed planning for each future section.

6.16 Environmental issues

Much of the former railway corridor is clear of vegetation. In some cases, trees have regrown within the rail track and sleepers.

The key environmental issues associated with rail trail projects are generally weeds and weed control, and revegetation along the corridor. A property management plan will address these issues, as well as fire management, erosion control, and habitat protection and rehabilitation.

Community input to the property management plan is to be encouraged.

Section 7. Works list

The following tables present recommended works lists for each section of the trail. Photos have been included to give readers a flavour of each of the trail sections.

The following works lists should be read in conjunction with the attached maps and represent works intentions based on detailed field assessments rather than a definitive construction program.

While the works items are based on the philosophy of making significant investments in initial works to minimise long-term maintenance, it is acknowledged the available capital works budget may not be sufficient to fund all the work listed. This is particularly the case for works associated with replacing, restoring, repairing and re-decking bridges.

Works lists for each section will be further costed and analysed as part of the design and construct planning for each section of the trail.

A Note on Cost Estimates

The cost estimates that follow are based on recent relevant construction costs from other trail projects, including costs from the Moore–Linville section. Real-life costs will depend on a number of factors, including the state of the economy, the extent of 'advertising' of construction tenders, the availability and competitiveness of contractors, the rise and fall in materials costs, the choice of materials used in construction and final design details. Tenders submitted by construction contractors may vary significantly from the estimated unit costs shown in Table 7.1 below.

Table 7.1: Estimated unit costs

Works item	Estimated unit cost (lineal metre unless specified)
Bridges	$1100/m (2.5m wide) - allows for installation of new timber bearers on top of existing sleepers, installation of new decking timbers and kerbing, and construction in difficult locations - often in elevated situations (including provision of safety equipment). $75/m for safety railings An additional $1000/bridge is factored in for site set-up works. New suspension bridge - $3500/m
Screen revegetation	$5/square metre
Fencing	$14/m for hardwood posts and 4-strand plain wire
Trail surface preparation	$6/m (grade and level a 3 m wide surface)
Concrete causeway creek crossings	$15 000 (includes an allowance of $5000 for earthworks for approach and exit ramps). This varies depending on width of crossing and length of entry and exit slopes. In addition, a bitumen layer will be laid over the approach and exit ramps to manage both slope and erosion (a necessity proved by damage to the Moore–Linville section). This has been costed at $180/lineal metre (3m wide).
New trail surface (crusher dust over base)	$22.50/m (3m wide)
Car parks	$3000 (2 x horse floats and 2 x car)
Interpretive panels	$1500–600mm x 800mm for basic etched anodised aluminium at formal trail-heads $1100–400mm x 300mm for basic etched anodised aluminium on the remainder of the trail i.e. at 'remote locations'

7.1 Wulkuraka–Fernvale

Distance: 22.78 km

Map ref	Works item
1	Wulkuraka Station. Install map panel and directional signage to ensure users arriving by train find their way to the Grace St Trail-head and Rail Trail corridor using local street network.
2	Minor road crossing treatment at Grace Street. Install directional signage along Grace Street to trail-head.
3	Develop trail-head on currently vacant state land at Grace Street. Trail-head to be the main southern terminus of the Brisbane Valley Rail Trail. Trail-head development to include trail-head signage, parking for four cars, timber post and rail fence and gate, cattle grid, "no horses between Wulkuraka and Bayley Road" sign, and three picnic tables (note: no detailed site plan has been prepared for this site and further facilities may be required as a result of further investigations). Install interpretive panels (600 mm x 800mm) "Brisbane Valley junction" and "Wulkuraka and the Brisbane Valley Rail Trail".
4	Create 600 m trail in vegetated land east of old rail formation on trail-head parcel. Leave minimum 10 m vegetated buffer between eastern edge of rail corridor and new trail to create visual barrier between trail users and Energex powerline in rail corridor (note: vegetation is already in place). Replace boundary fence between trail-head parcel and old rail corridor.
5	Creek crossing—install gently sloping concrete path for 15 m on creek approaches and for 10 m in creek. Pipes under path. Energex easement leaves the rail corridor just south of this point
6	Possible pedestrian link through Grammar School (there is an agreed easement on plans of approval).
7	Screen revegetation/fence/mounds along the back of houses (400 m x 3 m) Trail to be on far side of corridor from houses along access track.
8	Ironpot Creek. Construct 40 m bridge. Install "please dismount and lead horses across bridge" signs on both sides.
9	Minor road crossing treatment: Windle Road. (Energex easement rejoins formation at this point). Install give way signs on trail. No barrier fencing necessary.
10	60 m safety fencing (30 m/side) over a large culvert.
11	Minor road crossing/access point: Bayley Road. End potential commuter section of trail. Install give way signs on trail. Install chicane and cavaletti gates on northern side of crossing. Install chicane gate and cattle grid on southern side of crossing. Install management access gates on both sides. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Install "no horses between Wulkuraka and Bayley Road" sign on southern side of crossing.
12	Install interpretive panel (400 mm x 300 mm) "the serpentine railway"
13	Screen revegetation (100 m x 3 m) in front of property with horses
14	Minor road crossing: Pepper Lane. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
15	Install interpretive panel (400 mm x 300 mm) "all the king's men".
16	Install interpretive panel (400 mm x 300 mm) "when cotton was king".
17	Formation is reinstated on eastern side of corridor to avoid houses.
18	Minor road crossing: James Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
19	Formation is reinstated on eastern side of corridor to provide greater separation between trail and adjacent house. Screen vegetation and/or mound to be negotiated with owner.
20	Borallon Station Ground. Install interpretive panel (400 mm x 300 mm) "and a star to steer her by". Install limited horse facilities for horse access south to Pine Mountain consisting of horse float parking facilities (for four floats). Install limited directional signage. Install chicane and cavaletti gates on southern edge of station ground. Install management access gate on southern edge of station ground. Install 13 m fencing on southern edge of station ground attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Install "no horses between Borallon Station ground and Wanora Station ground" sign.

Map ref	Works item
21	Minor road crossing: Borallon Station Road. Install give way signs on trail. Install chicane gate on north side of crossing. Install management access gate on north side of crossing. Install 13 m fencing on north side attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Install cattle grid on north side of crossing to enforce 'horse-free' zone to north.
22	Creek crossing—gently sloping concrete path for 15 m on either side of creek approaches and for 10 m in creek. Pipes under path.
23	Sandy Creek main crossing, 25 m wide. Restoration work has created very steep banks and reinforced bank with rock netting. Install a 25 m bridge or a series of box culverts side by side with a concrete topping. An alternative is to construct abutments on both banks and use the base of train goods wagons as the floor of the bridge. This has been used in Western Australia. Install "please dismount and lead horses across bridge" signs on both sides.
24	Heritage listed toilet (on private property).
25	Screen revegetation (100 m x 3 m).
26	Minor road crossing: Warren Road. Install give way signs on trail. Install chicane gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
27	Vegetated mound on embankment to address screening/privacy issues.
28	Screen revegetation (100 m x 3 m).
29	Fence (50 m) and access gate to separate trail from pipeline. Install management access gate for trail vehicles in fence. Install chicane gate. Install 13 m fencing on west side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). (Installation at this location is in place of installation at Brisbane Valley Highway crossing (map reference 32) as this would be too difficult.
30	Trail to leave rail corridor and follow powerline easement west to highway. 50m of fencing either side of trail.
31	Construct 20 m embankment (2.5 m wide x 1 m high) heading north towards Lloyds Road (on eastern side of highway). Construct 20 m of trail on embankment. Install 20 m of Armco barrier.
32	Major Road crossing: Brisbane Valley Highway. Install road ahead on the trail on both sides of crossing and give way signs on the trail on both sides of the crossing. Install trail crossing signs on road. Install chicane gate on west side of crossing. Install management access gate on west side of crossing. Install 13 m fencing on west side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). (see Appendix 4 for detailed drawing of road crossing).
33	Construct 75 m of new (2.5 m wide) trail (including clearing) in reserve on western side of highway). Connect with original corridor opposite Lloyds Road.
34	Screen revegetation on both sides of formation (300 m x 3 m).
35	Minor road crossing: Wanora Road. Install give way sign on trail on south side of crossing. Install chicane gate on south side of crossing. Install management access gate on south side only (as north side will be open for horse facilities). Install cattle grid on south side of chicane gate to enforce 'horse-free' zone. Install 15 m fencing on south side attached to gate/ grid to ensure gate work as designed (assume corridor is 20 m wide and gates take up 5 m of corridor).
36	Construct horse float parking facilities (for two floats). Install limited directional signage including "horses permitted north of Wanora Station ground" sign. Install chicane and cavaletti gate on north side of facility.
37	Install 20 m x 4 m square section fence as privacy screen
38	Gully crossing. Fill bank and reinstate embankment. Trail off embankment (onto western side of formation) for 150 m if sufficient land available.
39	Install 200 m of new fence to separate trail from adjacent paddock.
40	Put the trail on western side of reinstated embankment if sufficient land.
41	Install interpretive panel (400 mm x 300 mm) "proceed with caution".
42	Replace 300 m of fence on both sides of trail (600 m of fencing).
43	Minor road crossing: Leschkes Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
44	Screen planting (100 m x 3 m).

Map ref	Works item
45	Minor road crossing: Randalls Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
46	Negotiate screen revegetation (100 m x 3 m). Property looks over formation and is relatively close.
47	Fairney View Station Ground. Install interpretive panel (400 mm x 300 mm) – "trains of the Brisbane Valley Line".
48	Minor road crossing: Fairney View Fernvale Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
49	Bridge removed but stanchions remain in part (25 m) but no support for 35 m. Best option (given this is a mix of remains) is to remove stanchions and replace with concrete crossing. Concrete path for 10 m on north side of creek, 25m on southern side of creek and 40 m in creek (as with road crossing approximately 20 m to the west). Pipes under path.
50	Bridge removed. Replace with concrete crossing. Concrete path for 10 m on either side of creek and 10 m in creek. Pipes under path.
51	Bridge removed. All abutments and stanchions remain. Reconstruct new decking on existing stanchions (35 m). Install "please dismount and lead horses across bridge" signs on both sides.
52	Screen revegetation (100 m x 3 m). Construct trail on western side of corridor to avoid house.
53	Minor road crossing: Millar Road. Install give way signs on trail. From here to Fernvale, the trail runs close to the road. Passive surveillance may help deter motorbikes.
	Millar Road to Fernvale: lots of artefacts speed posts, road crossing signs etc.
54	Driveway across formation.
55	Screen revegetation (300 m x 3 m). Three residences in close proximity (below and close).
56	Screen revegetation (50 m x 3 m).
57	Screen revegetation (300 m x 3 m) on western side for trail users.
58	Minor Road crossing: Fairney View Fernvale Road. Install give way signs on trail. From here to Fernvale, the trail is short and should not be attractive to motorbikes. In addition, passive surveillance may help deter motorbikes as this section is close to Fernvale.
59	Screen revegetation (150 m x 10 m). Construct trail on south-western side of corridor to avoid house.
60	Bridge removed. Replace with concrete path for 10 m on either side of creek and 20 m in gully. Pipes under path.
61	Rear of proposed development, including Woolworths. Screen revegetation (400 m x 3 m) from northern edge of gully to Futures Complex.
62	Trail-head: Fernvale (Fernvale Futures Complex). Install trail-head signage. Install interpretive panel (600 mm x 800mm) "a rose by any other name".
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (47 in all).
--	Trail construction and surfacing. Spread and roll average 75mm (+/-25mm) deep gravel roadbase over formation. This surfacing is a high quality 'natural' surface (as opposed to a hardened surface). It is used in 7569 m of this section of trail where the Western Corridor Recycled Water Pipeline has been laid under the original rail formation.
--	Trail construction and surfacing should involve grading and compacting existing railway formation and/or existing graded earthen maintenance track. This applies to the 13 411 m which has not been disturbed by the Western Corridor Recycled Water Pipeline (this excludes trail preparation and surfacing at Grace Street trail-head map reference 4 above). Trail surfacing could also include additional surface treatment e.g. crusher dust in the potential commuter section from Wulkuraka to Bayley Road (Map reference 11).

Maps 1–7 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: Wulkuraka Station—trail users can access the trail from the suburban train network

Above: All bridges in this section have been removed. Ironpot Creek provides a design challenge —a series of switchbacks or a new bridge will be needed

Above: The formation travels through typical rural countryside with a variety of small and large cuttings.

Above: Aligning the trail on the maintenance track at the edge of the formation means that it would be further from nearby houses than if it were on the original formation

Above: A roundabout adjacent to the existing Windle Street crossing. Road crossings in urban environments provide different challenges than road crossings in rural areas.

Above: All bridges in this section have been removed. In some cases, stanchions remain – a bridge could be reconstructed.

7.2 Fernvale–Lowood

Distance: 8.51 km

Map ref	Works item
63	Fernvale–Lowood rail trail. Western Recycled Water Pipeline in corridor. Trail will be reinstated in its original design. All bridges have been removed.
64	Brouff Road Crossing. East of crossing, install interpretive panel (400 mm x 300 mm) “bail up”.
65	Fernvale–Lowood rail trail. Western Recycled Water Pipeline in corridor. Trail will be reinstated in its original design. All bridges have been removed.
66	Install interpretive panel (400 mm x 300 mm) “Upper Brisbane”.
67	At pitched brick wall, install interpretive panel (400 mm x 300 mm) “depression rates”.
68	Fernvale–Lowood rail trail. Western Recycled Water Pipeline in corridor. Trail will be reinstated in its original design. All bridges have been removed.
69	Trail-head: Lowood Station. Trail-head development to include trail-head signage, directional signage, gravelled area for horse float parking, and some adjustments to car park for cyclist use (see Appendix 4 for detailed drawing of trail-head). Install three five-bike racks (not shown on drawing). Install interpretive panel (600 mm x 800mm) “here be bunyips”.
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (16 in all).
--	Trail construction and surfacing.

Maps 7–11 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: The existing trail surface across a gully near Fernvale. The Western Pipeline project will reinstate the trail surface as it originally was

Above: Brouff Road crossing near Fernvale. Cyclists and walkers cross the road in a different location to horse riders

Above: The approach to one of the many gully crossings in this section. All bridges have now been removed.

Above: This embankment was fenced off on the original trail

Above: Glamorganvale Road crossing immediately west of Lowood. There was an overhead bridge here originally but it is long gone.

Above: Lowood station is the existing trail-head for the Fernvale–Lowood section. There are a range of facilities in Lowood, including parking and toilets.

7.3 Lowood–Coominya

Distance: 11.78 km

Map ref	Works item
70	Major road crossing: Main Street, Lowood. Works to cover signage, road markings and kerb ramps. The cost does not include any barrier fencing as this is in the middle of the town and passive surveillance should limit motor bike access. Such access is prevented further along the trail (at map reference 72). (See Appendix 4 for detailed drawing)
71	Gully crossing—gently sloping concrete causeway for 15 m either side of gully approaches and for 10 m at base of gully. Pipes under path.
72	Install chicane and cavaletti gate north-west of the end of Daniel Street (at the south-western corner of the Lowood Golf Course. Install 20 m (total) post and rail fence linking the gate to existing fences (this is the point where motorbikes illegally access the existing rail corridor from Lowood). Install management access gate.
73	Locate trail on south-western side of corridor (to provide greater separation between trail and adjacent houses on north-western side along Clarendon Road).
74	Screen revegetation (100 m x 3 m) on northern side of corridor between house and corridor and 100 m x 5 m on southern side of corridor between pipeline and trail. Trail will be on south-western side of corridor at this location.
75	Screen revegetation (50 m x 3 m) on northern side of corridor between house and corridor and 50 m x 5 m on southern side of corridor between pipeline and trail. Trail will be on south-western side of corridor at this location.
76	Screen revegetation (100 m x 3 m).
77	Gully crossing—gently sloping concrete path for 15 m either side of gully approaches and for 10 m at base of gully. Pipes under path.
78	Major road crossing treatment: Clarendon Road. Install road ahead and give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Install trail crossing signs on road.
79	Screen revegetation (100 m x 3 m). Move trail to eastern side of formation.
80	Negotiate screen revegetation (200 m x 3 m).
81	Minor road crossing: Nunns Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Negotiate screen revegetation (50 m x 3 m).
82	Driveway and cattle movement path across formation. As cattle appear to be dairy cattle and thus move at given times, install double gates (width of crossing point) with gates closed on farm side the majority of time and closed on trail when cattle are moved.
83	Minor road crossing: Clarendon Station Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
84	Clarendon Station Ground. Install interpretive panel (400 mm x 300mm) “they did it their way”.

Map ref	Works item
85	Lockyer Creek Bridge. The bridge cannot be used and renovation work would be very expensive (due to heritage listing). A management access track and concrete floodway (alongside bridge) was proposed by the Western Pipeline Alliance which could be used by the rail trail to cross the creek. The alternative is to construct a low-level bridge. An allowance only has been made for this option. Create 20 m2 picnic area on south side at top of gully on formation with two picnic tables and shelters on a finished surface (e.g. decomposed granite). Install interpretive panel (400 mm x 300mm) "HC Stanley's bridge".
86	Screen revegetation (50 m x 3 m)—Reck property.
87	Minor Road crossing: Mahon Road. Install give way signs on trail.
88	Screen revegetation (50 m x 3 m)—Martin property
89	Pipeline goes off formation to north-east
	Although the boundary fence between map reference 69 and Coominya village could be replaced, the trail is adjacent to a main road—passive surveillance may keep trail bikes off (as it did along the Fernvale–Lowood section). Relying on passive surveillance also negates the need for chicane gates at the minor roads and driveways in this section (including at Mahon Road, map reference 87 above and at Coominya Connection Road, map reference 95 below).
90	Concrete culvert in place and maintained.
91	Driveway across corridor. Corridor is fenced on both sides of driveway.
92	Negotiate screen revegetation (100 m x 3 m). There is already a vegetative screen on landowner's property and the house is close to the road.
93	Minor road crossing on link lane between Mahons and Vineyard Roads. Install give way signs on trail.
94	Box culvert.
95	Road crossing: Coominya Connection Road, Coominya. Install road ahead and give way signs on trail on southern side of road. Install trail crossing signs on road.
96	Trail-head: Coominya Station. There are a number of railway artefacts—the existing station building, crossing signs, station signs and switching levers. There is a playground. There is adequate horse float parking at Edith Maud Park and adequate vehicle parking adjacent to station ground. Install trail-head signage. Install double-sided chevrons pointing to the trail-head at the parking entrances and at the intersection of the Brisbane Valley Highway and Coominya Road (out of town). Install horse crossing signs on Bunney Road. Build a 70 m formal trail of decomposed granite (or similar) from the car park gate along north-eastern edge of station ground to link with rail trail at southern end of station ground (this manages horse impacts and does not interfere with use of park for community events). Install a kerb ramp on south side of Coominya Connection Road (at trail crossing) and on the 'raised parking bar' on the road. (See Appendix 4 for detailed drawing of trail-head). Install three 5-bike racks (not shown on drawing). Install interpretive panel (600 mm x 800mm) "14th Light Horse".
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (24 in all).
--	Trail construction and surfacing. Spread and roll average 75mm (+/-25mm) deep gravel roadbase over formation for 7316 m. This surfacing is a high quality 'natural' surface (as opposed to a hardened surface). It is used in 7316 m of this section of trail is where the Western Corridor Recycled Water Pipeline has been laid under the original rail formation.
--	Trail construction and surfacing should involve grading and compacting existing railway formation. This applies to the remaining 4464 m which has not been disturbed by the Western Corridor Recycled Water Pipeline

Maps 11-15 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: Jean Bray Place in Lowood provides parking for trail users.

Above: The trail in Lowood heads north and travels behind a number of shops. Traders will benefit from trail users spending money in towns along the trail.

Above: The heritage-listed Lockyer Creek bridge provides a spectacular backdrop for trail users. Unfortunately, the bridge is not in good condition and cannot be used by trail users.

Above: Minor road crossings such as here south of Coominya are common along the trail—good design addresses any safety issues.

Above: Looking south from Coominya along the corridor. For some of this section, the formation runs alongside roads.

Above: Coominya Station has a number of rail artefacts intact. These all add to the experience of a rail trail and separate rail trails from other recreation trails.

7.4 Coominya–Esk

Distance: 23.55 km

Map ref	Works item
97	31 m trestle bridge. **Highly desirable to retain.** The bridge is the first bridge trail users would cross going north from Coominya and is in fact the first intact timber pile bridge on the rail trail from this point to the southern terminus at Wulkuraka. Use of the bridge would thus be a highlight of this trail section An alternative gully crossing is viable as the gully is not that steep nor long. This could be done by retaining the bridge, or placing culverts under concrete floodway (35 m long). Repair and re-deck bridge.
98	Renovate fencing on both sides of corridor from bridge (map reference 97) to Bellwards Road (northern side of corridor). 1951 m of fence on each side. North of this point no trailside access should be possible from the trail's northern side due to private property.
99	Renovate 50% of fence (678 m in total) on south-western side of corridor from Bellwards Road to point where the road goes away from side of corridor (includes allowance for new fence).
100	The corridor is easily accessible off Hallings Road down a lane and has no passive surveillance. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Renovate fence to map reference 102.
101	Concrete pipe culvert.
102	Renovate 20% of fence (350 m in total) from map reference 100 to 102 (costs allows for some rebuild/replace).
103	Two speed signs, either side of formation.

Map ref	Works item
104	Two speed signs, either side of formation.
105	Box culvert.
106	Box culvert.
107	Box culvert—clean out regrowth.
108	Two speed signs, either side of formation.
109	64.6 m trestle Cooragook Bridge. **Essential to retain.** The cost of an alternative crossing given span of bridge and the volume and speed of water flow would be very expensive. The user experience of crossing such a bridge (both from a heritage and landscape perspective) is also a strong factor in retention. Repair and re-deck bridge. Install "please dismount and lead horses across bridge" sign.
110	Cooragook Station Ground. Owner uses paddocks on both sides of the corridor and wishes to retain this use. Install self-closing gates (as has been done on Moore–Linville section) on corridor between Cooragook Bridge and private property's northern boundary (if owner wishes to continue use).
111	Drainage work —fills (10 m x 2.5 m x 1 m) and install pipe culvert.
112	Timber road crossing signs in good condition. Repaint and 're-sign'.
113	Install interpretive panel (400 mm x 300 mm) "coming home".
114	Two speed signs, either side of formation.
115	Repair broken gate on north-east fence.
116	Construct 400 m fence (800 m total) on both sides of the corridor (to map reference 117).
117	Negotiate screen revegetation of sheds (100 m x 3 m).
118	Install 100 m of fence on western side.
119	Major road crossing: Esk-Gatton Road. Install road ahead and give way signs on trail. Install trail crossing signs on road. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
100 - 119	Very attractive section—lots of cuttings and embankments, wooded mountains, orchards.
120	Two speed signs, either side of formation.
121	Two speed signs, either side of formation.
122	60.5 m trestle bridge. **Essential to retain.** The cost of an alternative crossing given span of bridge and the volume and speed of water flow would be very expensive. The user experience of crossing such a bridge (both from a heritage and landscape perspective) is also a strong factor in retention. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
123	32.3 m trestle bridge. **Essential to retain.** The cost of an alternative crossing given span of bridge and the volume and speed of water flow would be very expensive. The user experience of crossing such a bridge (both from a heritage and landscape perspective) is also a strong factor in retention. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
124	Minor road crossing treatment: Boons Lane. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).

Map ref	Works item
125	30.5 m trestle bridge. **Essential to retain.** The cost of an alternative crossing given span of bridge and the volume and speed of water flow would be very expensive. The user experience of crossing such a bridge (both from a heritage and landscape perspective) is also a strong factor in retention. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
126	Concrete box culvert.
127	Concrete box culvert.
128	Open pipe culvert (30 cm wide). Cover and repair.
129	Concrete box culvert.
130	Concrete box culvert.
131	Concrete box culvert.
132	Concrete box culvert (two within 10 m).
133	Landowner moves vehicle and stock across corridor. Install advance warning sign on trail only.
134	Concrete box culvert.
135	Open pipe culvert (1 m wide). Cover and repair.
136	13 m trestle bridge. **Desirable to retain.** Repair and re-deck or construct concrete floodway and 2-3 pipe culverts to manage drainage. If concrete floodway option chosen, install concrete path for 8 m on creek approaches and for 2 m in gully (very slight grade).
137	Major road crossing: Esk Crows Nest Road. Construct embankments over spoon drain with two pipe culverts within. On the southern side, the embankment should be 10 m x 2.5 m x 1.5 m (high). On the northern side, the embankment should be 5 m x 2.5 m x 1 m (high). Install road ahead and give way signs on trail on southern side of road only. Install trail crossing signs on road. Install chicane and cavaletti gates on southern side of crossing. Install management access gate on southern side of crossing. Install 13 m fencing on southern side attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
138	Concrete box culvert.
139	Concrete box culvert.
140	Showground access road—install give way signs on trail and trail crossing signs on road.
141	Redbank Creek bridge—part of Esk pedestrian network. Install "please dismount and lead horses across bridge" sign.
142	Trail-head: Esk Station. Grade and gravel 35m x 25m parking area. Install trail-head signage. Develop a 10 m formal trail of decomposed granite (or similar) from the car park to the trail. Install two horse hitching rails and one horse trough and tap. Install double sided chevron signs on the adjacent street, on the Brisbane Valley Highway and on Esk-Gatton Road. (See Appendix 4 for detailed drawing of trail-head). Install three five-bike racks (not shown on drawing). Install attractions signage (not shown on drawing). Develop a 265m formal trail (3 m wide) of decomposed granite (or similar) from the trail to the western edge of the station ground (the 'turning circle') and then to Wattle Street to connect to the horse 'by-pass' (see map reference 143) Install interpretive panels (600 mm x 800mm) "a moveable feast" and "mine host".

Map ref	Works item
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (48 in all).
--	Trail construction and surfacing (minimum standard).

Maps 15-22 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: Coominya station provides a good trail-head with room to install trail signage and existing facilities.

Above: The corridor is vegetated while the formation has recently been cleared as the rail line was removed.

Above: The country between Coominya and Esk is particularly attractive, passing through vegetated country, past orchards and the vista of Mt Hallen in the background.

Above: Esk Shire Council has provided picnic facilities and "parking" facilities for horses adjacent to the historic Bellevue homestead.

Above: The old railway trestle bridges are a highlight of the trail. While there may be structural issues, they should be retained if possible.

Above: The road crossing of the Esk-Crows Nest Road requires careful design due to traffic volumes.

7.5 Esk–Toogoolawah

Distance: 18.96 km

Map ref	Works item
143	Develop a horse by-pass of the business district (notably Lars Anderson Car park). The by-pass will leave the Esk trail-head opposite the station and head west to Wattle Street through publicly-owned parcel of land south of Esk Hospital (note this had not been negotiated with the Department of Natural Resources and Water). Users will travel along Wattle, Highland, Edward, Elizabeth and Richard Streets before crossing the Brisbane Valley Highway opposite Richard Street. Users will travel south-east on the footpath before turning on Peters Street and back to the formation. Trail directional markers will need to be erected as follows. Station head: left turn arrow (southern face of post) and right turn arrow (western face). Wattle Street (where the formed trail meets the street south of hospital): right turn arrow (east face) and left turn arrow (north face). Highland Street (opposite Wattle Street): right turn arrow (south face) and left turn arrow (east face). North-west corner of Highland and Edward Street: left turn arrow (west face) and right turn arrow (north face). South-west corner of Edward and Elizabeth Streets: left turn arrow (south face) and right turn arrow (west face). Elizabeth Street (opposite Richard Street): right turn arrow (east face) and left turn arrow (north face). Brisbane Valley Highway (opposite Richard Street): right turn arrow (south face) and left turn arrow (east face) North-west corner of Brisbane Valley Highway and Peters Streets: left turn arrow (north face) and right turn arrow (east face). All posts to include plate indicating horse trail (by using horse symbol) under arrows. Install trail crossing warning signs on-road 100 m either side of horse crossing of Brisbane Valley Highway.
144	Minor road crossing: Highland Street (directional signage only as shown in Appendix 4).
145	Major road crossing: Brisbane Valley Highway (Esk). Works to cover signage (five sets). The cost does not include any barrier fencing as this is in the middle of the town and passive surveillance should limit motor bike access, though this should be monitored. See Appendix 4 for detailed drawing.
146	5 m concrete bridge/culvert. Bridge is functional rather than attractive, and provides an intact gully crossing.
147	20.5 m trestle bridge at the back of new proposed subdivision. **Highly desirable to retain.** The bridge is the first bridge trail users would cross going north from Esk. Use of the bridge would thus be a highlight of the trail section. An alternative creek crossing is viable as the gully is not that steep nor long. Given its location on the northern side of a new subdivision, retaining the bridge provides a good attraction for housing estate. Repair and re-deck bridge. Install “please dismount and lead horses across bridge” sign.
148	Negotiate screen revegetation (50 m x 3 m).
149	Driveway across formation.
150	Bridge removed at creek crossing. Install concrete path for 10 m on creek approaches and for 10 m in creek. Pipes under path.
151	Install interpretive panel (400 mm x 300 mm) “crime scene”.
152	Gallanani Creek crossing. Construct new 25 m bridge. Creek is too close to Esk–Kilcoy Road to achieve gentle slope for a concrete floodway. Install “please dismount and lead horses across bridge” sign.
150 - 152	Possible embankment needed. Corridor is on slight embankment that may be adequate.
153	Major road crossing: Esk Kilcoy Road. Install road ahead and give way signs on trail. Install trail crossing signs on road. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).

Map ref	Works item
154	Two speed signs, either side of formation.
155	Culvert.
156	Driveway across formation.
157	22 m trestle bridge. **Highly desirable to retain.** Length of crossing makes an alternative expensive. The gully crossing is fairly steep but it is formation to formation rather than over creek, meaning span of crossing is only 22 m unlike other bridges where crossing span needs to be longer than actual bridge. The bridge is visible from the road. In terms of promotion, it would be highly desirable for travellers (on the road) to see the bridge. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
158	Negotiate screen revegetation (100 m x 3 m).
159	Access road crossing. Install give way signs on trail only and self-closing gates on either side of road.
160	35 m trestle bridge over Bernays Gully. **Highly desirable to retain.** Length of crossing makes an alternative expensive. The gully crossing is fairly steep and water flow will be an issue judging by sides of gully. The bridge is visible from the road. In terms of promotion, it would be highly desirable for travellers (on road) to see the bridge Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
161	Box culvert: existing.
162	Two speed signs–either side of formation.
163	Box culvert: existing.
164	42.7 m trestle bridge over Coal Creek. **Highly desirable to retain.** Length of crossing makes an alternative expensive. The gully crossing is fairly steep and water flow will be an issue judging by sides of gully. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
165	Large square section box culvert (2.5 m across): existing.
166	Farmer moves stock across corridor. Gates in fence on both sides.
167	Box culvert: existing.
168	Box culvert: existing.
169	Install signage and delineator posts at 10 metre intervals on very high embankment (30 m long) – six delineator posts in all.
170	Open pipe culvert (1 m wide). Cover and repair.
171	Open pipe culvert (1 m wide). Cover and repair.
172	Box culvert: existing.
173	Box culvert: existing.
174	Two (100 m x 3 m) screen revegetation on southern side at either end of cutting.
175	Underpass of Brisbane Valley Highway.
176	Install signage and delineator posts at 10 m intervals on very high embankment (25 m long).
177	Screen revegetation (100 m x 3 m) on eastern approach.
178	Houses close to line but formation is at the bottom of a high cutting; consequently, there is no need for additional work (except as above).
179	Two speed signs, either side of formation.
180	Ottaba Station Ground. Install interpretive panel (400 mm x 300 mm) at northern end of station ground "ghost town" (at this site there remains some stumps from houses that were once on the station ground).
181	Minor road crossing. Install give way signs on trail only—this is to be monitored. This crossing is not visible from the main road and is not signposted as a road, unlike Morden Road and Masters Lane to the north. It may be unnecessary to manage to crossing to prevent unauthorised access.
182	Gully crossing. Concrete path for 10 m on creek approaches and for 5 m in creek. Pipes under path.

Map ref	Works item
183	Minor road crossing: Morden Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Note that give way road signs are partially intact.
184	Two speed signs, either side of formation.
185	Gate in fence both sides—farmer (and stock) cross regularly.
186	Negotiate screen revegetation (100 m x 3 m). A box culvert also at this location.
187	Minor road crossing: Masters Lane. Install give way signs on trail on both sides of crossing. Install chicane and cavaletti gates on south side of crossing. Install management access gate on south side of crossing. Install 13 m fencing on south side of crossing attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). The trail on the northern side of the crossing is highly visible and goes only a short distance before reaching Toogoolawah, making it a less attractive section for motor bikes.
188	66.6 m trestle bridge over Camp Creek. **Highly desirable to retain.** The bridge is the second bridge trail users would cross going south from Toogoolawah but is quite close to town—even casual trail users will go this far. Use of the bridge would thus be a highlight of trail section. Length of crossing makes an alternative expensive, though the gully crossing is not as steep as other locations. Repair and re-deck.
189	Develop a 50 m formal trail (3 m wide) of decomposed granite (or similar) to take users off the formation onto the existing pedestrian path.
190	63 m bridge—former road bridge over Cressbrook Creek. Not on formation but used as pedestrian bridge. **Highly desirable to retain.** The bridge is the first bridge trail users would cross going south from Toogoolawah. Length of crossing makes an alternative expensive. Functional rather than attractive. Bridge has been re-decked by Esk Shire Council. The bridge is currently in use as part of pedestrian pathway network Only work necessary is installation of "please dismount and lead horses across bridge" sign.
191	Develop a 100 m formal trail (3 m wide) of decomposed granite (or similar) to take users back to formation (south of Factory Road).
192	Minor road crossing: Cressbrook Street. Install give way signs on trail. The cost does not include any barrier fencing as this is in the middle of the town and passive surveillance should limit motor bike access. The low speed zone and low traffic volumes negate the need for on-road warning signs, though promotion signs could be used (but are not costed).
193	Install interpretive panel (400 mm x 300 mm) "St Andrews in McConnel Park"
194	Trail-head: Toogoolawah Station. Install trail-head signage, two groups of bollards (20 m and 30 m), two picnic tables (under tree cover), on-trail attractions signage, and a 10 m trail from the car park to the trail. (See Appendix 4 for detailed drawing of trail-head). Install three five-bike racks (not shown on drawing). Install double-sided chevron signs, on both sides of the entrance to town (the intersection of the Brisbane Valley Highway and Cressbrook Street, and the intersection of the Brisbane Valley Highway and Dingyarra Street) and in-town (at the intersection of Cressbrook Street and Fulham Street, and the intersection of Cressbrook Street and Dingyarra Street). Install interpretive panels (600 mm x 800mm) "runaway train" and "the master".
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (38 in all).
--	Trail construction and surfacing (minimum standard).

Maps 3-7 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: The Esk Station will be developed as the trail-head in Esk. Active community groups use and maintain the old railway station.

Above: Construction of the Lars Anderson car park on the rail corridor adds to the design challenge for getting users through Esk.

Above: Use of the existing pedestrian network in Toogoolawah means that a new trail will need to be developed south of the village to reconnect to the rail formation.

Above: The formation travels through typical rural countryside in the Brisbane Valley—it showcases rural landscapes for the enjoyment of trail users.

Above: Embankments will be a feature of the rail trail—this embankment, just north of the Brisbane Valley Highway overpass, is amongst the highest along the corridor

Above: A rail trail is rich in a variety of history–natural, indigenous and settlement. Rail staff often played a special role in local communities.

7.6 Toogoolawah–Harlin

Distance: 14.25 km

Map ref	Works item
195	Minor road crossing: Dingyarra Street. Install give way signs on trail. The cost does not include any barrier fencing as this is in the middle of the town and passive surveillance should limit motor bike access (and such access is prevented further along the trail at map reference 199). The low speed zone and low traffic volumes negate the need for on-road warning signs, though promotion signs could be used (but are not costed).
	Although the boundary fence between map reference 195 and 196 could be replaced, the trail is close to a main road—passive surveillance may keep trail bikes off (as it did along the Fernvale–Lowood section). Such access is prevented further along the trail (at map reference 199).
196	12.2 m trestle bridge. **Desirable to retain.** The bridge is the first bridge trail users would cross going north from Toogoolawah. Use of the bridge would thus be a highlight of trail section. Repair and re-deck bridge.
197	Intact signal.
198	Install interpretive panel (400 mm x 300 mm) “Toogoolawah quickstep”.
199	Building close by track on eastern side is a pumphouse. No screening necessary. Install chicane and cavaletti gate north-west of the end of Daniel Street (at the south-western corner of the Lowood Golf Course. Install 20 m (total) post and rail fence linking the gate to existing fences (this is the point where motorbikes illegally access the existing rail corridor from Lowood). Install management access gate.
200	Very minor road/lane crossing: Cemetery Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
201	66.6 m trestle bridge north of Cemetery Road. **Highly desirable to retain.** Length of crossing makes an alternative expensive, though the gully crossing is not as steep as other locations (but high water flow likely in middle of gully). While not as spectacular as other bridges and not crossing over a steep-sided creek, it offers a 66 metre bridge ride and elevated views of countryside. Repair and re-deck. Install “please dismount and lead horses across bridge” sign.
202	Yimbun Station ground. Install interpretive panel (400 mm x 300 mm) “end of the line”
203	Very minor road crossing: Harvey Road. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
204	15 m steel bridge. **Desirable to retain.** Bridge is functional rather than attractive, and provides an intact gully crossing. As a concrete bridge, there are unlikely to be structural concerns. It is not essential for the rail trail experience but given it is steel and concrete, there would be no need to replace it, and only re-decking would be needed. Retention of the bridge means managing drainage will not be an issue. Repair and re-deck.
205	Screen revegetation (300 m x 3 m).
206	Pipe culvert.
207	Brisbane Valley Highway underpass.
208	15.3 m trestle bridge. **Highly desirable to retain.** The short steep gully crossing makes an alternative crossing expensive. Repair and re-deck. Install “please dismount and lead horses across bridge” sign. Install interpretive panel (400 mm x 300 mm) “The Milk Train Bridge”.

Map ref	Works item
209	26.3 m trestle bridge. **Highly desirable to retain.** Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
210	House close to corridor. No screening necessary as trees and cutting between house and formation provide screening.
211	Box culvert.
212	Box culvert.
213	Two speed signs, either side of formation.
214	Box culvert.
215	Yimbun Tunnel. **Essential to retain.** The user experience (both from a heritage and landscape perspective) is a very strong factor in retention. The difficulty of alternative routes is also a major factor in retention. The only alternatives are either up and down a very steep slope on either side of the tunnel with consequent risk of rock fall, or the demolition of the tunnel and replacement with an at-level trail surface. The tunnel is a good example built in 1910. It is the only tunnel on the Linville–Ipswich section; it therefore offers a great experience. The tunnel is straight, providing no problems with claustrophobia—users can see the light at the end of the tunnel when they enter. There is no evidence of bats (not uncommon in such tunnels), but it may be out of season. There is evidence of rock slide on southern side. There is a need to stabilise rock face (through the use of wire netting) and to clear out drainage lines on top and side of tunnel face as this is possibly cause of rock slide. Water is blocked from going down the drain and works its way under rocks and makes them unstable. Such work should be done on both tunnel entrances. Install interpretive panel (400 mm x 300 mm) "tunnel vision".
216	Two speed signs, either side of formation.
217	Minor road crossing: Sinnamons Lane. Install give way signs on trail. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
218	Install fence and screening revegetation (200 m x 3 m) on both sides. There is a sand and gravel operation on one side of corridor and an organic mushroom farm (or similar) on the other side. Both operations are under same ownership.
219	Dairy right on corridor. There may be an issue with cattle movements.
220	77.4 m steel and concrete Harlin bridge. **Essential to retain.** The user experience of crossing such a bridge (both from a heritage and landscape perspective) is a very strong factor in retention. The difficulty of alternative crossings is also a major factor in retention. The creek sides are very steep on either side - any works would have to be well in excess of bridge span to get the slope right for trail users. Repair and re-deck. Install "please dismount and lead horses across bridge" sign.
221	Minor road crossing. Install give way signs on trail. Install chicane and cavaletti gates on eastern side of crossing. Install management access gate on eastern side of crossing. Install 13 m fencing on eastern side of crossing attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). The trail on the western side of the crossing goes immediately to the trail-head.

Map ref	Works item
222	Trail-head: Harlin Station. There is little evidence left apart from a junction switch lever. Clean up site including the removal of old loading platform. Renovate junction switch lever. Grade and gravel 40m x 25m parking area. Install trail-head signage. Develop two 15 m formal trails of decomposed granite (or similar) from the car park to the trail. Install two horse hitching rails. Install 1 picnic shelter (table and shelter). Install on-trail attraction signage. Install self-closing gate and 70 m of fence at north-western end of trail-head. Construct gravel access road (10 m x 4 m) from Tom Street to car park. Install double sided chevron signs on the intersection of the Brisbane Valley Highway and Tom Street. (See Appendix 4 for detailed drawing of trail-head). Install three 5-bike racks. Install interpretive panel (600 mm x 800mm) – "Harlin CBD". Install "No horses between Harlin and Moore" sign. Install cattle grid at northern end of station ground (beyond gate) to enforce 'no-horse' zone (none of these items are shown on the drawing)
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (30 in all)
--	Trail construction and surfacing (minimum standard)

Maps 28-32 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: Toogoolawah Station–the obvious trail-head in Toogoolawah. The station building is in good condition and is very close to the main street

Above: Bridges such as this one near Yimbun Tunnel have significant historic interest

Above: Yimbun Tunnel, built in 1910, is the only tunnel on the corridor from Wulkuraka to Linville – it has immense historic and user appeal

Above: Where roads crossed the railway, there were warning signs for motorists to be aware. Very few of these remain–this example is at Cemetery Road

Above: The topography of the countryside along the rail trail varies from flat to gentle hills, but gets steeper north of Linville

Above: The stunning Harlin Bridge is one of the few concrete and steel bridges on the trail. Its construction and height above Ivory Creek add to its appeal

7.7 Harlin–Moore

Distance: 13.46 km

Map ref	Works item
223	Screen revegetation (100 m x 3 m)
224	Major road crossing: Brisbane Valley Highway. Install road ahead on the trail on the eastern side of crossing and give way signs on the trail on both sides of the crossing. Install trail crossing signs on road. Install chicane gate on east side of crossing. Install management access gate on east side of crossing. Install 13 m fencing on east side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). See Appendix 4 for drawing.
225	Construct embankment (30 m x 3 m x 1 m deep) on southern side of Turkey Creek Road. Construct trail (decomposed granite or similar) (2.5 m wide) on embankment.
226	Minor road crossing: Turkey Creek Road. Install give way signs on the trail on both sides of the crossing. Install trail crossing sign on road on the western approach. Install chicane gate on northern side of crossing. Install management access gate on northern side of crossing. Install 13 m fencing on northern side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
227	Create embankment (40 m x 3 m x 5 m deep) on road reserve immediately north of Turtle Creek Road. Construct trail (decomposed granite or similar) (2.5 m wide) on embankment. Install 1 m diameter pipe (5 m long) under embankment. Install chicane at northern end of new trail section.
228	Install 100 m of precast concrete boardwalk (below dam on private property) on the western side of the corridor
229	Construct 675 m trail (decomposed granite or similar) (2.5 m wide) linking the boardwalk to the bridge over Jimmy's Gully.
230	36.6 m trestle bridge over Jimmy's Gully. **Highly desirable to retain.** Length of crossing makes an alternative expensive. The gully crossing is fairly steep and water flow (speed and quantity) will be an issue. Any works would have to be well in excess of bridge span to get the slope right for trail users. The alternatives are costly, given available options within the easement. The gully does flatten out away from the corridor but this is on private land. Any alternative on the northern side of the bridge in particular would require significant cutting in as it is very steep for 10–15 m beyond the end of the bridge. Repair and re-deck.
231	Two speed signs , either side of formation, immediately north of bridge.
232	Two speed signs, either side of formation.
233	Concrete box culvert.
234	15.3 m trestle bridge. **Highly desirable to retain.** Length of crossing makes an alternative expensive. Repair and re-deck. (Powerlines across the trail at this location).
235	Double pipe culvert.
236	Driveway over formation. Railway crossing signs are intact on driveway.
237	11.7 m trestle bridge. **Desirable to retain.** Repair and re-deck.

Map ref	Works item
238	Major road crossing: D'Aguilar Highway. Users to go across highway on a straight angle rather than on the formation angle as this is the best solution. This involves construction of a slight detour. Southern side of D'Aguilar Highway. Construct embankment (4 m x 2.5 m x 1 m high). Construct 30 m trail (decomposed granite or similar) (2.5 m wide), including 4 m on embankment. Construct 30 m post and rail fence. Install self-closing pedestrian gate. Install cattle grid to enforce 'no-horse' zone (not shown on drawing). Northern side of D'Aguilar Highway. Construct embankment (15 m x 2.5 m x 1 m high). Construct 15 m trail (decomposed granite or similar) (2.5 m wide) on embankment. Construct 25 m (in total) post and rail fence. Install self-closing pedestrian gate. Install cattle grid to enforce 'no-horse' zone (not shown on drawing). Crossing signs as specified. (see Appendix 4 for detailed drawing of road crossing)
239	Double span culvert bridge.
240	Overhead bridge: Nurinda Road.
241	Nurinda Road bridge. 20.8 m trestle bridge. **Highly desirable to retain.** Users could come off the formation and cross the road – this would mean a minor road crossing to be constructed, plus a longer and gentler slope would need to be cut into the formation on either side of the road. It is a not an expensive alternative, but there is no need for such an option if the bridge can be retained. Elevated views from the bridge also add to the argument for retaining the bridge as these views offer a critical part of the rail trail experience. Repair and re-deck.
242	Nurinda Station: house close to and overlooking corridor. Negotiate screen revegetation (100 m x 3 m) as revegetation may block views and not be desirable. Install interpretive panel (400 mm x 300mm) "Colinton hut"
243	Station ground—loading yard with double line (no longer in place). Install interpretive panels (400 mm x 300mm) "Colinton Hut" and "our boys".
244	Box culvert.
245	Landowner uses this section of rail corridor for access of vehicles and machinery across properties (around 150 m), only during the week and would like this access to continue. Recommend this practice continue. Include notification in trail information that users are likely to encounter farm machinery during the week.
246	Emu Creek bridge. 97.8 m trestle bridge. **Essential to retain.** The cost of an alternative crossing given span of bridge and the volume and speed of water flow would be very expensive. The user experience of crossing such a bridge (both from a heritage and landscape perspective) is also a strong factor in retention. Repair and re-deck.
247	37.3m trestle bridge. **Highly desirable to retain. Note bridge is owned by landowner.** There are crossing options if this bridge cannot be used. However, it is critical to retain this bridge given its length and its height above the gully (meaning an expensive option). It should be noted these bridges will not be lost as the landowner intends to retain them for historical purposes; if structurally unsound, they will simply be unavailable for trail users. Repair and re-deck.

Map ref	Works item
248	Install 75 m barb fence and double grid on western side of corridor separating users from cattle yards. Landowner is not concerned about users going off trail to sheds on eastern side of corridor as it is gated and fenced. Just south of this point is a fenced-off section of the corridor where landowner stores his rolled and wrapped Lucerne for distribution on either own property or for selling. It is fenced off to stop stock coming in and eating the Lucerne through the plastic wrapping. When sold, semis come and take it away through a gate on south west side of yard. Recommend this arrangement be maintained.
249	15.3 m low-level trestle bridge. **Highly desirable to retain. Note bridge is owned by landowner.** There are crossing options if this bridge cannot be used. It is desirable to retain this bridge. It should be noted these bridges will not be lost as the landowner intends to retain them for historical purposes; if structurally unsound, they will simply be unavailable for trail users. Repair and re-deck
250	Box culvert.
251	Box culvert.
252	Missing bridge. Concrete path for 10 m on creek approaches and for 10 m in creek. Pipes under path.
253	Missing bridge over Stradbroke Creek. Concrete path for 20 m on creek approaches and for 10 m in creek. Pipes under path.
254	Missing bridge over major cattle access gully. Build replacement bridge with handrails, 15 m x 2.5 m.
255	Major embankment built across trail to develop a farm access 'bridge' on. The embankment is 20 m wide and approximately 10 m high. The 'bridge' allows the farmer to access the next property. Trail users to go over embankment. Install spring-loaded gates in existing pipe railing facing trail. Trail users will need to open gates.
256	Creek crossing: Wallaby Creek. Construct 50 m bridge (too steep and too unstable for floodway option).
257	Concrete box culvert.
258	Minor road crossing: Arabbaby Creek Road. Install give way signs on the trail on both sides of the crossing. Install chicane gate on east side of crossing. Install management access gate on east side of crossing. Install 13 m fencing on east side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Install cattle grid to enforce 'no-horse' zone.
259	Concrete box culvert.
260	Concrete box culvert.
261	Install 100 m fencing both sides to prevent trail bike access.
262	Trail to rejoin formation east of the big hole. Trail in this section will use road reserve after crossing the highway from south-west to north-east.
263	Major road crossing: D'Aguilar Highway. At this point, users will leave the original railway formation as it is currently under the highway and travel on the old road reserve. This will involve trail construction. Northern side of D'Aguilar Highway. Construct 40 m trail (decomposed granite or similar) (2.5 m wide). Construct 60 m post and rail fence. Install timber chicane. Southern side of D'Aguilar Highway. Construct embankment (100 m x 2.5 m x 1 m high). Construct 100 m trail (decomposed granite or similar) (2.5 m wide) on embankment. Construct 20 m post and rail fence. Install self-closing pedestrian gate. Install 2 pipe culverts under trail. On the southern side, the trail takes users further east along the highway before crossing, giving better sightlines to the west and reducing the need for a higher embankment on the northern side. Crossing signs to be trail crossing warning signs on highway, and road ahead signs and give way signs on trail. (see Appendix 4 for detailed drawing of road crossing)
264	Pipe culvert and fill (6 m x 3 m x 1 m).
265	Pipe culvert and fill (10 m x 3 m x 1 m).
266	Trail on old road corridor on south side of highway for 1 km.

Map ref	Works item
267	Major road crossing: D'Aguilar Highway at Moore.
	At this point, users will rejoin the original railway formation. This will involve additional trail construction and removes the need to construct a substantial bridge on the outskirts of Moore as envisaged in the draft plan. The crossing has good sightlines and is within the 60 km/hr zone.
	Southern side of D'Aguilar Highway. Place fill (26 m x 2.5 m x 0.2 m high) for trail surface. Construct 26 m trail (decomposed granite or similar) (2.5 m wide) on fill.
	Install concrete median refuge on highway.
	Northern side of D'Aguilar Highway (between highway and Railway Terrace). Place fill (33 m x 2.5 m x 0.2 m high) for trail surface. Construct 33 m trail (decomposed granite or similar) (2.5 m wide) on fill.
	Northern side of Railway Terrace. Place fill (30 m x 2.5 m x 0.2 m high) for trail surface. Construct 30 m trail (decomposed granite or similar) (2.5 m wide) on fill. Install self-closing pedestrian gate in existing fence.
	Crossing signs to be trail crossing warning signs on highway, and road ahead signs and give way signs on trail (north of Railway Terrace and south of D'Aguilar Highway).
	(see Appendix 4 for detailed drawing of road crossing)
268	Trail to leave formation and cross Moore Linville Road to Moore trail-head and new trail. Install signage to Moore trail-head (left turn arrow to Moore on southern face of post); right turn arrow to Harlin on western face of post).
	Install single-sided chevron on southern side of shed at formation end.
	Re-fence in this section (40m). Cut and construct 80 m new trail (decomposed granite or similar) (2.5 m wide) between formation and Moore–Linville Road.
269	Minor road crossing: Moore–Linville Road (no gating or barrier fencing necessary).
270	Install signage to Moore trail-head and Linville outside Moore school. Use a four-sided post with three sides in use.
	Eastern face: Moore and refreshments (left turn arrow); Linville—right turn arrow
	Northern face: Harlin (left turn arrow); Moore and refreshments (straight ahead arrow).
	Southern face: Linville (straight ahead arrow); Harlin (right turn arrow)
271	Install fingerboard sign (or rail-sleeper arrow sign) on eastern side of bridge over Dry Creek at top of slope down, otherwise users may go along road behind school. It is not clear at this point where users should go.
272	Re-built pedestrian bridge over Dry Creek
273	Trail-head: Stanley Gates Park, Moore.
	Install interpretive panels (600 mm x 800mm) "stonehouse" and "Moore to Kokoda". Install "no horses between Harlin and Moore" sign.
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (27 in all).
--	Trail construction and surfacing (minimum standard).

Maps 33-37 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: Little remains in the Harlin Station grounds. The station grounds are wide enough to develop horse resting facilities, allowing users to walk the short distance to the village

Above: The bridge over Jimmy's Gully is one o the higher bridges along the trail, affording users with good views over the edges

Above: Crossing the D'Aguilar Highway requires good design. The trail crosses the highway twice in the Harlin–Moore section; it may be appropriate that horses are excluded from this section.

Above: The formation travels through typical rural countryside in large cuttings and on top of embankments

Above: At Wallaby Creek, no bridge remains. The steep sides of the creek mean that there are limited crossing alternatives

Above: The trail-head in Moore is proposed to be at Stanley Gates Park taking users through the village. The original railway skirted the town to benefit local businesses; the proposal is for the trail to pass through the village

7.8 Moore–Linville

Distance: 7.0 km

Note: The majority of this work has been completed and the trail section was opened on 25 November 2007. The horse yards at Linville Station trail-head will be installed in the first half of 2008.

Map ref	Works item
274	Rail trail horse yards at Moore Pony Club.
275	Place fingerboard sign (or rail-sleeper arrow sign) using post for Church Street and trail-head pointing east along Station Road for users coming out of Moore toward Linville, otherwise users may go along Church Street. It is not clear at this point where users should go.
276	New trail constructed on western side of Moore–Linville Road.
277	Bench seat.
278	Trail on road formation. Significant erosion issues as slope is very steep. Drainage needs serious attention. The new trail (in this section) needs re-surfacing, stabilising and drainage works. The possibility of cutting a new trail further down the eastern side of slope to reduce north-south slope of trail (starting opposite 138 Moore Linville Rd) should be investigated.
279	Bench seat.
280	Chicane and safety fencing above embankment near road.
281	Fix ruts at chicane. From the top of the slope (adjacent to the chicane), create a u-drain on western side of 50–70m. Install a pipe under the trail and take water down east facing slope to roadside. Run water north along road for another 50m to meet existing culvert under road.
282	Bench seat and hitching rail.
283	Side-trail to Moore cemetery with gate entry. Install attraction sign.
284	Minor road crossing: Moore–Linville Road. Install trail crossing signs on road.
285	Creek crossing: Boundary Creek. Graded entry and concrete floodway. Install “cyclists please dismount” sign.
286	Bench seat and hitching rail. Install interpretive panel (400 mm x 300mm) “one for the road”.
287	Bench seat.
288	Creek crossing: Greenhide Creek. Switchback entry and concrete floodway. Install “cyclists please dismount” sign.
289	There is some concern over the proximity of barb wire at gates in this section – unaware cyclists may grab the wire in reaching for lock.
290	Bench seat.
291	New fencing alongside Moore–Linville Road.
292	Minor road crossing: Moore–Linville Road. Install on-trail road ahead and give way signs.
293	Trail-head: Linville Station. Install interpretive panel (600 mm x 800mm) “to see the sea”
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (13 in all).
--	Trail construction and surfacing as required.

Maps 37-39 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: The reinforced pedestrian bridge connecting Moore to its school. This project was undertaken as part of the development of the rail trail

Above: the re-routed trail passes the Moore school. The school has a long history—indeed, many of the "railway children" received their education inside its hallowed walls

Above: All bridges in this section have been removed. The new work has involved the development of a graded entry with a concrete floodway at the base. This is the work at Boundary Creek.

Above: Re-routing the trail on the west side of the Moore–Linville Road has required the building of a new trail

Above: A connection to Moore cemetery provides trail users to visit this fascinating historic cemetery while using the trail

Above: A gating system is being trialled along the new section. The smaller gate allows trail users through, while the larger gate is for management vehicles and emergency vehicles.

7.9 Linville–Blackbutt

Distance: 22.6 km

Background

The commitment of funds for the development of the Brisbane Valley Rail Trail did not include consideration of works that may need to be carried out on the Linville–Blackbutt section as it was an existing trail in place (having been opened in May 2006). However, detailed field work indicated the need for a range of works that should be done to bring the trail to the same general standard as that which is being proposed for the Wulkuraka to Linville section.

Though there will inevitably be differences between sections, trail users will expect a similar standard of facility and experience along the entire trail. Vastly differing standards (of surfacing and creek crossings in particular) create a difficult marketing challenge – word of mouth can quickly undo the best promotional efforts. There has been both positive and negative feedback on the completed trail over the two years that it has been open; most of the negative feedback has been about the difficulty of creek crossings. The works list makes recommendations to deal with the range of issues that need attention.

The works list identifies the removal of all existing gates on this section of trail. Any impacts on current farming activities would need to be resolved e.g. livestock movement. The feedback from trail users is that the system in place is awkward to use and it does not prevent motor bike access (as motor bike riders simply go and get the keys or cut the wire around the gate). It is understood that motor bike access has decreased in recent times and there have been very few official complaints in the last two years.

In addition, the locked gate system makes it difficult for emergency vehicles. While they could be issued with a key, feedback from emergency services personnel is that a combination lock is preferred. The trail management plan (Section 11) makes a recommendation that all management access gates be locked using combination locks with one combination serving the entire trail, and only emergency service personnel, the trail manager, maintenance crews and landholders with access agreements having the combination. The installation of chicane gating at Benarkin and Linville and the fencing of Blackbutt Creek Road should limit motor bike access. If motor bike access becomes a problem, a chicane and cavaletti gating system can be put in place on the trail as and where necessary.

Map ref	Works item
294	Construct horse yards at Linville station.
295	North of Linville Station. From old overpass bridge, north for 100 m in cutting. Dig out and reinstate u-shaped drains in cutting (both sides). Use excess material to crown trail and channel water away on north side (Blackbutt side) of cutting. Install chicane and cavaletti gate. Install 20 m (total) post and rail fence linking the gate to existing fences. Install management access gate.
296	At the gate 1.5 km north of Linville, shape entry and exit from gully by using fill (decomposed or similar) (15 m x 3 m x 0.5 m). Place two drainage pipes underneath fill.
297	Construct small dam on rail trail for use by horses (approximately 3.5 km from Linville).
298	Between 4 km and 6 km from Linville, install three bench seats at sites with views down and across Blackbutt Creek valley, At one of these seats, also install interpretive panel (400 mm x 300mm) “on the Blackbutt Range”,
299	Existing locked gate. Remove gate.
300	Install interpretive panel (400 mm x 300mm) “to the fallen” (note this panel needs to be installed behind the existing plaque to the railway workers who were killed on the line. This may not be the exact location).
301	Creek crossing, gently sloping concrete path for 20 m on either side of creek approaches and for 10 m in creek. Pipes under path.
302	Creek crossing, gently sloping concrete path for 15 m on either side of creek approaches and for 10 m in creek. Pipes under path.
303	The Grove crossing :hardened path (15 m) off formation; formed trail surface for 50 m; 10 m concrete creek crossing; formed trail surface for 15 m; hardened path (15 m) back to formation.
304	Old railway gate (working) and safety railing (existing). Leave gate in place as a heritage icon. Ensure it is not locked. Install interpretive panel (400 mm x 300mm) “Bellbird Carillon”.
305	Major gully crossing. Concrete path for 25 m on creek approaches and for 20 m in creek. Pipes under path. Reduce slope on both sides.
306	Hollow north-east of gate. If it is scraped clear (suggested), it might start to erode. Recommend harden up north-east approach (do not need a concrete floodway as it is over a culvert). Install a pipe/drain on north-east side (5m long) to take away water.

Map ref	Works item
307	Existing gate. Wire has been cut on the side of gate to allow access. Remove gate.
308	Existing gate. Wire has been cut on the side of gate to allow access. Remove gate.
309	There is a need to properly and legally close Blackbutt Creek Road at both ends (the western end is marked). It is reported that this is where trail bikes are accessing the trail, coming off this road, cutting across private property and coming onto the trail. No amount of engineering work (fences, gates etc.) will keep the bikes out as they carry tools. The road, while just a road reserve, is shown on satellite navigation systems as being opened. It would seem that the simplest and cheapest management tool is to close the road (which serves no access purposes) and to erect barriers at each end, rather than attempt to manage trail bike access closer to the trail. It will be necessary to place appropriate signage on the road to clearly indicate it is a closed road.
310	D'Aguilar Highway underpass.
311	Major gully. Western side has a severe slope while the eastern slope is not so bad. Concrete causeway (10 m) + 15 m in either side to be hardened up. Eastern side requires no cutting just reforming with drain on the north side. Western entrance needs to be reduced in slope. Install interpretive panel (400 mm x 300mm) "the good oil on wood" (on the Benarkin side of this gully).
312	
313	D'Aguilar Highway underpass.
314	From map reference 313 (underpass) to 315 (trail-head), develop 360 m formal trail (3 m wide) of decomposed granite (or similar) as trail surface work is needed. Only vehicular wheel marks are obvious (noted by grass between wheelmarks). Install 360m fencing along northern side of open paddock from 313 to 315. Install chicane and cavaletti gates at map reference 313. Install management access gate. Install 13 m fencing on attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor).
315	Trail-head: Benarkin Station. Grade and gravel 30 m x 20 m parking area. Install trail-head signage. Develop 30 m of formal trail of decomposed granite (or similar) from the car park to the trail. Install one horse hitching rail. Install one picnic shelter (table and shelter). Install on-trail attraction signage. Install double sided chevron signs on the intersection of the Brisbane Valley Highway and Scott Street. (See Appendix 4 for detailed drawing of trail-head). Install one five-bike racks (not shown on drawing). Install interpretive panels (600 mm x 800mm) "school of the (open) air", "what's in a name" and "only in the country".
316	Minor Road crossing: Scott Street. Install on-trail (both road ahead and give way signs) and on-road signage. Install chicane and cavaletti gates on north side of crossing. Install management access gate on north side of crossing. Install 13 m fencing on north side of crossing attached to gate to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Drainage needs attention (due to removal of overhead bridge). On eastern side, re-form trail completely (150 m). Put in place drainage measures alongside trail connecting to a pipe culvert and fill adjacent to the road. On the western side, re-form the trail for 100 m with grader and create slope south-north and drain to take all water into the wet area on north side of trail,
317	Taking advantage of the council ownership of the parcel of land between Benarkin cemetery and the trail, develop a 80 m trail (3 m wide) of decomposed granite (or similar) linking the trail with the cemetery and install attractions signage.
318	Remove yellow diamond sign. Install on-trail both road ahead and give way signs. Install chicane and cavaletti gates on both sides of crossing. Install management access gates. Install 13 m fencing on both sides of crossing attached to gates to ensure gates work as designed (assume corridor is 20 m wide and gates take up 7 m of corridor). Attention is need to the slope coming down to the road crossing. Harden the surface on both sides of the crossing. Reduce slope if possible on both sides. Install chicane and cavaletti gates on both sides to prevent motorbike access.
319	Existing garden seat.
320	Drainage measures in cutting—pipes on edge and/or crowning (150 m).

Map ref	Works item
321	Trail-head: Blackbutt Station. Grade and gravel 50 m x 30 m (approximately) parking area. Fill with blue metal small gully at southern end of proposed parking area. Install trail-head signage. Develop 100 m of formal trail of decomposed granite (or similar) from the car park to the trail. Install two horse hitching rails. Install trail directional marker (trail is a little unclear at northern end of mown area). Install water trough (and tap if possible). (See Appendix 4 for detailed drawing of trail-head). Install three five-bike racks (not shown on drawing). Install interpretive panels (600 mm x 800mm) “unsung hero”, “grand slam” and “divine Intervention”.
322	Double-sided chevrons corner of Hart Street and D’Aguilar Highway (Coulson Street), Blackbutt.
--	Install trail directional marker posts with double-sided straight arrows and distance to next trail-head every 0.5 km (45 in all). Recommend removing existing green directional signs to ease confusion.
--	Trail construction and surfacing. Surface is in poor shape (observations and user feedback confirm this). General work along the entire surface is needed (note that additional individual works items have been proposed above in various places).

Maps 39-48 which accompany this report illustrate the alignment of this section, the key features of the trail, existing infrastructure (highlighted in green) and the recommended upgrading items (highlighted in yellow).

Above: This section of the rail trail is one of the most attractive—views over Blackbutt Creek (some 5 km from Linville) provide visual attractions for trail users.

Above: This old railway gate, (on top of a spectacular part of the range), is one of the many existing gates on the trail. Note the safety rail on the left.

Above: Clear cuttings, such as this one, provide part of the attraction along the Linville–Blackbutt section of the rail trail.

Above: Creek crossings (such as this one) provide attractive spots for trail users; unfortunately, this site is on the trail (the bridge has been removed) and will need some pipe work to manage drainage.

Above: New gates have been installed, operated by a key provided to users. Unfortunately, people have found their way around the gate—the wire has been cut.

Above: The trail-head at Blackbutt has capacity for float parking. It is also very close to the centre of town and opposite the Visitor Information Centre.

Section 8. Construction stages

In trail projects, development can often be staged so that parts of trails are developed in line with available funding sources. It is simply not possible to open the full length of the trail simultaneously as significant physical, financial, community and institutional work needs to be undertaken. This is the case in many rail trails (and indeed many recreational trails) around Australia. It has not detracted from their utility or the enjoyment of them by users; however, there is a need to be conscious of how stages are marketed. Promotional material needs to clearly articulate what sections are open and what this means for users.

A number of factors have been considered in recommending stages of construction. These include costs, likely user numbers and sources, user experience, development and likely development of complementary facilities and opportunities, work programs of project partners (notably the two councils and the Western Pipeline Alliance), landholder attitudes and consideration of the desire to develop lengths of continuous trail.

The staging of trail development suggested (Table 8.1) should not be taken as definitive, but rather as a steady course towards achieving the objectives. It is important that all the sections of the trail are flagged for future development to ensure there is no community misunderstanding about the intention to ultimately develop and complete the rail trail between Ipswich and Blackbutt.

The existing Fernvale–Lowood, Moore–Linville and Linville–Blackbutt sections are not included in the following table.

Both stages and target years are identified. However, there needs to be some flexibility in development which may alter the target years. The state government's current regional trails program (encompassing three trails) is to be completed by the middle of 2012. The timetable below allows for the completion of the entire Brisbane Valley Rail Trail by that time.

Table 8.1 Possible staging of trails development

Stage	Target year	Section	Comment
1	07–08	Coominya–Esk (23.55 km)	This section of the railway corridor is probably the most attractive of the sections to be completed. It will appeal to the greatest number of local users and user groups. This section has an intact corridor with a number of intact bridges which adds greatly to its appeal. There are developed facilities at Coominya and Esk. This section also utilises existing tourism infrastructure and the tourism profile of the Brisbane Valley. The construction primarily involves clearing of surface vegetation and surface preparation, renovation of bridges, renovation and/or installation of fences, and the construction of trail-head facilities at Esk.
2	08–09	Esk–Toogoolowah (18.96 km)	This section is attractive and has well developed facilities at the potential trail-heads at two of the major settlements in Esk Shire. This section also uses existing tourism infrastructure and the tourism profile of the Brisbane Valley. The construction primarily involves clearing of surface vegetation and surface preparation, renovation of bridges, construction of new bridges and gully crossings, and renovation and/or installation of fences.
3	08–09	Lowood–Coominya (11.78 km)	The primary driver of this stage is connectivity. It is a relatively cheap section to compete and it links Stages 1 and 2 (Coominya–Toogoolawah) with the Fernvale–Lowood section This would mean a continuous section of around 62 km (from Fernvale to Toogoolawah). An added positive factor is that the Western Pipeline Alliance has agreed to undertake work on reinstating this section (from Lowood–Clarendon) while its project is underway (it finishes on 30 April 2008). Established trail-heads at Lowood and Coominya add to the appeal. This section also uses existing tourism infrastructure and the tourism profile of the Brisbane Valley. The construction primarily involves clearing of surface vegetation and surface preparation, construction of gully crossings, and renovation and/or installation of fences.

Stage	Target year	Section	Comment
4	09–10	Wulkuraka–Fernvale (22.51 km)	This section has a number of advantages. From Wulkuraka to Bayley Road (Muirlea), it has the potential to assist in providing better commuter links from developed and developing areas of Ipswich to the CBD (as it links beyond Wulkuraka Station to the city's cycle network). In the longer term, it could be developed as an extension of the Ipswich urban cycle network. The development of the Western Corridor Recycled Water Pipeline (from Bayley Road to Wanora) has reduced construction difficulties for much of this section. This is one of the more expensive sections due to the need to construct road crossings, a new trail-head and new bridges. This section is not as picturesque as other sections and is more likely to service local users rather than visitors. Ipswich City Council has expressed a desire to develop local horse riding networks using the section from Bayley Road to Borallon as a 'spine'. Development of other sections will demonstrate to opponents that their fears will not be realised, another reason to develop this section at a later date. The construction primarily involves clearing of surface vegetation and surface preparation, trail-head development, creek crossings, and installation of fences.
5	10–11	Toogoolawah–Harlin (14.25 km)	This section is picturesque, and contains significant historic railway artefacts (notably the Yimbun tunnel and the Harlin Bridge). It ranks a little lower because of connectivity—if developed earlier, it is 'isolated'.
6	11/12	Harlin–Moore (13.46 km)	There are supportive landowners and this section contains some spectacular bridges such as Emu Creek Bridge. However, this section is the most expensive section to develop and contains some of the very difficult elements (crossings of the D'Aguilar and Brisbane Valley highways, major bridge renovations and the construction of new bridges).

Implementation timetable – connectivity of sections

Stage									
*									L-B*
*								M-L*	
*		F-L*							
1				C-E					
2					E-T				
3			L-C						
4	W-F								
5						T-H			
6							H-M		

Key

*	in place or close to completion
W-F	Wulkuraka–Fernvale
F-L	Fernvale–Lowood (close to completion)
L-C	Lowood–Coominya
C-E	Coominya–Esk
E-T	Esk–Toogoolawah
T-H	Toogoolawah–Harlin
H-M	Harlin–Moore
M-L	Moore–Linville (close to completion)
L-B	Linville–Blackbutt (in place)

The same colour indicates connectivity—connected stages that will be built consecutively.

Section 9. Interpretation plan

9.1 Introduction

The goal of interpretive signage is to communicate ideas and feelings that enrich people's understanding and appreciation of the world and their role within it. Tilden (1957) originally defined the aim of interpretive communication as 'revealing meanings and relationships through the use of original objects, by first hand experience and by illustrative media." In situations where all tangible evidence has disappeared, interpretive signage also assumes the role of virtual reality. Ham (1992) identified four key components of effective interpretive signs: they must be pleasurable, relevant to visitor experiences, organised logically and thematic. Bitgood (2000) reported that visitors also needed signage to be distinctive or 'salient' to be noticed, short and easy to read, and both engaging and interesting so that the information offered was processed centrally and stored in long-term memory. Interpretive signs were most effective when there were no other distracting displays that overloaded cognitive capacity.

Ballantyne, Hughes and Moscardo (2006) recently extended the requirements for effective signage. Their research suggested that signage must be relevant, novel, organised and structured, thematic, respectful and able to engage an audience. Recommendations for interpretive signage on the Brisbane Valley Rail Trail reflect these principles.

9.2 Determining themes and stories

A detailed methodology for determining themes and stories is included in Appendix 5. The following is a brief description.

On the basis of historical resources and the very many local stories that are still told about the rail line and the communities it served, content for interpretive signage was developed. Because of time constraints, many of the stories were derived from settled communities where data collection is easy. The original stops and stations of the Brisbane Valley Line were identified on a representational map of the area that is included in Appendix 6. A matrix was developed to include the proposed location, the content and the illustration of all the signs that satisfied the six conditions for effective signage outlined above.

One of the recommended criteria in determining whether a story might be significant enough for display or signage is that it portrays a 'local legend'. This phrase is not designed to convey the meaning of 'national treasure' that is often restricted to Australian Icons. Local legends are the 'characters' in the stories of the Brisbane Valley, with a world view that better depicts the overall development of the area than the occasional splurges on beautiful architecture in memory of the boom times.

For simplicity, local legends may be seen to come in three sizes: iconic, unique and merely representational. For convenience, it has been tied to the character of the story who also 'borrows' some kudos from the story setting.

The distinction between iconic and unique is often blurred; in this plan, 'iconic' refers to those people (structures or events) that are household names as the rail trail is being developed. World Wars I and II and the Vietnam War are still in this category, while the Boer War is not any longer. Stock routes and rail lines are no longer iconic, except where they have been incorporated into currently popular folk songs. Some sporting heroes retain their status as icons all their lives, together with most of the Australian explorers still regularly taught at school. Politicians who have exercised naming rights over important landscape features like the Somerset Dam are elevated to icon status. Soldiers are an interesting category where they serve as representatives of their group, but often return home from a successful war as icons.

The category 'unique' has been easier to define as one-of-a-kind. All the stories of the owners of heritage-listed houses fit into this category. With other claims to fame, an argument could sometimes be made for even higher status. The day labourers building the Yimbun tunnel were unique because there is only one tunnel on the line. The Railway Bridge at Harlin now has the unique characteristics of the last cement-pier bridge standing on the Brisbane Valley Line.

The representative category, unlike the previous two categories, does not allow the characters to be labelled without a reference to the activity or context that they are representing.

9.3 Themes

Recurring themes were repeated in many signs, and an attempt has been made to collapse them into broad categories that would provide guidelines for further signage development. A developmental history of the Brisbane Valley allowed the identification of characters representing various facets of that development. The themes and sub-themes chosen were:

- early land use
  - exploration
  - pioneers/natural resources
- settlement
  - hearth and home
- separation and state development
  - road and rail
  - education
  - business/industry
  - state/local governance
- Federation and modern times
  - national stage
  - international stage.

Early land use included initial exploration and surveying, as well as pioneer land use including natural resources, absentee landlords, immigrant labour and

Indigenous issues of the day. It has proven too difficult at this time to incorporate the latter into public signage that was respectful to the memory of Indigenous people, and this imbalance needs further attention as the signage for the Brisbane Valley Rail Trail develops.

Settlement following early exploration was extended to include closer settlement encouraged by the various Land Acts in the late 19th century, and road and rail development generally. 'Hearth and home' is the one category in this taxonomy that provides continuity for both yesterday's and tomorrow's stories of the Brisbane Valley.

The government initiatives that supported this closer settlement are included in the category of 'separation and state development'.

The final category gives rise to more recent stories of the Brisbane Valley—those that followed Federation, where Australia took its place on the world stage. Here the issues take on a uniquely national and international flavour. Most of the war stories come from this category.

9.4 Stories

Using a matrix scoring system (described in the detailed methodology in Appendix 5), characters (local legends) were cross-referenced with themes to arrive at selected stories. Where a story/character had multiple references against what appear to be the important issues for the development of the Brisbane Valley (the themes), the story is recommended for use on interpretive signage.

It should be noted that this matrix system can be used to incorporate new initiatives, and it is in this role that it will be most useful as a guide to the development of future signage on the rail trail. The Recycled Water Pipeline is currently unique for the categories of 'natural resources', 'hearth and home', 'business/industry' and 'state government'. Stories about the pipeline that also satisfy the conditions of effective signage (Ballantyne, Hughes and Moscardo 2002) are already sufficiently significant to be considered for placement on the Brisbane Valley Rail Trail.

Almost all of the local stories relate to the exploits of men, and they come from all of the major ethnic groups that settled in the Brisbane Valley. There are very few local Indigenous stories that are shared, although they may be widely known within exclusive groups. 'Women's work' is acknowledged, but is not the subject of widely shared stories, even among groups of women. Children rarely feature in local legend. There are no local 'stories' where the subject is a victim, although most of the larrikin stories begin in this fashion. The sting in the tail for all the larrikin stories is how the underdog redressed the power imbalance imposed by wealth or statutory authority. Queensland Rail and its antecedents were the most powerful state government instrumentalities for nearly a century. Because of this, the larrikin story appears to be the norm in relation to railway history on the Brisbane Valley Line.

To achieve some balance, it was necessary to include stories from newspapers of the day for failed communities like the WWI Soldier Settlements (as the storytellers are no longer alive). In the newspapers, there were few stories about the achievement of women and children, and the reportage about Indigenous issues is almost unrelentingly negative. And yet, Ursula McConnel, who was raised in the heart of the Brisbane Valley at Cressbrook Station, became one of the foremost authorities on Indigenous people in Australia. Her brother's achievements as an award winning architect in New South Wales are seldom acknowledged in the Brisbane Valley. But the stories of another relative who was dunked in a horse trough for over-zealous training of a light horse group is regularly recorded.

Few stories without a personal referent were considered interesting except for special interest groups, whose experience already allows them to access the signage data effectively. One such story is included in the recommended panels. It is entitled 'Trains of the Brisbane Valley Line' and depicts the styles of the trains that ran to Esk in 1924 and their descriptive number. For younger people who have never travelled on a steam train, this was considered a 'wasted' sign that did not respect their limited knowledge. For train buffs, it was so controversial that it has already been modified several times. This raises the issue of the target market for signage and display along the line.

The personal referent is important for most people hearing a story for the first time. It allows them to 'walk in the shoes' of one of the characters because identification with other people is one of the common skills of members from all our potential interest groups. Identification allows visitors to 'enter' the stories of the district, no matter how unlike their own, and piques their curiosity.

The story titles, suggested locations and the themes recommended for inclusion on the Brisbane Valley Rail Trail are listed in Table 9.1. The titles and themes give a flavour of the story.

Table 9.1 Stories for the trail

Story title	Recommended locality (identified on works lists)	Themes
Brisbane Valley junction	Wulkuraka	History of rail Newspaper reporting Family use of rail Personal reminiscences
Wulkuraka and the Brisbane Valley Rail Trail	Wulkuraka	Modern history of rail line Recreation facility
The serpentine railway	Brassall	Development of rail line Excursion steam train
All the King's men	Pine Mountain	Land exploration Timber history Transportation
When cotton was king	Pine Mountain	History of cotton Indentured South Sea Island labour Sporting excellence
And a star to steer her by	Borallon	History of rail use Railway history
Proceed with caution	Wanora	Family Work practice Newspaper report
Trains of the Brisbane Valley Line	Fairney View	Railway history
A rose by any other name	Fernvale	Exploration Cotton School history Railway naming right
Bail up	Fernvale	School history German immigrants Cotton Bushranger Law enforcement Larrikins Commerce
Upper Brisbane	Vernor	Newspaper report 1910
Depression rates	Lowood	Depression/unemployment Flooding 1893 Maintenance of rail line
Here be bunyips	Lowood Station	Town life Larrikins

Story title	Recommended locality (identified on works lists)	Themes
HC Stanley's bridge	Lockyer Creek bridge	Railway history Personal history (engineer) Heritage listing
They did it their way	Clarendon	Name change (railway and the (then) Education Department) School history
14th Light Horse	Coominya Station	Personal history (army) Soldier settlement Army history
Coming home	Mt Hallen	Soldier settlement Personal reminiscence
A moveable feast	Esk Station	Town development Commerce (copper) Flooding Building relocation Bullock wagons
Mine host	Esk Station	Personal history Township development Mail Hotel
Crime scene	Gallinani Creek	Exploration Death Folksong
Ghost town	Ottaba	Town development Railway family Rural self reliance
St Andrews in McConnel Park	Toogoolawah	Industry Heritage listing War memorial Commerce (dairy)
Runaway train	Toogoolawah Station	Larrikins Railway work practices Law enforcement
The master	Toogoolawah Station	Railway history Legendary staff Depression
Toogoolawah quickstep	Toogoolawah	Family/social life Larrikins Law enforcement

Story title	Recommended locality (identified on works lists)	Themes
End of the line	Yimbun	Name changes Work practices Law enforcement Army Burials
The Milk Train Bridge	Yimbun	Railway history Railway accident Commerce (dairy)
Tunnel vision	Yimbun tunnel	Railway development Flooding
Harlin CBD	Harlin	Personal history German immigrants Railway history Heritage listed bridge
Colinton hut	Nurinda	Early settlement Stock route Folk song Scottish immigrants
Our boys	Nurinda	Commerce (business practice) Railway history War memorial
Stonehouse	Moore	Heritage listed building Mail service (coach) Hotel
Moore to Kokoda	Moore	Timber history Town development Personal history Kokoda Trail
One for the road	Linville	Cattle Hotel Mail service (coach) Building relocation
To see the sea	Linville Station	Railway history Family excursion/children Politics
On the Blackbutt Range	Blackbutt Range	Family life
To the fallen	Blackbutt Range	Railway development Burial Medicine Irish immigrants
Bellbird Carillon	Blackbutt Range	Flora/fauna Railway work conditions
The good oil on wood	Blackbutt Range	Timber use Personal memories
Bunya feasting	Blackbutt Range	Indigenous issues Continuity
Araucaria bidwilli	Blackbutt Range	Indigenous issues Timber
School of the (open) air	Benarkin Station	Railway history Education history/work practice Children
What's in a name	Benarkin Station	Timber Railway development Name changes
Only in the country	Benarkin Station	Social activity Railway practice
Unsung hero	Blackbutt Station	Indigenous excellence Music/culture Political activity
Grand slam	Blackbutt Station	Rural origins and sporting excellence Youth
Divine intervention	Blackbutt Station	Religious observance Land use Depression Youth

Full text for all recommended signs and samples of sign layouts are included in Appendix 7.

9.5 Options for delivering interpretive information

With the removal of the entire rail infrastructure from the southern sections of the Brisbane Valley Rail Trail, interpretive signage will provide a virtual reality for many visitors there. Engaging visitors with the trail in the absence of any of the built environment is a challenging task at any time, but it is made more difficult in those areas where the natural environment offers little variation.

If interpretive signage is to be successful, there are at least three important considerations in relation to the delivery of the message. There needs to be:

- something novel and arresting about the initial signage
- sufficient challenge in processing the message for it to require central processing in long-term memory
- interaction in a cognitive, affective and tangible fashion with some features of the message.

Central processing to long-term memory requires a little more time and is ideally suited to stop and rest areas. Physical interaction with tangible examples of text or illustration also enhances memory and needs to be self-paced to be effective. Remembered experiences provide word-of-mouth advertising that is priceless.

There is a large body of research about the most effective way of delivering effective interpretive signage on rail trails that have been previously developed elsewhere. Summaries of the kinds of signage and materials already available or easily adapted for use about the Brisbane Valley Rail Trail are included in Tables 9.2 and 9.3 that can be found later in this section. Recommendations for initial kinds of display for Brisbane Valley Rail Trail are drawn from this summary. There are three issues that drive these recommendations. The first is identification of the target audiences for the interpretive signage. The second is the effectiveness, durability, location and cost effectiveness of display materials of all kinds. A final consideration is how to build into display features data collection procedures for monitoring attention to, and behavioural change consequent on interpretive signage.

9.5.1 Target audiences

Likely respondents to interpretive displays on the rail trail may be classified into three categories with vastly different needs in relation to interpretive display materials.

The primary target audience will be made up of those who use the trail for recreational purposes, and include local residents living near the trail and visitors to the trail. This second group comprises family groups, companion groups and sporting groups, some but not all of whom may be drawn from peak special interest groups like Bicycle Queensland. As well as the general sportspeople with an interest in the trail, there are two other sporting groups with unique needs who may use the trail, and they are the elite sportspeople and endurance riders. For many of the sportsmen and women, and certainly for the elite group, interpretive signage on the trail will have low priority and serve as little more than an indication for stoppages or meeting places. Their need for interpretation is more likely to be satisfied at rest stops or in an electronic medium. This group also provides a market for books about the rail trail and very detailed touring maps.

The secondary group of trail users are those who may not have sought the trail out, but have been seduced into its use by attendance at, or interest in, other related events. This group is the focus of Destination Awareness advertising of all sorts. It includes educational groups at all levels, from primary school children researching transport development in their district to elite conservation or heritage groups with a more specific focus. Most of the secondary users of the rail trail will have been event participants elsewhere and introduced to the Brisbane Valley Rail Trail by effective promotion. One of the easiest measures of the effectiveness of interpretive signage is an increase in this target audience.

The tertiary group audience includes all the funding agencies with responsibility for cost-effective trail development and management, and its members also have a specific focus. Their special need is to monitor the value-adding component of interpretive signage and the cost effectiveness of further investment. This group needs data about increased visitation, but it also needs to access information about how many potential visitors explored the option of a rail trail and did not pursue it. Comparisons between increased visitation and selected website hits on rail trail mapping, interpretive signage, and local accommodation sites can indicate trends about relative usefulness of these data. All forms of interactive data from displays of all kind, including interpretive displays, are a requirement for this tertiary group of rail trail monitors.

It is fortunate that interactive displays are also most effective for many of the primary and secondary audience members, excluding elite athletes. For this reason, interactive displays will form the bulk of the recommended display material on the rail trail where this is a viable option.

9.5.2 Display options

Outdoor displays

Table 9.2 summarises the outdoor display options for signage of all sorts on the rail trail. They are further categorised into three groups: static, portable and interactive displays.

Traditionally, most outdoor display options have been static because of the

high cost of replacement of those that are portable. Interpretive signage is included in this group. There has been a heavy bias towards print media in information and interpretive signage in the past, but increasing mobility of international visitors has demanded more easily accessible iconic representation on information signage. Today both information and interpretive signage uses print, iconic and pictorial representations to convey its meaning. This provides a nice balance between print and visual media.

Artwork in the form of murals and sculpture, on the other hand, rarely provides more than a printed title to help with interpretation. Understanding a work of art requires that an audience engages with the medium, and these kinds of signage are included in the interactive outdoor displays for this reason.

Table 9.2 Outdoor display options

Type	Display option	Description	Example	Location
interactive displays	1. Rail trail passport	Passport style 'book' with stamps from centres on the rail line to verify line use	Passport stamped by visitor information centre staff as section completed. Long-term aim to complete book. Good for long term memory about trail. Small incentive for complete rail trail use	Distributed from all centres or downloaded from internet
	2. Certificates of achievement	Provided for verified use of sections of rail trail	Starting location verified by visitor information centre staff and signed certificate awarded by staff at section end	
	3. Outdoor art/ sculpture	Promotion of the trail in the affective domain with an art treasure. Focus for advertising and visual promotions of all kinds	Depict a family group arriving at the rail construction site—chain saw sculpture	Near a significant physical feature on the trail
	4. Mural work	Various themes: Pioneer women and children, flora and fauna	On water tanks/facilities	On the trail and a way of linking centres in town to the trail with trail murals on town centre walls
Static displays	1. Interpretive signs	A series of signs designed for use at each original railway site/siding on the trail	First and last sign with a map of the entire line and interpretive data. Usually incorporated with information panels at these locations	Wulkuraka Blackbutt (see below)
	2. Information display panel	Large undercover sign positioned near seating/water	Map of the trail with parking, toilets, access points and wheelchair access, emergency phone numbers and land line phone locations	At either end of the trail
Portable displays	1. Pull-up banners 2. Display boards 3. Marquees	Banner/board produced for the complete trail	Generic images to be used to give the overall impression of the trail	As promotion—when required

Rail trail passports or certificates are another interactive way of engaging visitors with the trail. These can be in the form of a printed booklet, the cost of which might be borne by advertisement from interested service providers. Tour operators would find this an attractive option, and the development of this form of signage with authentic rail trail logos may need immediate attention. It is one of the recommendations for effective promotion of the trail because it also endorses the engagement of young children in a fashion that they can communicate to friends.

Some limited portable displays have also been listed for joint promotion of the trail. These are not available to trail users so that theft and damage are minimised. They are relatively inexpensive and must necessarily be generic in nature. They provide the cheapest option for upgrading outdoor display material but have a limited effectiveness.

Indoor displays

Table 9.3 provides a summary of the indoor display options that can be made available at centres along the rail trail. Again these options have been classified into interactive, static and portable displays.

The traditional portable displays for indoor centres have included print media items like books, postcards, brochures, maps and newsletters. Today many of these are also available electronically. They retain their classification as portable on the web unless there is also a facility for email response and correspondence about these items. Structured in this way they are reclassified as interactive indoor display items, and their effectiveness is enhanced.

Static indoor displays are what once defined a museum. They have largely fallen out of fashion internationally, but continue to be used locally where the low visitor numbers and the high cost of display redesign slows development in this area. The Brisbane Valley Rail Trail is currently served by information centres and museums with a heavy focus on static displays. A significant change in the style of displays will be necessary for the new rail trail, and this will require new budget estimates for established service providers. Change is expected to be slow, and there is the real risk that both the displays and their service providers could become irrelevant to relatively young rail trail users. This group of visitors will never be a 'captive' audience because they are well equipped to bypass community centres that are not serving their needs. The implications for tourist initiatives in these communities are discouraging.

Interactive indoor displays continue to be popular, and have largely replaced all but the very big static displays elsewhere. Such displays include touch screens on walls of information centres linked to an indoor computer for visitor information outside business hours. These have a national link-up and provide a cheap and easy way to inform potential visitors nationwide.

The nature of rail trail activity lends itself well to simulation displays that may be located outdoors or indoors. A little ingenuity with walking machines, exercise bikes and a stopwatch would form the basis of a successful interactive indoor display about the challenge of the rail trail that will be worked up in more detail later in this section.

In a similar vein, this trail is reflected in a series of folk songs including *Brisbane ladies, Moreton Bay* and even *Maranoa lullaby*. It would not be difficult to provide an indoor karaoke setting to engage visitors in learning the words of any of these songs or taking a package with them that includes songs, sheet music, words and interpretation of the activity.

The most effective and commonly used indoor display option is a computer terminal and screen. Where the message is a repetitive 'promo' used at conventions to attract attention only, it is a portable indoor display. Used by centre staff to search a restricted site on behalf of a visitor, it is a static indoor display. Where visitors are encouraged to use its search engines for themselves, it is a very effective interactive indoor display. When the information and interpretive data are provided on the web in a publicly accessible domain, with appropriate search options and feedback links, this is the preferred interactive indoor display option for most rail trail users.

Table 9.3 Indoor display options

Type	Display option	Description	Examples	Location
Interactive displays	1. Website/internet	Navigate the links to see the various points where the journey can be broken	Outline and attractions of the Brisbane Valley Rail Trail under various headings, e.g. distance between towns, highlights, facilities, side trips	Key placement along the trail
	2. Simulated static displays	Test your fitness	Use of an exercise bike Steam display/enlistment poster	At the information centres as a promotional tool
	3. Touch screen, voice response	Data touch screen—paid advertisement appears at many location throughout Australia and O/S	General tourism From eateries to accommodation to attractions	Mainly at visitor centres
	4. Karaoke	Folk songs from the trail: download, words, sheet music and interpretation	*Brisbane ladies* as it relates to Colinton, Stonehouse. Play/ learn at centres or take package home	All centres
Static displays	1. Plasma screen	Professionally produced 'promo' of the rail trail	The advertisement produced by Tourism Queensland—*Where have all the people gone?*	At the information centres plus a marketing tool on TV
	2. Historical/ interpretive displays	A selection of images to show the scope of the rail trail	Pictorial representation of the restoration work being carried out at the Linville Station carriages Display of railway relics	At relevant centres
	3. Maps and Trails	Hard copy of what can be downloaded from the web	Rail Trail vineyard/ food/ accommodation/ golf/racing	At tourist outlets
	4. Information display panel	Map of the trail with parking, toilets and access points and wheelchair access	Comment on telephone coverage	All centres
	5. Audio tour tape	Can be downloaded to MP3	Significance of the trail to the Bunya Mountains	All centres
	6. Nature representation	Flora and fauna information	Sound show of various birds	All centres
Portable displays	Print media 1. Brochures 2. Postcards 3. Books 4. Newsletters			

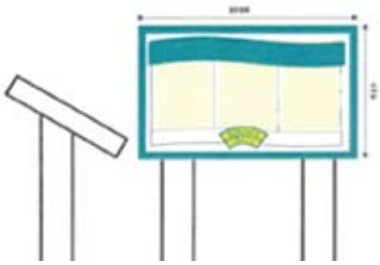
9.6 Recommendations

A summary of the recommended display options for interpretive data on the Brisbane Valley Rail Trail is as follows:

- outdoor interpretive signage on horizontal site signs
- outdoor artistic displays
- rail trail brochures
- visitor supported audio tour guides
- interactive displays—
  - simulated activity displays: 'your rail trail needs you'
  - passports/certificates to record travel on the trail
  - karaoke sessions of relevant rail trail folk songs
  - website development with dedicated email link.

9.6.1 Outdoor interpretive signage

Outdoor interpretive signage that satisfies the conditions of Ballantyne, Hughes and Moscardo (2002) is effective when it is located away from other distractions (style). On a long rail trail, even small clusters of interpretive and directional signage in the form of a triptych will attract attention (location). Novelty and colour enhance attention. This is one of the reasons for the traditional choice of signage material for interpretation signs and panels on the rail trail. Outdoor interpretive signs on architectural-grade etched anodised aluminium panels are an expensive option (material). But they retain their colour well in all weather for at least a decade, and they are more resistant to vandalism than any other signage material. They are mounted on a powder-coated aluminium pedestal post at an angle of 30–45 degrees, and are usually described as horizontal site signs. This is the preferred option for interpretive outdoor signs on the Brisbane Valley Rail Trail.



The height of the pedestal is determined by the needs of the trail users—in this case cyclists, walkers and horse riders. Horizontal signage is usually set low enough for walkers and people in wheel chairs to view the material easily. A pedestal 1 m in height might be more appropriate for visitors to the Brisbane Valley Rail Trail.

9.6.2 Outdoor artistic displays

Outdoor artistic displays are less intellectually challenging than interpretive signage, but they demand that visitors engage with the structure at least long enough to provide an explanation for why it is there. And visitor engagement facilitates long-term memory. All artistic representations speak to our feelings and reflect hardship, joy, privation and hope better than text (style). It would be boring to reiterate the difficulties of working conditions as the rail line was being built. One sculpture of lean men and burdened women moving their possessions along the rail line from one camp to another could say it all. There is a poor photo of such a move on the Blackbutt Range (see page 31). A sculpture depicting this scene would satisfy many of the conditions of effective interpretive signage. Women and children from average families are notoriously absent from the oral and recorded histories of the Brisbane Valley. Outdoor art in some form could help to overcome this deficit. But if free-standing outdoor art is too big an investment for the initial stages of the developing rail trail, murals on outdoor furniture or buildings in the towns near the trail would serve the same purpose for a fraction of the cost. Outdoor art displays along the trail are recommended.

9.6.3 Rail trail brochures

Rail trail brochures introduce the rail trail to the public. They must satisfy the conditions of an effective interpretive sign with a slight bias towards practical information rather than novelty. The style of the brochure provides the signature for the trail, and some repetition is important in the evolution of later brochures for easy identification (style). The single most important feature of a rail trail brochure is an accurate map of the trail drawn to scale. Distances, gradients and curves need accurate representation, as well as convenience features of the trail like access to highways, toilets, camping facilities and public phones. Contact and emergency phone numbers are also required. All the brochure information that is available to 'passing trade' from the information centres should be uploaded to a dedicated web site for those planning a tour from more distant parts. Brochures are cheap to produce and easily portable. They are easy to update and a good map provides the kind of cognitive challenge that may facilitate long-term recall of the destination after the brochure has been discarded. Engagement with the interpretive material included on a rail trail brochure also increases the likelihood of destination visitation. 'Signature' rail trail brochures, including novel interpretation of the rail trail, are recommended as cost-effective promotion and advertising.

9.6.4 Audio tour guides

Audio tour guides have served motorists and visitors to static indoor displays well in the past because they offered the opportunity of comprehensive and detailed interpretation. Previously they were used in a push-button device that started a pre-recorded soundtrack. Today they can be made available to visitors with their own MP3 recorders or iPods so that cyclists and horse riders can enjoy

the interpretation in this format as well as walkers who may be hands-free. Ideally this material would be downloaded at information centres along the trail so that visitors could nominate just one section of the trail and take the relevant interpretive material with them. CDs could also be made available for a minimal charge. Again all this material would be uploaded to a dedicated website. Visitors planning to interact with the Brisbane Valley Rail Trail could simply help themselves to the relevant interpretive data there. Developing audio tour guides and the facilities at centres on the trail for sharing them with visitors are recommended.

9.6.5 Interactive interpretive displays

The most effective interpretive displays are interactive in nature, and a short list of indoor interactive interpretive displays for the rail trail has been developed.

Website development

Website development will be the single most effective form of indoor interpretive display for the Brisbane Valley Rail Trail, and its early development is highly recommended. The initial demands for such a site are fairly basic. Everything on it should be available for downloading free of charge. The quality of downloadable material needs to be good, so that maps, text and photos should be available at high definition. The website needs a useful search engine, and should be arranged in reasonably small files so that potential users are not frustrated by slow opening times. This requires very user friendly menus with descriptors like 'who we are' rather than 'home page'.

The advantages of the web for interpretive data are numerous. One advantage is that it can carry a logically developed argument about a person or issue of historical significance to the trail, and then pose a genuinely challenging question to users about it. The provision of links to other relevant sites makes engagement easy, and engaging in a challenge puts the trail data into long-term memory. This may be a long-term approach to increased trail use, but schools can be encouraged to use a site designed like this. Adolescents and their families are a target market.

The Brisbane Valley Rail Trail website needs two other features to be most effective. It needs a full time web master for monitoring use and upgrading the site, and it needs email links to a single agency charged with responding to feedback about the site. This facility makes the Brisbane Valley Rail Trail website genuinely interactive. It also builds in a data collection mechanism that is necessary for those who make decisions about cost effectiveness and future development.

There is another other possibility for the early development of the website. A program called MyCyberTwin is now being used as a cyber respondent to commonly asked questions about existing sites. This program is free, although it would be time consuming to develop the sequence of questions and answers necessary to be effective. The CyberTwin can take any role (i.e. walker, cyclist, horse rider) and engages potential visitors immediately. It is being used for problem diagnosis in industry, and its authors Zakos and Capper make claims for its use in developing tourism. It is an obvious educational tool. There could be at least two respondents about interpretive signage on the rail trail. One would be in the form of the traditional librarian with glasses and bun who gives all the details appropriate to the question. The second could be the laconic country larrikin whose only responses are the larrikin tales of the district. When these run out he simply recommends referral to the librarian. The larrikin figure probably also sings. The librarian finds the sheet music and history. This approach, once it becomes known, is likely to be popular. The email link provides opportunities for new larrikin stories about the rail trail use. Criteria for uploading these onto the formal website will need to be developed.

The website also provides an opportunity for passive income with the development of a virtual train journey and tour guide (conventional or larrikin). This would be in the form of a game where the train is self-driven and accidents on the line abort the game. It would require payment by credit card to play, with additional costs for nominated guided tours. Development costs would be substantial, and this program is unlikely to be developed until user numbers can be assessed. It would provide an excellent vehicle for interpretive data and a popular fixed display at centres on the trail. A virtual train ride through the Brisbane Valley has already been developed.

The conditions for the development of a basic website to reflect interpretive material most effectively are all recommended. The development of a Virtual Train Ride and Mycybertwin would be ideal for interpretive material of all kinds, and are suggested for further consideration by specialists.

Cycle simulation indoor display

An exercise bike or a walking machine forms the basis of a static indoor simulation display that would be effective in advertising the rail trail. This begins with a send-up of Lord Kitchener's famous enlistment poster for WWI, 'your country needs you'. Lord Kitchener is replaced with a suitably fierce looking (1) cyclist with helmet and gloves or (2) bushwalker or (3) horse rider; the title reads 'Brisbane Valley Rail Trail needs you', and the hook line at the bottom reads 'are you up to the challenge?'.

Visitors are directed to use the exercise bike until they are tired and to record their starting and finishing times. On the basis of this they can identify on a displayed rail trail map what sections they could now complete in comfort and which of the other sections may prove to be a challenge to them. This would also be a popular and easily assembled portable display for advertising at events and functions.

Help will be needed to establish the relative difficulty of the sections of the rail trail for all types of users as they open. Requests for this kind of information form the basis of useful and ongoing partnerships with Bicycle Queensland, peak walking groups and pony clubbers. This information will certainly be forthcoming. Displays of this kind are recommended.

Rail trail passport

The rail trail passport has been designed for use in conjunction with the previous display, or as a stand alone indoor or portable display. It is a suitably printed booklet of passport size with a separate page for each of the sections of the rail trail. Interpretive signage serves as the watermark on each page. There also needs to be room on each page for the signature and stamp of centres at both ends of the section. Two such stamps indicate that the section has been completed. For those visitors who are day trippers with no intention of ever finishing the whole trail, well designed certificates of achievement (especially for children) can accompany one finished section. If these become popular, they form the basis of a cost neutral advertising campaign. Completion of these items is a simple measure of the use of the trail. Distribution data from centres can be recorded with a tick-and-flick. The number of hits and downloads of this item after it has been uploaded on to the website is also indicative of its popularity.

Karaoke for the rail trail

The Brisbane Valley rail line is well remembered in folksong, and singing about the trail engages visitors. Many would not know the relationship between the old stock route that the rail trail follows and Brisbane ladies. The relationship between Captain Logan and Moreton Bay, which was written to celebrate the death of a tyrant, is another useful example. Harold Blair's *Maranoa lullaby*, for which he was famous, provides something a little gentler. Renditions of all of these can be made accessible to visitors within a centre by the push of a button. With the provision of words and sheet music (and some tolerance of noise), a karaoke session in the centre can be encouraged among visitors who are about to use the trail. Giving visitors the ability to download a legal rendition of any of the songs to their own MP3 player at the centre, or from the web, folk singing on the trail is a genuine prospect. Relevant songs about the rail line are certainly also available, but time constraints have curtailed further research into this fascinating area. This is a fun activity and recommended for centres along the trail.

9.7 Monitoring the effectiveness of interpretive signage

This is a specialist area and well outside the brief of this report. It is included because some of the recommended vehicles for interpretive signage also lend themselves to data collection.

The dedicated email link provides immediate feedback about all features of the rail trail. Those messages relating to interpretive signage are useful both in relation to their content and to the number of signs that have warranted visitor attention. Other agencies along the line are also likely to receive feedback, and should be encouraged to forward such information to the website. Negative information about service providers will be lost in this fashion, so that formal and comprehensive survey strategies will also need to be developed during the rail trail development.

The link between effectiveness of interpretive signage and increased use of the trail will be a hard one to substantiate statistically. However, use of the rail trail could be monitored in some fashion by Tourism Queensland, and partnerships between the statutory authorities responsible for the rail trail could provide funding for comprehensive data collection and analysis. Exit interviews on line provide rich data that need some organisation to gather and store. Online surveys are a popular, if somewhat unreliable, data source. Records of requests for rail trail passports from local centres can be easily accessed, and hits on various sections of the website are also recorded. Comparisons between website hits and actual line use would be instructive.

There is required formal reporting from all the statutory authorities with responsibility for the rail trail and surrounding areas. Initiating another single category in their reporting procedure relating exclusively to the Brisbane Valley Rail Trail will not be easily achieved. If such a variation can be negotiated with local councils, emergency services including the Queensland Police Service, the SES and the Queensland Ambulance Service, Queensland Transport, PowerLink and all water authorities on or adjacent to the trail, a comprehensive database about the trail can be established without additional cost. Incident reports such as these are unlikely to contribute greatly to measures of the effectiveness of interpretive signage; however, they would be helpful in measuring the effectiveness of directional signage, safety signs near main roads and iconic signage for overseas visitors who get lost.

9.8 Touring opportunities

9.8.1 Introduction

Most of the tangible remnants of living and working in a Brisbane Valley serviced by trains and railmotors have been collected or removed to larger community centres. With just a few exceptions, all of the touring loops are town-based, and their details are readily available electronically under the names of the existing towns on the Brisbane Valley Line. They are now Coominya, Fernvale, Lowood, Esk, Toogoolawah, Moore, Linville, Benarkin and Blackbutt. The railway stations of Coominya, Lowood, Esk, Toogoolawah and Linville remain on the rail trail. Not all are yet open to a touring public, and Esk Station is currently undergoing much needed restoration.

Part of the brief for the interpretive plan requested the preparation of possible touring routes using the Brisbane Valley Rail Trail as the spine. A number of routes have been recommended.

9.8.2 Heritage buildings of the Brisbane Valley

It is possible to plan a tour of heritage buildings in conjunction with the rail trail. Such a trail would start at Fernvale at the Fernvale Community Church, an old church about which there is a series of larrikin tales. Visitors interested in church architecture will find this stop interesting.

Fernvale Community Church

The next stop is Lowood, and by far the most interesting way to get there is on the rail trail that runs very close to the Brisbane River. In Lowood there is a dental surgery that is heritage-listed and shown below. This building started its life as a branch of the Royal Bank of Queensland in 1901, in what was then the main street of Lowood. The entire building (including its brick and concrete strongroom that weighed 40 t) was relocated in 1917 from Main Street to Railway Street where it now remains. This building is open during business hours and houses a thriving dental surgery. The staff are very gracious to visitors.

From Lowood, the next heritage-listed building is Bellevue Homestead at Coominya. This was the home of Charles Lumley Hill who, as a young magistrate in New South Wales, signed the arrest warrant for cattle duffers whose exploits were immortalised by Rolf Boldrewood in Robbery under arms. Mrs Lumley Hill successfully managed Bellevue as a cattle property for many years after she was widowed, and this is one of the grand houses that has benefited from a woman's touch. There are also large carriage sheds and a vineyard. It is still possible here to touch old stoves, explore old beef cattle records and use the bathroom designed for a previous Prince of Wales. Engagement with the ephemera of the pastoral industry in the early 1900s is encouraged. This homestead was removed from its original site to avoid being flooded when the Wivenhoe Dam was filled in 1974. A visit to the homestead can offer all the necessary requirements for long-term memory processing and provides an important adjunct to the trail development. The story about the newspaper reporter who described Mr Lumley Hill as the Bouncing Bully of Bellevue, and who sought employment at Mt Perry after Mr Lumley Hill sued, is not respectful enough for interpretive signage. The story attracts attention and could be included on the rail trail's website. This gracious home is currently open at weekends but can be booked for small parties at other times.

Dentist's surgery, Lowood

Bellevue Homestead verandah entrance

Ipswich Street, Esk

The Coominya Railway Station has been restored and remains on the rail trail. There are town murals about the vineyards that have flourished in Coominya for many years, but little history remains of the failed WWI Soldier Settlement here where all but two men walked off the land or were relocated elsewhere.

There are several buildings of interest in Esk. The Visitor Information Centre is housed in the second council chambers and has been carefully restored. There is a gracious old home converted to a restaurant at 212 Ipswich Street that was the home of Lars Andersen, pioneering saw miller in the district. It is heritage-listed. Not surprisingly, this house is impeccably built and the current owners display timber memorabilia inside.

Two of the Esk churches are also heritage-listed: St Agnes Anglican Church in Ipswich Street and St Andrews Presbyterian Church, also in Ipswich Street, but on the other side of Sandy Creek. St Agnes Church still serves its congregation, while St Andrews Church has been sold and is being developed as an art and community centre. The Esk War Memorial and Memorial Park are also heritage-listed. The most interesting building in the town, however, is the Club Hotel. This is not heritage-listed, but it was moved by bullock wagon in 1907 from a place near Sandy Creek to its present position, so it is certainly more than 100 years old. It is open for business during normal trading hours and there are photos of its removal in the bar.

It is only 18 km from Esk to Toogoolawah and a comfortable flat highway for cyclists. It will be an equally easy ride when the rail trail opens in that section. Toogoolawah has several heritage-listed buildings. The most beautiful is St Andrews Anglican Church, designed by the ecclesiastical architect Robin Dods and built in 1912. The church hall is also heritage-listed and is considerably older than the church. The manse that was built later is included in the listing.

This church still has a steep shingle roof and is a popular photo opportunity. It stands in McConnel Park and the war memorial there is also heritage-listed. 'Inverness', another private residence in Toogoolawah, is also heritage-listed, but it is in private hands and not open to the public. Much of the streetscape of this town has remained largely unchanged since it was rebuilt in 1926 following a fire.

The only heritage-listed house in Moore is Stonehouse, but again it is not open to the public. Further up the rail line, seven kilometres, is the town of Linville where there is the Pioneer Hotel.

Like the Club Hotel in Esk, this hotel was moved by bullock wagon, but unlike the Esk hotel, it was not just moved down the street. The Pioneer Hotel was moved a full 16 miles in 1910, relocated to what was then the terminus of the rail line, and has traded ever since. It is open during normal trading hours. The Linville Railway Station has been restored and serves as a railway museum. There are several old wooden rail carriages also being restored in the railway complex. This is the place for the railway buff.

There are no other heritage-listed buildings from Linville to the end of the Brisbane Valley Rail Trail at Blackbutt.

9.8.3 Somerset Dam via Caboonbah Homestead and Caboonbah Church

For those visitors with an interest in things aquatic and the time to linger, it is 26 km from Toogoolawah to Somerset Dam on good bitumen roads. These roads take visitors through the district of Mt Beppo that was not served by a rail line. Turning off the main Brisbane Valley Highway into Mt Beppo Road near Toogoolawah, visitors follow this road almost to its junction with the Esk–Kilcoy Road. With this junction in sight, there is a left-hand turn to the sign-posted Caboonbah Church that celebrated its centenary in 2005. There is an open cemetery here, and a well preserved country church. It holds an annual service in November each year, and is available for weddings and christenings by appointment.

Continuing the journey to the junction of the Esk–Kilcoy Road, a left turn takes visitors to Caboonbah Homestead, where HP Somerset MLA lived. He was the Member for Stanley from 1904 to 1920, and he was primarily responsible for getting the rail line from Yimbun to Yarraman. He had been raised in India and understood the need for water management. It was at his suggestion that engineers explored the site of the Somerset Dam, then called the Stanley River Dam and renamed later in his honour. Caboonbah Homestead is not nearly as grand as Bellevue Homestead at Coominya, but in some ways it is more interesting.

Smokers' verandah, Caboonbah

Pioneer Hotel, Linville

Caboonbah Homestead reflects many colonial influences. It is built on a high cliff overlooking the Brisbane River, and the view from the entrance verandah of the homestead over the river is breathtaking. The homestead is heritage-listed, and this complex of buildings is managed by the Brisbane Valley Historical Society. It is open to the public and guided tours through the house are available.

Returning to the Esk–Kilcoy Road on which Caboonbah Homestead is built, it is a straight drive from here to Somerset Dam. Before leaving Caboonbah, it is worth noticing the new water management arrangements—a juxtaposition of the old and the new. The Recycled Water Pipeline lies buried underground adjacent to the homestead door.

9.8.4 The airfields tour

For plane buffs and cyclists, there are two airfields close to Toogoolawah. The first is Watts Bridge (available for light planes) and the other is Ramblers Drop Zone for sky divers.

Watts Bridge is approximately 8 km from the Brisbane Valley Highway. It has a restricted events calendar that is available electronically but it is also an interesting and slightly challenging cycle ride. Visitors turn off the Brisbane Valley Highway into Mt Beppo Road and then turn again to the left into Lower Cressbrook Road after 4 km. Those with light planes are encouraged to use the airfield.

Watts Bridge Airfield was developed for use during WWII and used as a training field until 1942. There are still remnants of the cement base of the original ablutions block. The airfield was unused except for emergencies for many years, but has now been restored to full working order. There is a big display of light planes once a year that is always popular on the tourist calendar.

For those planning an extended stay in the Brisbane Valley, old WWII bunkers can also be seen at another airfield at Lowood. Directions are available from the Fernvale Visitors Information Centre.

Cyclists from Watts Bridge airfield can return to the Brisbane Valley Highway and turn right where Mt Beppo Road makes a T-junction with it. A further 2 km along the highway beside the rail trail is Ramblers Drop Zone. This is a modern airfield used exclusively for Ramblers planes, and it is not at all unusual to see several dozen parachutes opening above the airfield during any weekend. Ramblers Drop Zone provides tandem jumps for novices and also hosts international competitions. Its calendar of events is available electronically.

For the adrenalin junkie, Ramblers is definitely worth exploring. It also makes an interesting destination for family cyclists or those planning a short walk from Toogoolawah. Occasionally jumpers are blown a little off course and experienced drivers around the district have found that it is an easy task to fit a lone jumper and an open parachute into the passenger seat of a family car that has been hailed as an emergency taxi.

Section 10. Trail management plan

10.1 Introduction

The development of a trail management plan is an important process in the planning and development of a trail. A trail management plan is essential to setting both the long-term and day-to-day management objectives for the trail, and provides a framework against which a range of decisions can be made. Such a document—as with all management plans—should be both flexible and responsive to change, yet set a clear management framework for future directions and priorities. Trails which do not have a management plan suffer from decisions taken on the run, out of context or as knee-jerk responses to critical situations.

10.2 A statement of guiding principles

It is suggested the following overarching principles are appropriate for the Brisbane Valley Rail Trail. Adherence to these principles will serve as a guide to the use, upgrading, maintenance, promotion and management of the trail:

- **accessibility**—the Brisbane Valley Rail Trail is accessible by public and private transport from the major urban centres of Brisbane and Ipswich, and the townships, residential areas and villages of the Brisbane Valley and surrounding districts
- **optimising use**—where feasible and appropriate, the Brisbane Valley Rail Trail should be developed/upgraded so as to enable use by walkers, horse riders and cyclists generally, and where possible, all potential users, including people in wheelchairs, people with disabilities, family groups and the elderly
- **providing enhanced outdoor recreational opportunities**—the Brisbane Valley Rail Trail should be promoted as an additional component to the range of low cost outdoor recreational opportunities within the Brisbane Valley
- **minimal conflict between trail users**—the Brisbane Valley Rail Trail should cater for non-motorised trail users (walkers, cyclists and horse riders) with minimal conflict. Monitoring of use over time will determine whether there is a need for the progressive development of a separate horse trail off the main trail formation
- **providing access to, and an enhanced understanding of, the natural attributes of the Brisbane Valley**—the Brisbane Valley has a diverse and outstanding range of physical attributes, and the Brisbane Valley Rail Trail will enable greater opportunities to access these natural features
- **providing access to and an enhanced understanding of the history of the Brisbane Valley**—the many physical reminders of past land uses and activities can be a major component of interpretive information available on the Brisbane Valley Rail Trail, and a greater inducement for visitors to use the trail
- **quality promotion**—the trail manager should give significant emphasis to promoting the Brisbane Valley Rail Trail as part of a broader visitor experience of the Brisbane Valley
- **effective and ongoing maintenance**—the Brisbane Valley Rail Trail should be the subject of a regular maintenance regime, and a detailed audit every 2–3 years, ensuring that all defects along the trail receive quick attention, thereby keeping the trail up to the requisite standard and quality
- **quality construction**—the trail should be built to appropriate standards, and to a high quality, thereby minimising the need for maintenance, and giving users a quality experience
- **quality information**, including brochures and mapping—the Brisbane Valley Rail Trail should have quality on-trail information, as well as a professionally produced and widely available trail brochure and map. All means of distribution of these products need to be used
- **outstanding interpretive material**—the Brisbane Valley Rail Trail should have on-trail interpretive material, and be included within other trail and publicity brochures, providing trail users with a greater appreciation of the more interesting features to be found along the trail
- **consistency and uniformity of signage**—signage is recognised as an essential element of a quality trail, and all signage erected at trail-heads, along nearby and adjoining roads and along the Brisbane Valley Rail Trail should conform to accepted standards and maintain a consistent theme along the entire trail
- **adherence to recognised standards**—trail construction, signage and trail markers, and trail classification should comply with recognised Australian Standards, ensuring a high quality and safe experience for all trail users
- **community involvement**—the management and maintenance of the Brisbane Valley Rail Trail should consistently seek to involve the local communities along the corridor on an ongoing basis and in the formulation of critical decisions. This ongoing involvement with adjoining landowners and the community would ensure that the use of the rail trail does not impinge on private operations and that disputes are resolved wherever possible to the satisfaction of both the trail manager and the landowner. The ongoing involvement with other sectors of the community would ensure that the trail is meeting their expectations
- **trail user survey**—trail users should be surveyed on a biannual basis to ensure the trail is meeting their needs and expectations, and a survey of adjoining landowners and

businesses should be undertaken to ensure the trail is meeting their expectations

- **regular policing**—the Brisbane Valley Rail Trail should be regularly policed by the trail manager or rangers and an ongoing effort be maintained to deter and police unauthorised motor vehicle use (notably trail bikes).

10.3 Trail protection policy

Due to the nature of a rail trail (a 20 m wide corridor surrounded by a range of activities), it can be vulnerable to the negative impacts of surrounding development. The Rails-to-Trails Conservancy (USA) suggests that trail planning include the development of a trail protection policy to prevent damage to the trail corridor. The policy sets out primary uses of the corridor—recreation, transportation and historic preservation. Any use deemed incompatible with this primary use should be denied; those uses compatible with the primary use should be considered and carefully regulated.

A comprehensive policy would provide the trail manager with the authority to do the following:

- regulate all secondary uses of the trail corridor in a fair and consistent manner
- minimise inconvenience to trail users, and assure protection of wildlife habitat and natural and historic resources within the trail corridor
- minimise damage to the trail corridor at all times
- establish uniform standards for construction and restoration of the trail corridor if it is damaged by a secondary use
- ensure that the managing agency recovers all its administrative costs and receives appropriate compensation for use of, and damage to, the trail corridor by secondary uses
- inform all public and private interests of the expectations and intentions of the trail managing agency with respect to secondary uses
- issue permits and licences for secondary uses; prohibit the transfer of ownership rights through the use of easements or other mechanisms.

10.4 Management issues

A number of management issues arise at the commencement of a trail's development. The following section contains recommendations on these issues. References to 'the trail manager' below do not necessarily imply a single person—it will be the entity responsible for ongoing trail management.

10.4.1 Dogs on the trail

In the first instance, it is proposed to allow dogs on all sections of the rail trail, provided they are kept in control and on a lead at all times and that dog waste is collected and disposed of by the dog handlers. If proximity to dogs or livestock on adjoining lands causes an unacceptable conflict or public safety problem, dogs may be limited to town and village sections of the trail and banned along the more remote sections of the trail.

10.4.2 Horses on the trail

Major road crossings can present difficulties for horse riders. While it is relatively easy to get walkers and bike riders across major roads with good design, road crossings for horses can be more difficult as a rider must control themselves and their horse. There are four major high-speed crossings in the section between Harlin and Moore where the trail crosses the Brisbane Valley Highway and the D'Aguilar Highway (three times) in the 100 km/h zone. There is also a crossing of the Brisbane Valley Highway in the 100 km/h zone at Wanora.

In response, horses should be banned from the trail between Borallon Station Road, Pine Mountain and Lloyds Road, Wanora, and between Harlin and Moore, due to the difficulties in providing a safe crossing for horses and their riders across the highways in these sections. Trail literature, signage and physical works (cattle grids) should be used to 'enforce' this requirement.

In addition, some of the bridges on the trail are quite high—heights of 10 m above the gully or creek line are not uncommon. Some concerns have been raised about leading horses over bridges of such heights. The rail trail is likely to have a number of high bridges and, if horse riders want to use the trail, they will need to be confident that their horses can be led over such bridges. If the users are not confident of their horses, they should not use sections of the rail trail that have bridges of such height. Riders should be aware of this risk rather than be precluded from using sections of the trail for this reason. This information should be included in trail literature, notifying users of bridge heights in each section. Riders are to dismount and walk their horses when crossing bridges and roads. Horse riders are to adhere to any code of conduct the trail manager may put in place from time to time.

In initial public consultation, the issue of horse-drawn carriages was raised. There is a group of people who used to regularly go for short trips in horse-drawn carriages. Much of the riding was in state forests; however, the regional forest agreement process in South East Queensland has reduced the number of places where horse-drawn carriages can be taken (similar to the displacement of horse riders from forests where they used to ride). There was some interest in whether horse-drawn carriages would be allowed on the Brisbane Valley Rail Trail. The interest was in whether people could have 'unorganised' rides—i.e. the owner of a carriage may feel like going out for a spontaneous ride in the same way as any

other trail user would. Horse-drawn carriages need to be treated in a similar way to vehicles. The wheels have the capacity to do damage to the trail surface, and the carriages are too large to fit through the standard gates that will be used. Accordingly, users will need to have access to gates in the same way that emergency and maintenance vehicles do. Interactions between horse-drawn carriages and other trail users (particularly bike riders) may be difficult given the trail space taken up by these carriages.

General access should not be given to horse-drawn carriages, but rather access for carriages should be managed as an event—if the owners of these carriages want to use the trail, they would need to apply to the trail manager for a special event so that a number of them can access a section of the trail at a specified time. This information can then be made available to other trail users. It is also recommended that these events be limited to certain sections of the trail to manage the impact. The trail manager would need to monitor the impact of such events on other users and on the trail surface and review the general position on an annual basis.

10.4.3 Camping

Due to the costs and management problems, there are no proposals to provide camping facilities on the corridor. The provision of camping facilities by adjacent landowners is encourages. However, camping should not be permitted within the rail trail corridor.

10.4.4 Open fires and barbecues

Any lighting of open fires or barbecues at any time of the year should not be permitted along the rail trail.

10.4.5 Vegetation management

Together with road reserves, railway reserves played an important role as wildlife corridors and habitats for native birds and animals. In many instances, they hold important remnants of the indigenous vegetation that has been all but lost. It is important to manage railway reserves in a manner that maintains and enhances their nature conservation values.

In order to improve aesthetic and nature conservation values, the removal of introduced weeds and grasses and revegetation with native species is desirable. Revegetation is also important in some areas for visitor comfort, as some long sections of the rail trail are unpleasant to walk along on hot days due to the complete absence of shade. Any revegetation areas should be fenced off from stock and planted with native trees, shrubs, herbaceous plants and grasses.

The assistance of dedicated volunteer groups will help ensure that revegetation programs are quickly implemented and successful.

Since the closure of the railway line, Queensland Rail has undertaken an ongoing weed management role. Despite this, weeds that are dangerous to stock have been noted in several places.

A property management plan being prepared separately will address the issues of revegetation and weed control. It is worth noting that screening revegetation has been suggested in a number of places along the trail corridor (see Sections 8–10). The choice of appropriate species will be covered under the property management plan.

Once the rail trail is developed, the trail manager would be responsible for management of revegetation and the control of weeds within the corridor.

10.4.6 Rights to graze (or use) sections of the corridor

The trail corridor is 20 m wide in most places—not all of this will be required for the rail trail.

Money from leasing and grazing licences can be an important source of annual revenue for ongoing maintenance works along a rail trail (many rail trails in Victoria have such arrangements in place). The issuing of grazing licences can help to reduce maintenance costs, particularly weed control.

The manager of the Brisbane Valley Rail Trail will consider offering grazing licences to interested landholders. Until the trail (or section of the trail) is developed, any landholder who takes up a licence can operate the licence on the same basis that access permits are held at the moment. Once the trail is established, the licences will need to operate differently to ensure that trail management is not compromised. Revegetation and environmental management considerations will provide some input as to the appropriateness of offering grazing licences in certain sections.

Any licences issued that permit grazing should exclude cultivation. Feedlots and intensive agricultural use should not be permitted on the rail trail corridor. Licence renewal should be subject to review by the trail manager to ensure compliance with licence conditions. All new licences are to be transferable should the ownership of adjoining land change. If the new owner is not interested in continuing the licence, then expressions of interest should be called for the issue of a new licence compatible with the management objectives for the area.

Narrow sections of the reserve (i.e. the rail corridor rather than the station grounds) may have less value as grazing leases, especially when the need for fencing and revegetation areas within the reserve is considered.

Grazing licences can operate over the railway reserve as a separate paddock, be incorporated into an abutting paddock, or be partly incorporated into adjacent paddocks. Determination should be made with regard to the revegetation plan for the railway corridor. Remnant vegetation should be fenced from grazing stock. Where the reserve is treated as a separate paddock, there is the problem of trail users passing by stock in a confined strip of land and this could disturb stock (Drawing 4 in Appendix 3 shows how this might look). Where the railway corridor is incorporated into one adjacent paddock, this overcomes the problem of trail users interacting with stock within a confined space. However, stock use would be year round, and the rail trail may be damaged during wet times of the year, especially by cattle. Revegetation areas need to be fenced off. The third option is to locate a new fence along the edge of the rail trail itself, and thereby incorporate a strip of corridor into the adjoining paddock. This may be a costly option if the narrow width of the reserve added to the paddock is measured up against the cost of new fencing. If this were undertaken on one side of the rail trail, it still leaves the option of revegetating the opposite side of the reserve. This may also mean a loss of lease income. This needs to be assessed on a case-by-case basis—it is not possible to anticipate the range of scenarios and the needs of individual landholders.

Access to the rail trail by farm vehicles should be permitted where grazing licences exist and alternative vehicle access is not possible. The trail manager should ensure that farmers who use the rail trail protect the surface by avoiding the trail in wet weather and making good any damage to the surface caused by their vehicles.

It is recognised that in some instances the railway corridor dissects properties—access should be retained where possible, although it is noted that this raises the issue of managing stock across the corridor. One landowner has expressed concern that their stock used to travel back and forward across the corridor, but they could not stray along the corridor as there were fences built across the corridor. The concern is that, when the trail opens, it will provide a linear path for stock to wander off the property. While simple gates are one option, the landowner is concerned that trail users will not close the gates. The matter is complicated as the landholder does not live on-site, so cannot be as attentive to gates as they might be if they lived on the property. The overall concern is that they might lose access to the adjoining paddock simply because the risk is too high. Self-closing gates should be installed on the trail at the boundaries of all land subject to licences to prevent the escape of livestock.

Self-closing gates (as installed on the Moore–Linville section) should prevent livestock from wandering away from any land leased to adjoining landholders.

10.4.7 Vehicle access

The potential for unauthorised motorised use of sections of the proposed rail trail is regarded as a major problem to adjoining landowners—fearful that trail bikes in particular may gain access to farmland and property. With the exception of car parks at trail-heads, general public vehicle access should be prohibited along the rail trail.

Section 6 includes a number of gate designs for the purpose of keeping unauthorised vehicles off the rail trail. It is recommended that these be used at all trail-heads and road crossings. Trail management and emergency vehicles will need to have access to the trail. The simplest option is to ensure that all locked management gates along the trail have the same locking system. On the basis of discussions with emergency services personnel, it is recommended that all management access gates be locked by a combination lock.

Adjoining landholders who have leased sections of the corridor or who come to some other arrangement with the trail manager should have vehicle access to the trail. A system where all gates have the same code means that a landholder has access to the entire trail. It is not unreasonable to expect that landholders would respect limitations imposed on their use of the gates, and an agreement could be reached that they would only access gates servicing their own properties.

It is acknowledged that complete vehicle exclusion is likely to be difficult to manage—determined wrong-doers may still find their way on to the trail. Education through signage and use of locked gates or other vehicle exclusion barriers would help, as would encouraging bona fide users and local residents to report registration numbers of illegal users. The trail is legally classified as a 'non-rail transport corridor', meaning it is illegal for unauthorised vehicles to be on the corridor. This type of unauthorised behaviour comes under the jurisdiction of the Queensland Police Service.

10.4.8 Night-time trail closure

Other rail trails have experimented with night closures of certain sections to allow stock from adjoining properties to graze the corridor (not the formation). These closures are achieved simply by the adjoining landholder shutting gates at sundown. Generally, rail trails (and other recreation trails) are not closed at night, as the practicalities of doing so are very difficult.

The absence of any lighting on the trail will discourage night-time use although it

is not really seen as being a particularly significant issue.

Some concerns have been expressed about shooters spotlighting on the trail at night. The gating system is designed to keep motor vehicles off the trail. In addition, the trail is legally classified as a 'non-rail transport corridor', meaning it is illegal to discharge firearms (except with a special permit). This type of unauthorised behaviour comes under the jurisdiction of the Queensland Police Service, as it would with the current situation where no trail has been developed.

10.4.9 Group use policy

In natural areas in Australia, management agencies are looking to implement minimal impact policies to protect natural values. These policies can often involve limiting group sizes both on trails and at campsites. The Brisbane Valley Rail Trail is a corridor in a relatively modified natural area. Consequently, minimal impact policies (as practised in other natural areas) are not appropriate for this trail.

The key management issue (at least in the medium term) is likely to be 'social sustainability' or a sense of crowding on the trail, particularly given the forecast population growth in South East Queensland and the 'one-off' nature of this rail trail, which may attract more people than a new rail trail developed in an area where there are a number of rail trails. However, there has been limited work elsewhere on 'social carrying capacity' of recreation trails, and it is impossible to define what a socially sustainable level of use may be. The Lillydale–Warburton Rail Trail on the outskirts of Melbourne has 100 000 user trips a year and there are no reported issues with social carrying capacity. Similarly, there are no complaints on the Murray to the Mountains Rail Trail in northern Victoria, which attracts 40 000 people a year. It would be counter-productive to limit groups on the trail at this stage of its development, given the trail is new and the trail advocates wish for it to appeal to large numbers of potential users. There are also no campsites proposed along the trail—overcrowding and environmental impacts at campsites will not be an issue (common in natural areas). The only group use issue to have emerged in consultation is the use of the trail by horse-drawn carriages. This issue has been discussed in Section 11.4.2.

It is recommended that no formal group use policy be adopted at this stage of the trail's development. Visitor numbers should be monitored and user surveys should be carried out every year to determine if there are issues with group use.

10.4.10 On-trail events

One form of group use is the on-trail special event, and these need to be managed. The Fernvale–Lowood trail hosts an annual fun run in July each year. It is envisaged that similar policies and approaches would be in place to manage events on the rest of the trail. Current state regulations require that any event likely to draw over 2000 people that involves the sale of alcohol requires the preparation of a specific event management plan (guidelines for such a plan are available from the Liquor Licensing Division). Applications of this type also generate automatic notification of the Queensland Police Service. It is unlikely that such events will be held on the rail trail in its early years. However, the principle of notifying, and seeking input from, local police and other emergency service personnel when any sizeable event is planned should be observed by the trail manager. It builds good community relationships; the opening of the Moore–Linville section in November 2007 was a demonstration of the goodwill that can be generated when key personnel know what is planned. Major events not involving alcohol may also require assistance from police; for example, Moore police have recently been involved with the organisers of a 24-hour endurance horse ride, providing some traffic control services. It is good practice to involve local service personnel in the early stages of event planning.

10.4.11 Commercial use policy

In some natural areas across Australia, commercial operators pay fees to access facilities. The Queensland Parks and Wildlife Service is currently developing the Tourism in Protected Areas (TIPA) initiative, a new framework aimed at providing a more efficient, effective and equitable system of sustainable tourism management in protected areas. Commercial tours at glow-worm sites in Springbrook and Tamborine National Parks, and commercial tours on Fraser Island in Great Sandy National Park, are the first activities and sites at which TIPA will apply.

In line with current government policies, no policies or actions are recommended at this stage regarding commercial use of the Brisbane Valley Rail Trail. It is understood that other rail trails in Australia are free to access for all.

However, the sublease agreement between DIP and Queensland Transport for the management of the rail corridor does include the ability to charge users of the rail corridor. Income streams to support the ongoing development and management of the trail need to be explored, bearing in mind the state government's five-year commitment to this trail. On-trail advertising is one avenue of revenue generation. Commercial use fees are another avenue. Charging commercial operators to use the trail for commercial purposes is an option that should be considered in the future to generate funds to manage the trail.

10.4.12 Use of the trail corridor by utilities

The Western Corridor Recycled Water Pipeline is located under much of the rail corridor between the Warrego Highway

and Coominya. The pipeline was laid in 2007 and work will be completed in the first half of 2008. It has cleared and levelled the corridor and it has been responsible for some works items along the corridor to address the concerns of neighbours. It has also undertaken revegetation along the corridor where major clearing has occurred. Energex is also locating some major overhead transmission lines along part of the southern section of the trail from Wulkuraka Station to the Warrego Highway (the visual impact of this development is significant when compared with an underground pipeline). It is likely that other utility providers may wish to use the corridor for the placement of either above-ground or below-ground facilities. Many of these facilities are well-suited for placement along the corridor because they are underground and do not impede activities along it.

Provided the intended co-use does not disturb the natural, scenic and historical qualities of the trail, it can be permitted (in line with the principles and policies outlined above in sections 11.2 and 11.3). In other jurisdictions, utilities are charged an annual fee for corridor use. It is unclear what the opportunities are for charging utilities, given that the trail manager is not the owner (the Queensland Government) or the head lessee (Queensland Transport) of the corridor. Licence agreements, reviewed and renewed on an annual basis, would be the most appropriate mechanism, regardless of whether a fee is charged.

10.4.13 Fire management

The trail manager should be responsible for implementing fire protection and management along the rail trail corridor to protect life, property, public assets and natural and cultural values from fire, reduce the incidence of fire, reduce the severity and restrict the spread of fire. The aim of fire management is to ensure trail users and adjoining landholders are protected from fire commencing on or travelling along the rail trail corridor. To reduce the incidence of fire starting from the rail trail, all open or solid fuel fires should be prohibited. A condition of grazing licences along the rail trail corridor should be fire management works in the licensed area. At visitor facilities, and other large grass areas that are not grazed, slashing should be used to reduce fuel loads. Where the corridor has tree cover or where revegetation is to occur, there will be a need to provide a buffer zone along the boundary. Alternatively, seasonal grazing of the vegetated area to reduce fuel loads could be permitted. Relevant signage at trail-heads (discussed in Section 6) needs to include fire warnings.

In other projects, fire management issues have included:

- fire risk factors in the area—risk profile is influenced by a number of factors including slope of the land (hilly terrain and north and west facing slopes increase risk), response time for emergency vehicles (the closer in to towns a place, the less time for emergency vehicles to get there), proximity of roads and how heavily trafficked they are (highways and major arterials increase risk due to higher numbers of passing motorists), and closeness of refuges including fire-proof buildings and roads
- trail design allowing for fire vehicle passing bays (15 m long by 6 m wide) every 2 km (this is discussed in Section 6.2)
- fire management responses for the trail—these included closure on days of total fire ban (and consequential policing). Possible management responses in zones of highest fire risk (if there is such a differentiation on the Brisbane Valley Rail Trail) may include reconstruction and/or strengthening of bridges to carry fire vehicles (around 13.5 t), appropriate warnings, and possible longer closures on these sections (rather than just on days of total fire bans). Sections of trail in zones of lower fire risk could have a lower level of fire management response.

Further details will be worked out as part of the property management plan. A wildfire risk management plan would include a number of objectives and relevant actions. The objectives should be:

- providing a safe recreation trail for walkers, cyclists and horse riding
- providing safe access onto and along the trail for all emergency vehicles
- minimising the risks of fires spreading from or onto the rail trail
- developing annual maintenance works and maintenance programs (with an accent on fire hazard reduction).

10.4.14 Risk management

A risk is the chance of something happening as a result of a hazard or threat that will impact on an activity or planned event. Risk arises out of uncertainty. It is measured in terms of the likelihood of it happening and the consequences if it does happen. Risk therefore, even on trails, needs to be managed. Ignoring the risks that apply to a recreation trail or events planned along a trail could impact on:

- the health and safety of trail users, staff, volunteers and event participants
- the reputation, credibility and status of the trail and its manager (or trail association)
- public and customer confidence in the trail manager
- the trail manager's financial position
- plant, equipment and the environment.

A systematic approach to managing risk is now regarded as good management practice. Risk management is a process consisting of well defined steps which,

when taken in sequence, support better decision making by contributing to a greater insight into risks and their impacts. It is as much about identifying opportunities as it is about avoiding losses. By adopting effective risk management techniques, the trail manager can help to improve the safety of trail users, the quality of experience for trail users and the business performance of the trail organisation. With recent significant increases in the cost of public liability insurance and its decreased availability, the issues of risk and critical incident management have never been more important for organisations involved in the tourism/visitor industry, including trail managers. Sound risk management can prevent injuries from occurring, and help to reduce insurance claims and costs. Risk management is of particular importance to nature-based and adventure tourism operations, and requires careful consideration in how it is planned for and dealt with. The courts expect that a business (including local governments) will exercise due diligence in carrying out hazard assessment, risk management planning and emergency response. There are many benefits in implementing risk management procedures. Some of these include:

- more effective strategic planning
- better cost control
- increased knowledge and understanding of exposure to risk
- a systematic, well informed and thorough method of decision making
- increased preparedness for outside review
- minimised disruptions
- better use of resources
- strengthening culture for continued improvement
- creating a best practice and quality organisation.

The Brisbane Valley Rail Trail is close to a large population and, therefore, is likely to be well used. Although the trail is located on a reasonably flat grade, and is wide enough to accommodate several user groups, there will be risks associated with use of the trail. Some of the risks involved are:

- encountering motor vehicles at the (numerous) road crossings
- conflict between user groups (especially horses and walkers, horses and cyclists, cyclists and walkers)
- encountering illegal trail users such as cars, 4WDs and trail bikes
- falling from unprotected bridge crossings (although the trail development plan recommends handrails on all bridges over 1 m high)
- falling from high embankments (where there are no barriers)
- being caught in a bush fire
- being bitten by a snake.

Many trail projects have in place a maintenance plan which sets out clearly the items which require regular inspection, the frequency of that inspection and assessment, the actions to take in response to degraded surface conditions or infrastructure, and remedial action to rectify a problem or fault. Section 13 provides general information about the need for ongoing maintenance of the trail. Clear records of each activity/inspection should be kept by the trail manager who has responsibility for maintenance of the trail. This will serve to maximise user safety and minimise liability risks. It will also provide a valuable record of works undertaken and make for efficient use of maintenance resources over time. The maintenance of warning signage and clear sight lines at all road crossings helps ensure risks at these locations are minimised. Although some embankments are high, the height and steepness of the slopes are not considered particularly hazardous, and safety railings, fencing or barriers would be mostly inappropriate (delineators are suggested along some particularly high embankments).

The threat of bushfires is always present. Although snakes are rarely encountered, it may be prudent for trail promotional material to carry a warning about possible encounters.

10.4.15 On-trail advertising

On-trail advertising is one avenue of revenue generation. The main impacts of such advertising would be visual and safety impacts. Any permitted advertising signs should not impede trail users nor create a safety hazard (e.g. by obscuring an advance warning sign). Visual impacts are much more difficult to judge. Local governments have a range of signage policies that are likely to address visual amenity. Policies that regulate road-side advertising would be the most relevant. The relevant policies of the councils where the trail runs (Ipswich, Esk and Nanango) should apply to any trail-side advertising. Where these are not compatible, it should be for the trail manager to determine the criteria. On-trail advertising is likely to be directly connected to trail-side businesses (this could be one of the criteria), but the trail manager should not be endorsing the service nor directing trail users to that facility under any agreement.

In consultation, one respondent raised the issue of restrictions on the type of advertising which may occur, i.e. inappropriate (in the view of the submitter) goods or services such as fast food chains. This would be a matter for the trail manager. However, there appears to be no legitimate or logical reason why products that are legally available and can legally advertise could not advertise on the rail trail as they would advertise elsewhere. It is noted that the state government (and some of its departments) have policies regarding appropriate advertising on government infrastructure. This will no doubt be considered by the trail manager.

10.4.16 Complaints, communications and enforcement

It is critically important for the trail users and the public to have contact with authorities to ensure that the trail is managed properly, that maintenance matters are attended to readily, that any regulations are enforced and that general feedback can be given. It is important that this person or agency is easily contactable. Contact details need to be on all trail literature and maps, on trail-head signage, and on relevant websites.

As discussed in Section 10.2, employment of a full-time trail manager is one option. The trail manager for the Murray to the Mountains Rail Trail has a number of tasks including the provision of support to trail users by regularly patrolling the rail trail, by enforcing the provisions of relevant Acts, Regulations and local laws administered by the managing agency, by observing and reporting irregularities and offences, and taking appropriate action, and managing the maintenance of the rail trail. This is the simplest solution to create a first point of contact. Alternatively, the tasks could fall to an officer of any of the local governments (by agreement). Whoever undertakes the task, it is important that the public and users know who to contact about the trail and about management issues. The recent closure of the Moore Cemetery section illustrates the point. Signs were placed on the trail notifying of trail closure with a contact number. When the trail is fully operational, this type of information needs to be placed where it will have wider circulation—this means the responsibility rests with an accountable person or group. The trail manager needs to take responsibility for organising maintenance and for any necessary trail closures, and for being the first point of contact for most matters.

As discussed in section 14, in an emergency situation, the first point of contact will be the emergency services. Once a call is made, the communications centre for the appropriate service dispatches the required personnel and vehicles. The trail manager is only likely to be involved after the emergency situation is resolved, to review and record the incident, and to review the response.

It is a different situation when the emergency is a slowly emerging situation, such as a period of total fire ban (or very high fire risk) or the likelihood of flooding. The trail manager needs the vested authority to close the trail under such circumstances (under relevant state government legislation). Once the trail manager advises police that the trail (or part of the trail) is closed, police have the powers to ensure that people do not go onto the trail, or can be removed from the trail if they are on it (an administrative trespass), although most people accept the advice of police.

Illegal vehicle use is the other main area of enforcement. The trail is legally classified as a 'non-rail transport corridor', meaning it is illegal for unauthorised vehicles to be on the corridor (the advice is that it is considered administrative trespass). This type of unauthorised behaviour comes under the jurisdiction of the Queensland Police Service. The most consistent method of reporting would involve reporting any illegal vehicles to the trail manager who can then contact the police—this simply ensures the primacy of the one number contact system (which would apply in all cases except for emergencies).

Section 11. Future management arrangements

11.1 Legislative arrangements

There are no existing mechanisms which would enable the long-term management of the Brisbane Valley Rail Trail by multiple stakeholders. A set of interim arrangements has allowed DIP to manage the land and assets within the corridor. These arrangements are based on an agreement between DIP and Queensland Rail to transfer the assets (i.e. the bridges), a series of subleases from Queensland Transport and the goodwill and cooperation of the local council partners. This allows DIP to oversee the trail planning, design and construction process and the management of the corridor in the short term.

When a suitable long-term management entity has been established, the ownership of the rail trail infrastructure and the subleases issued for rail trail operations should be transferred to the new entity.

Options under consideration for a long-term management entity include:

- establishing an incorporated partnership body to sublease the corridor from Queensland Transport and manage the rail trail and corridor
- special legislation to create a statutory board with the sole purpose to develop and manage the rail trail and manage the rail corridor
- special legislation empowering the minister to create statutory boards to develop and manage a network of regional recreation trails throughout South East Queensland (noting that a regional trails strategy has recommended a number of priority regional trails in the region)
- declaration of the corridor as a 'recreation area' under the *Recreation Areas Management Act 1988*, with the management entity operating through powers delegated by the Chief Executive Officer of the Environmental Protection Agency.

These are possible legislative arrangements that will be investigated over the next year or so to determine the legislative structure. It should be noted that whichever model is adopted, it should be applicable to future rail trails which may be developed in Queensland such as on the Atherton Tablelands, and at Maryborough and Kingaroy. Discussions on rail trails in these locations are ongoing.

11.2 Committees of management

While the legislative framework needs to be clarified, the model of using committees of management made up of community and government stakeholders is the recommended long-term management model.

As discussed in Section 3, the Victorian model (in its essence copied by the other states) involves a committee of management with local government and community representatives. This model has worked well and has been adapted to suit situations where a rail trail passes through more than one local government area. It is a variation of the first model discussed in the options above. Under the Victorian model, the committee of management is an incorporated association and could act as the trustee or manager of the rail corridors. Incorporated committees allow lawsuits, contracts, borrowings and tenancy agreements in the name of the committee, providing security and greater continuity. Sub-committees would have no power in themselves; recommendations would need to be brought to the full committee.

11.2.1 Who would be on a committee of management?

If a variation of the Victorian model is adopted, community membership may be sought in a number of ways. In the case of the Riesling Trail in South Australia, membership is invited through public notice and is determined at an annual general meeting. In the Victorian model, the state government, in conjunction with the local governments, select members from an expression of interest process. A third option, often used in partnership-based natural resource management organisations, uses groups rather than individuals as community representatives. In the natural resources management model, the determination of the groups (such as conservation groups, landholder groups, recreation groups) to be represented is made by an interim committee and selected groups are invited to nominate their representatives to the permanent committee.

It is recommended that any ongoing committee include representation from adjoining landholders, user groups, business and tourist operators, individuals with unique skill sets, the state government and the councils of Ipswich City, Esk Shire, Nanango Shire and Brisbane City. The inclusion of Brisbane City as a rail trail management partner would recognise that the vast majority of rail trail users are likely to come from the greater Brisbane area or access the rail trail through Brisbane as a tourist destination.

Skill sets that would be useful for the committee to have as a whole include:

- leadership skills—critical to hold the committee together, to inspire and motivate, to advocate to a wider audience and to maintain focus on a long-term vision
- community skills—the skills to motivate community and volunteer efforts, the skills to 'build bridges' with those opposed to the rail trail
- business skills—skills to understand and tap into locally based businesses and the capacity to communicate to businesses in ways that garner their support
- entrepreneurial skills—a business-like approach to running a rail trail is critical
- administrative skills—expertise and

knowledge of government grants, and how to apply for them. General administration skills are also critical

- environmental/scientific skills—understanding of native flora and fauna and wider environmental issues. The ability to communicate these to a wider audience is desirable
- engineering skills—the capacity to understand design and construction of all manner of trail infrastructure
- governmental skills—the ability to liaise with and understand government departments and politicians
- users—it is essential that the committee understand the needs and requirements of various targeted user groups.

These 'selection criteria' should be considered in selecting committee members.

11.2.2 What would a committee of management do?

Under Victorian legislation, committees of management have a number of powers and duties. The committees have traditionally absorbed the responsibility for pursuing the development of a rail trail, including the preparation of concept plans and business plans. In the case of the Murray to the Mountains Rail Trail, the committee has responsibility for:

- day-to-day management and ongoing development of the trail
- preparation and implementation of a business plan
- development and achievement of trail objectives
- developing future budgets
- overseeing activities and ensuring active participation of two sub-committees.

11.2.3 Sub-committees

In the short term, sub-committees could be set up with a geographic focus for various sections of the trail. This structure will ensure those with most interest in achieving a section of trail development can get involved early in the project. Once the trail is completed, the sub-committees would no longer exist, although they could form the basis of a 'friends of the Brisbane Valley Rail Trail', with responsibility for each trail section (the roles and operation of a 'friends of' group is discussed below).

Other sub-committees with specific roles but no specific powers could be explored. The Murray to the Mountains management structure provides an example involving two committees. A technical group has three local government representatives (one from each local government), one representative from the Department of Sustainability and Environment and one representative from Vic Roads (a state government agency). Its roles are trail maintenance, weed and vegetation control and bridge maintenance.

An advisory group has six representatives of user groups/communities, one representative from the Country Fire Authority, three local landholders (one from each local government area) and one representative from the Victorian Farmers Federation. Its roles are representing community and user group interests to the committee of management, and liaison with the committee of management on management and maintenance issues. One representative from the technical group and three from the advisory group sit on the committee of management, ensuring a constant flow of information. This model is best used on a mature trail. It is therefore recommended that consideration be given to this model in the future when the trail is closer to completion.

11.2.4 A full-time trail manager

One of the roles of a committee of management is to oversee the ongoing development, maintenance and promotion of the trail. One option is the employment of a full-time trail manager. While this can be a significant cost item, it also reduces ongoing costs in other areas such as trail maintenance. The Murray to the Mountains Rail Trail was the only rail trail in Australia with a full-time manager (the incumbent left the job recently). The trail runs through three local governments; each contributes to the costs associated with the employment of the trail manager. The key tasks for the trail manager on this trail are:

- administrative tasks associated with the trail management committee—including dealing with enquiries and preparing meeting agendas, papers and minutes
- project management of any trail projects—planning, maintenance, funding applications and oversight
- promotion of the rail trail, both locally and at major events around the country
- providing trail user support—
  - regularly patrol the rail trail, especially during periods of high use (notably weekends and school holidays)
  - provide a friendly, helpful and courteous service to trail users
  - offer advice, information and direction
  - maintain trail facilities, including the provision of drinking water and route information
  - provide trail-side assistance where practicable in the form of puncture repairs, minor equipment repairs
  - effectively coordinate emergency activities (e.g. evacuation of

injured users) and emergency communications

  - enforce the provisions of relevant Acts, Regulations and local laws administered by the managing agency

  - observe and report irregularities and offences, and take appropriate action

- managing the maintenance of the rail trail—

  - ensure that the rail trail is always safe and trafficable to the public

  - prepare and implement an annual maintenance program

  - successfully liaise with participating councils to undertake the maintenance program

  - successfully manage and supervise various labour scheme personnel and maintenance contractors

  - perform minor maintenance as required

  - ensure that appropriate signage is displayed to warn the public of any hazards.

It is worth noting these tasks need to be performed by a person or number of people if a trail is to remain sustainable.

11.3 Management models—a summary

The following structures are recommended.

Short term (until the trail is substantially completed):

- committee of management for the project with representation from (at least) adjoining landholders, user groups, business and tourist operators, individuals with unique skill sets (focused on project initiation rather than ongoing management), the state government and the councils of Ipswich City, Esk Shire, Nanango Shire and Brisbane City

- geographically focused sub-committees with similar representation to the committee of management. Roles may include consulting with adjoining landowners, developing a task list/critical path, and pursuing small community grants such as those made available by councils. The other key role for such groups is to be project advocates in their community.

Medium to long term (once the trail is substantially completed):

- committee of management with representation from (at least) adjoining landholders, user groups, business and tourist operators, individuals with unique skill sets as appropriate, the state government and local councils. Community membership could be via the two advisory groups (as per the Murray to the Mountains Rail Trail management model) or via general representation

- A technical advisory group with council representatives, the state government (possibly the 'landlord' agency), Queensland Fire and Rescue Service, and landholders with specialist expertise in issues such as weed and vegetation control

- a community advisory group with representation from user groups/ communities, local landholders, and local businesses. At the time of formation of this group, the committee of management can determine if other groups need representation.

- the geographically focused sub-committees, which may then become the focus for a series of 'friends of the trail' group/s (discussed below).

11.4 Friends of the Brisbane Valley Rail Trail

At some point in the development of the rail trail, consideration needs to be given to the formation of community support networks, usually achieved through a 'friends of the trail/s' group/s. Many rail trails (and indeed many recreation trails) draw support from 'friends of' groups.

The best summary of the roles of 'friends of' groups comes from the Rails-to-Trails Conservancy in the USA. From *Designing rail trails for the 21st century* (Flink et al. 2001) comes the following advice:

> The single most important function of a friends organisation is to act as an advocate for the trail, defending it when necessary and promoting it the rest of the time. Funding decisions often depend on public pressure, and money is generally allocated to projects with high public visibility.

Other services of 'friends of' groups include:

- physical labour for maintenance organised a number of different ways. The Rails-to-Trails Conservancy recommends the use of an adopt-a-trail (or section of trail) program—a good approach for trails of anything over 5 km. The Appalachian Trail, the Bibbulmun Track and the Gippsland Trail all use this particular approach

- eyes and ears surveillance and reporting of any problems, danger or inappropriate activity

- fundraising to pay for trail structures, amenities or to protect threatened environmental areas on or adjacent to the trail

- developing maps, newsletters and other publications

- promoting the trail as a tourist attraction.

The Rails-to-Trails Conservancy

recommends that the trail managing agency maintain legal separation from a 'friends of' group; they should, however, coordinate activities and programs to avoid duplicating efforts or pursuing divergent goals.

As the needs of trail development change from creation to ongoing support, the skills set of the 'friends of' board may need to change (a process to be handled thoughtfully). Tourism, corporate, financial and service agent communities become more important.

It is important to clearly specify the purpose and mission of 'friends of' organisations.

11.4.1 What do friends groups do?

In Australia, 'friends of' trails groups undertake any number of tasks. A selection of tasks is discussed below. It should be noted that, in the cases cited below and most other cases, the 'friends of' groups are not the trail manager. This responsibility falls to a formal committee of management, a government agency or a local government.

The Bellarine Rail Trail (in the City of Greater Geelong, Victoria) has an active friends group. Its primary task is revegetation along the corridor. It aims to develop the environment of the rail trail, rehabilitate flora and fauna, and encourage rail trail users to appreciate the environment.

The Munda Biddi Trail Foundation assists with planning, developing, marketing and maintaining the trail. It enlists paid memberships, enrols and manages volunteers, holds trail and community events, and provides information and resources to enhance the quality of the trail experience.

The friends of the Lilydale to Warburton Rail Trail involves the community in the development and maintenance of the trail, enhances landscape and conservation values of the trail, and promotes the use of the trail. Activities include revegetation, weed eradication, protection of remnant species, and building and restoration work.

11.4.2 Bibbulmun Track Foundation

Completed in 1997, the 962 km Bibbulmun Track links Perth and Albany. Sections of the track were used by over 137 000 users in 2003 (the most recent figure), a significant increase from 10 000 users in 1997. Part of this success can be put down to the efforts of the Bibbulmun Track Foundation.

The Bibbulmun Track Foundation is probably the most successful 'friends of' group in Australia, with a paid-up membership in excess of 2100 (in a number of categories). The main membership categories are individual and family—at $40 and $65 a year, these memberships provide a good income flow for the foundation.

The foundation is not the trail manager—this job is done by the Department of Environment and Conservation (DEC), Western Australia. The foundation is a not-for-profit community-based organisation established to provide support for the management, maintenance and marketing of the Bibbulmun Track. The foundation encourages community participation, ownership and education, develops opportunities for tourism, employment and training, advocates the protection of natural and historical values of the track, attracts funds and other resources, and promotes the track as accessible to all.

The foundation is managed by a 10-member Board of Management with seven people elected by general members. Current board members include the Managing Director of Mountain Designs, Western Australia (chair); three representatives from the community (two business people and one educator); two representatives from DEC; one representative from the Western Australia Tourist Commission; one representative from the Western Australia Department of Premier and Cabinet (the Premier is the Patron), and one representative from the Great Southern Development Commission (a statutory authority). It has a full-time paid Executive Director and a large number of volunteer staff.

Corporate sponsorship has made possible its 'eyes on the ground' maintenance volunteer program—volunteers adopt a section of the track and ensure it remains well maintained. Approximately 780 km of the track is 'managed' in this way by volunteers—a Herculean effort in this time-poor modern environment. They carry out basic maintenance activities and report major maintenance issues to the track manager (DEC). There are also office and field activity volunteers.

The foundation has a number of corporate sponsors: Premier (0), Gold (1), Silver (1), and Bronze (7), and also receives funding from the Lotterywest Trails Grants Program (WA Lotteries). Importantly, the foundation has developed a number of paying events on the track to support its ongoing work.

Section 12. Partnership strategy

12.1 Introduction

One of the guiding principles is that the management and maintenance of the Brisbane Valley Rail Trail should consistently seek to involve the local communities along the corridor on an ongoing basis and in the formulation of critical decisions. This ongoing involvement with adjoining landowners and the community will ensure that the use of the rail trail does not impinge on private operations and that disputes are resolved wherever possible to the satisfaction of both the trail manager and the landowner. Matters are likely to arise including fencing, privacy issues, trespassing and licensing agreements.

The preparation of this plan has been done with a willingness to discuss issues and possible solutions with adjoining landholders. DIP has committed to further consultation with adjoining landholders as the construction of the trail proceeds. This spirit of cooperation needs to be continued throughout the life of the rail trail. Building community support is critical—adjoining landholders can provide a significant boost for wider community support. There are no rules for ongoing engagement with adjoining landholders—a willingness to sit down and listen and discuss openly is required. Having a single contact point for the trail would be a significant advantage to ensure ongoing good relationships with landholders. Inviting landowners to 'adopt-the-trail-section' adjacent to their property may be warranted. Inviting landowners onto any advisory committee would be a positive step.

Many of the potential future key stakeholders in the Brisbane Valley Rail Trail have been involved with the work to date (both planning and development).

Memoranda of understanding have been put in place between DIP and:

- Esk Shire Council
- Nanango Shire Council
- Brisbane Valley Heritage Trails Association
- Esk Lions Club
- Linville Pioneer and Charity Sporting Club.

These will assist the development and management of the trail.

The Moore Soldiers Memorial Hall committee organised a range of festivities and catering to celebrate the opening of the Moore–Linville pilot section in November 2007. Nanango Shire Council has also been heavily involved in recent planning and development activities and promotion of the Linville–Blackbutt section (in addition to being the constructing authority for the Linville–Blackbutt section).

Government rangers identified trees and bellbird colonies on the Blackbutt Range, and staff from the Western Corridor Recycled Water Scheme shared maps, information and larrikin stories for future use. Queensland Rail released staff to the Principal Consultant, and John Oxley Library staff checked signage details. The Australian National Museum waived copyright and new signage material came from Bellevue Homestead, Yarraman Heritage House, Nanango Visitor Information Centre and Toogoolawah and District History Group, whose members 'walked the line' to identify appropriate sign locations.

Members from Diabetes Queensland clarified cyclist needs, Bicycle Queensland and Rail Trails Australia have both featured the rail trail prominently on their websites. The photographer from Rail Trails Australia attended the opening of the Moore–Linville Rail Trail. Local residents of the Brisbane Valley attended information sessions at Moore, Esk and Fernvale. Local legends, young and old, shared more memories. A local landholder was contracted to take archival film footage and record interviews with community members and stakeholders. A local fencing contractor has been employed to construct the horse-yards in Linville.

These existing partnerships can form the basis of long-term partnership arrangements.

12.2 Partnerships with statutory authorities

12.2.1 General issues

Formal partnerships with shared financial responsibility for trail management are important for the ongoing viability of the rail trail. Potential financial partners will not be seduced by website links and naming rights on local events. Partners can be divided into those agencies that already have some responsibility over the trail, and those who might be persuaded towards further involvement.

Existing partners in the rail trail include Queensland Transport as 'landlord', Department of Main Roads, Queensland Police Service, Queensland Ambulance Service, Queensland Fire and Rescue Authority, the State Emergency Service, Western Corridor Recycled Water Pipeline project and Department of Communities (Partnerships Queensland). The involvement of many of these partners in ongoing trail management and provision of interpretation material is worth pursuing.

The Department of Main Roads is necessarily involved when the rail line crosses a main road, and it is also responsible for directional signage to the rail trail on roads and highways. Queensland police officers have been generous in their contributions to information sessions about issues to do with campsites and motor bikes on the disused rail corridor and already report on unauthorised use of existing rail trails in the Brisbane Valley. Emergency services personnel (police, ambulance, fire, SES) will be the first port of call for people experiencing difficulties on the rail trail, and are always supportive of opening events. The Department of Communities (Partnerships Queensland) has provided

advice from Indigenous people about significant features of the rail trail that are being preserved.

Future partnerships with local councils (Ipswich City, and Esk and Nanango shires) are important for effective delivery of services to those sections of the rail trail that are within their boundaries. The more successful the rail trail becomes, the higher the expectation will become for services like signage, roads, pavements, toilet facilities and information centres. Increases in council budgets to cover these improvements may come from payment for services to the rail trail paid for by the trail manager. It will be difficult to arrange partnership agreements with councils who see themselves as dependent employees of the trail manager. Increased business in the region from the rail trail is also problematic. These increases will benefit ratepayers considerably, but the council's option of increasing general rates to cover the costs of servicing the rail trail may effectively abort its development through local resistance. Alternative arrangements with amalgamated regional councils may be necessary.

On the other hand, increased business for local service providers as the Brisbane Valley Rail Trail prospers is an incentive for Tourism Queensland to become further involved. Their promotion is always useful. The resources of Tourism Queensland would also be useful to provide comparative visitation figures as well as promotion and formal evaluation. This is another important partnership to develop.

12.2.2. Statutory authorities and their involvement in future interpretation

There are histories about early ambulance bearers in the Brisbane Valley that might be supported by signage paid for by Queensland Ambulance Service. Most of the early stories relate to the management of natural resources, and the Department of Natural Resources and Water has been generous in the past in relation to Caboonbah Homestead, home of HP Somerset after whom Somerset Dam was named. All of the larrikin stories of the Valley seem to relate to emergencies, and many of them also include a police presence.

One possible offer that could be made in the first steps towards partnerships with these departments is more targeted acknowledgment in interpretive signage and displays about their specific contribution to the development of the Brisbane Valley. These would be entirely consistent with the inclusion criteria for interpretive signage and could include departmental logos. Uploading more information of this nature onto the rail trails website is simple, and the web link to other department's home pages would be automatic.

PowerLink offers immediate opportunities for partnership arrangements. The Energy Museum has established Memories of Energy Groups throughout the Brisbane Valley and up to Nanango. To this point, public energy displays associated with the Brisbane Valley are located only at Nanango and Yarraman. Steam as an energy source is intimately associated with early railway development, and the opportunity to display the distribution of energy throughout the Brisbane Valley and along the rail trail may be appealing. PowerLink was generous in its support of the Great Walks program in 2004, supporting an Arts and the Environment program. With this experience, it would be an ideal partner in developing an Outdoor Art program for what will become one of the Great Rail Trails of Queensland. In exchange for largesse in the matter of outdoor art, the dedicated website for the rail trail can draw together the extensive history of energy in the Valley and make it more easily accessible than it is at present. The Brisbane Valley Heritage Trails Association, under the direction of the Curator of the Energy Museum, would be pleased to donate local research to this project.

12.3 Partnerships with rail trail participants and community organisations

Developing partnerships with local communities is very important. Community support is crucial and has contributed to the success of a number of trails in Australia. 'Friends of' groups (as discussed in 11.4) are a formal mechanism to harbour community support as is an Adopt-a-trail program (which can be managed by a 'friends of' group). The consultation process has elicited responses from a number of people who have expressed an interest in becoming involved in the rail trail's future. The interactive nature of the recommended website design provides ample opportunity for those who would like a more active involvement in the management of the trail to identify themselves. The website also provides the ideal forum for a call for expressions of interest in more formal partnership arrangements with this group. It offers the opportunity for links to peak bodies with an interest in the Brisbane Valley Rail Trail. Criteria for inclusion of not-for-profit organisations in an electronic

partnership of this kind will need to be established before the website is operational or very soon afterwards. This is the responsibility of the trail manager.

Once the criteria for a partnership have been established, the process of formalising it with a range of organisations through a link to a dedicated Brisbane Valley Rail Trail website is already recommended.

One certain way of advertising the rail trail and encouraging partnerships is to develop an annual event that receives 'good press'. The rail trail lends itself to such events as a 'celebrity scamper', a 'run for your life', 'the charge of the light horse' as a precursor to 'riding for the disabled' and a race for elite sportspeople to celebrate Christmas in July with accompanying children's treats. Grant money, as well as partners, is easier to find for events of this kind.

Schools will find the Brisbane Valley Rail Trail appealing for many reasons. It will be ideal for long distance running and cycling, and provides an interesting venue for city and coastal children. It is accessible by bus from Brisbane and its surrounds during the school day. The dedicated website can also provide useful information for planning and supporting school research projects, and the larrikin tone of some of the recommended interpretive material helps adolescents engage.

Tertiary education could also provide opportunities. Learning experiences for Media Studies or Information Technology students that were mutually beneficial could form the basis of an ongoing partnership. The full time web master for the rail trail website could perform that function for Brisbane Valley Rail Trail as an approved component of a tertiary program. Conservation management programs for the rail trail could be planned in a similar fashion. Even the evaluation of the data relating to rail trail use could become a planned exercise for a statistics project. Partnerships of this kind help relate theory to practice for students, they bring prestige to the rail trail, and they are mutually beneficial to both organisations. The Brisbane Valley Rail Trail may have useful learning experiences for Leisure Studies students from University of Queensland, Ipswich Campus. Their critical evaluation and recommendations for future development can only benefit the rail trail.

Section 13. Trail maintenance strategy

13.1 Introduction

Ongoing trail maintenance is a crucial component of an effective management program—yet it is often neglected until too late. Countless quality trails have literally disappeared because no one planned a maintenance program and no one wanted to fund even essential ongoing repairs. It is therefore essential that funds be set aside in yearly budgets for maintenance of the trail—to ensure user safety and enjoyment, and to minimise liability risks for land managers. Depending on a swathe of conditions—weather, soil types, construction standards, use patterns and more—trail maintenance can cost up to 10% of total construction costs or more every year. This can be a daunting prospect, particularly for cash-strapped government departments, local governments and not-for-profit community organisations.

While the preparation of a detailed trail maintenance plan requires the completion of trail sections and an audit of all trail development items, the following chapter discusses trail maintenance in a general way and provides an indication of the types of maintenance work that will need undertaking and their frequency. An indicative maintenance checklist for the Moore–Linville section has also been included.

13.2 The approach to trail maintenance

In all trail proposals, the opportunity exists to minimise future maintenance demands through careful planning and construction. Too often initial costs are cut in the belief that all trails require maintenance anyway, and something not done properly today can be fixed in the future. Building good trails in the first place is the very best way of minimising future problems and costs. As a second line of defence, a clear and concise management plan (as discussed in Section 11) with a regular maintenance program written into it will aid significantly in managing ongoing resource demands.

The goals of a trail maintenance plan are to:

- ensure that trail users continue to experience safe and enjoyable conditions
- guard against the deterioration of trail infrastructure, thereby maintaining the investment made on behalf of the community
- minimise the trail manager's exposure to potential public liability claims arising from incidents which may occur along the trail
- set in place a management process to cover most foreseeable risks.

Erosion (caused by weather and unauthorised users), regrowth of vegetation, fallen trees and branches, and damage to signage, fences and gates are likely to be the greatest maintenance activities on the trail. Provided these issues are attended to early, they are largely labour-intensive rather than capital expensive. Calamitous events such as fire or flood will naturally generate significant rebuilding activity and consequent costs. These events are generally unmanageable, and should simply be accepted as part of the longer term reality of a trail program.

Resourcing a maintenance program is crucial, and funds will be required on an ongoing basis to enable this essential maintenance. It would be short-sighted to go ahead and build the trail and then baulk at the demands of managing and maintaining it.

It should be ensured that whoever is charged with ongoing responsibility for managing the trail has genuine and specific trail knowledge. It is not sufficient to be a skilled gardener, conservationist or environmental scientist. If training is required to bring staff knowledge levels up to a high standard, this should be seen as a priority to be undertaken early in the construction process. Trail skills are better learned over a longer time, with hands-on practice, than in short briefing sessions.

13.3 Trail maintenance planning, public liability and risk management

It is prudent that the trail manager is aware that—whether or not visitors are actively encouraged to come to the trail—they carry a significant duty of care towards those visitors accessing lands vested in them. The maintenance of quality trails is therefore critical from this perspective. Recent legislative changes across Australia have reduced the number of small claims against land managers. However, liability generally rests with the land managers, and every attempt should be made to minimise the risk of accident or injury to trail users (and therefore the risk of legal action).

While public liability is certainly an issue for all land managers, it is not a reason to turn away from providing safe, sustainable and enjoyable resources. It is simply a mechanism by which to recognise the responsibilities inherent in managing natural and built resources. Dealing with a perceived liability threat is not about totally removing that threat—it is about doing all that is manifestly possible to provide safe access opportunities for visitors, thereby minimising the risk of liability claims.

A formal hazard inspection process is crucial in the ongoing maintenance plan. Not only will this define maintenance required and/or management decisions to be addressed, it is vital in ensuring safe conditions and therefore in dealing with any liability claim which may arise in the future. Courts are strongly swayed by evidence of a clear and functional program, and a regular series of reports, with follow-up actions, will go a long way to mitigating responsibility for injuries. Further, clearly defined 'user responsibility' statements in brochures, maps, policy documents, plans and public places will assist this process.

13.4 Trail maintenance activities

The discussion that follows provides general guidance for the development of maintenance plans as the trail proceeds. It is not a substitute for specific maintenance plans for the trail—these can be completed as each trail section is completed. However, a maintenance checklist for the Moore–Linville section is included as an illustration of a trail maintenance checklist (see Appendix 10). Please note that this checklist includes items in place at January 2008. It does not include additional items that have been recommended by this report.

Maintenance on the trail should be divided between regular inspections and simple repairs, a one (or two) person job, and quarterly programs undertaking larger jobs such as significant signage repairs or weed/vegetation control. A range of basic machinery, tools and equipment will be required for this work. Council depots and any proficient contractor who may be called in to undertake this work will have such equipment.

Clear records of each activity/inspection should be kept by the body with responsibility for maintenance. Pro formas serve to maximise user safety and minimise liability risks. A pro forma sheet (from the Kep Track Trail Management Plan) is attached for information. It provides more detail than the Moore–Linville checklist simply because it has more items (see Appendix 10). It will also provide a valuable record of works undertaken and make for efficient use of maintenance resources over time.

In general, maintenance plans are based around regular inspections, at which time simple maintenance activities should take place concurrently. More time-consuming maintenance activities should take place every six months, while detailed hazard inspections should occur annually. Further, the capacity to respond immediately to random incoming reports of hazards or major infrastructure failures should be built into the plan. Table 13.1 gives a suggested schedule for general maintenance activities to achieve acceptable maintenance levels. Explanatory notes pertaining to each activity follow the table below.

Table 13.1: General maintenance activities

Activity	Site	Frequency
Undertake full inspection of the trail	Entire trail	Every second month
Check signage and clean, replace or repair as required, especially road crossing signage and directional markers	All locations	Every second month, at each trail inspection
Check trail surface and arrange repair as required	Entire trail	Every second month. Check for erosion at each inspection. Arrange repairs immediately if acute, or schedule maintenance for six monthly work sessions if not
Maintenance of trail surface	Entire trail	Every six months
Sweep or rake debris from trail surfaces, especially at road crossing points	Various locations	Every six months
Maintenance of culverts and other drainage measures	Entire trail	Every six months
Cut back regrowth, intruding and overhanging vegetation	Entire trail	Every six months, unless obviously requiring attention at regular inspections
Check structural stability of interpretive signage, and interpretive shelters	Various locations	Every six months
Undertake hazard inspection and prepare hazard inspection report	Entire trail	Annually
Check structural integrity of bridges	Various locations	Every 3 years
Major repairs and replacements	Entire trail	Every 5 years
Major repairs and replacements	Entire trail	Every 10 years

It should be noted that this schedule does not allow for repair works above and beyond 'normal' minor activities. For example, if a section is subject to heavy rain, and erosion control fails, additional repair works will need to be undertaken.

Trail signage

The majority of signs should occur at trail-heads. Each trail-head should be carefully checked to ensure that all signage is present, and that all signs are clearly visible and legible.

Particular attention needs to be given to signs at road crossings or junctions. Each crossing should be carefully checked to ensure that all signage is present, and that all signs are clearly visible. Particular attention must be given to ensuring that 'trail crossing ahead' signs (on roadside at approach to trail crossing) are not obscured by overhanging vegetation.

An inventory of locations needs to be prepared to assist in regular maintenance.

Vegetation

Undergrowth vegetation grows quickly, and over time will continue to intrude into the trail 'corridor'. Such intruding vegetation should be cut back to provide clear and safe passage—a minimum clear space of 2 m wide by 3 m high (for any sections allowing horses) and a minimum clear space of 2.5 m wide by 3.0 m high (for sections allowing shared use—cyclists and walkers only) should be provided at all times. Care will need to be taken to ensure that sharp ends are not left protruding into the trail, as these can harm trail users. It should be noted that trail-side vegetation hangs lower when wet, and allowances should be made for this when assessing whether or not to prune. 'Blow-downs'—trees or limbs which have fallen across the trail—should be cleared as a part of this process. Sight lines must be kept clear either side of road crossings as a part of this process, to ensure that users can clearly see a safe distance either way at road crossings.

Trail surfaces

Many of the trail sections will require regular surface maintenance. The primary focus should be on erosion damage caused by water flowing down or across the trail and by illegal motor vehicle use. This must be repaired as soon as it is noted, or it will get worse, quickly.

Interpretive signage

Once interpretive panels have been installed along the trail, these should be checked for vandalism and cleaned if necessary. If damage is too great, replacement is essential.

An inventory of locations should be prepared to assist in regular maintenance.

Section 14. Emergency response plan

14.1 Introduction

Ambulance officers and police officers provided input to emergency response planning along the trail. The key elements discussed were:

- the provision of appropriate signage
- trail access for emergency service vehicles
- the provision of helicopter landing zones
- emergency responses—how and who
- the provision of adequate information and mapping to the services' communications centres
- the need for special agreements between emergency service providers and the trail manager
- the provision of on-trail communication systems.

It should be noted that no contact was made with fire management authorities; this matter will be further addressed n the property management plan, and has been discussed at the general level in Section 10.4.13. In discussion with the police in particular, the issue of emergency responses during fire events was raised.

14.2 Appropriate signage

Signage is discussed extensively in Section 6.7.9. In summary, the recommended emergency signage is:

- distance signs every 500 m showing distances to next trail-head (double-sided)
- GPS identifiers at all road crossings (attached to the Give way sign posts)
- trail-head signage specifying what to do in an emergency, the numbers to call, the location of public phones, and the capacity for a flip-down sign indicating trail closure (due primarily to fire, flooding or maintenance work).

14.3 Access for emergency vehicles

Providing trail access for emergency vehicles is discussed extensively in Sections 6.2, 6.9 and 10.4.7. In summary, the main recommendations are:

- passing opportunities for emergency service vehicles are required. Parts of the corridor may be leased to adjoining landholders and they may choose to fence the sections they use, reducing trail corridor width to 5 m. However, all other sections of the corridor should be in the order of 20 m wide, providing sufficient passing opportunities for emergency vehicles.
- bridges should also be able to carry the weight of a 4WD ambulance vehicle (4 t). Some bridges should also be able to carry the weight of a rural fire appliance (13 t), although this will depend on where the bridge is and where the major fire zones are
- emergency vehicles will need to have access to the trail. The simplest option is to ensure that all locked management gates along the trail have the same locking system. On the basis of discussions with emergency services personnel, it is recommended that all management access gates be locked by a combination lock. A single combination for the entire trail is recommended; this can be registered with the communications centres of each of the emergency services that dispatch vehicles to emergencies.

14.4 Helicopter landing zones

The provision of helicopter landing zones for use in emergency evacuations was discussed with ambulance personnel. Each of the towns along the way has a football oval or similar where helicopters can land in the case of an emergency. Distances between towns is the critical issue in determining the need for dedicated landing zones. The following sections have sufficient distances between them to warrant the designation of a landing zone at an approximate half-way point:

- Wulkuraka–Fernvale
- Coominya–Esk
- Esk–Toogoolawah
- Toogoolawah–Harlin
- Harlin–Moore
- Linville–Blackbutt.

The requirements for a helicopter landing zone are set down in Civil Aviation Safety Authority standards.

The designated sites should have GPS coordinates which can be conveyed to the communications centre for all three emergency services for loading onto their database. Helicopters have GPS equipment that can direct them to a known point (as do ambulances). The zones should also be marked with on-ground signage for the benefit of trail users.

Esk Shire Council has indicated that it may have appropriate sites (such as stock piles) that meet the requirements. This matter needs further detailed consideration as the trail is constructed.

It should be noted that helicopters like to set down as close to an emergency as they can, so the zones may not be used if there is a more convenient place (and emergency helicopters have the authority to set down on any property as needed). It should also be noted that the types of emergency that require airlifts are very unlikely to occur on the rail trail.

14.5 Emergency responses—who and how

In an emergency situation, one of the key issues that arises is how an emergency is communicated. As noted in Section 6.7.9, the emergency number from a landline is 000, while the emergency number that

works best from a mobile phone is 112. Once a call is made by a trail user, the communications centre for the appropriate service dispatches the required personnel and vehicles. The trail manager is only likely to be involved after the emergency situation is resolved, to review and record the incident, and to review the response.

It is a different situation when the emergency is a slowly emerging situation, such as a period of total fire ban (or very high fire risk) or the likelihood of flooding. The trail manager needs the vested authority to close the trail under such circumstances (under relevant state government legislation). Once the trail manager advises police that the trail (or part of the trail) is closed, police have the powers to ensure that people do not go onto the trail or can be removed from the trail if they are on it (an administrative trespass) though most people accept the advice of police. In an emergency such as a fire or flood (as opposed to trail closure because of a fire risk for example), emergency services have 'command and control' powers which allow them to remove people from a situation considered to be dangerous. In such circumstances, emergency service personnel are 'out and about' and see people and move them to an appropriate place.

At times when the trail needs to be closed (such as a very high fire risk), police would be able to travel to trail-heads in their area and 'flip down' the trail closed sign (as discussed in Sections 6.7.9).

14.6 Provision of adequate information for communications centres

As the trail develops, mapping data should be provided to the communications centres for each of the emergency services. Ambulance personnel advise that they would desire at least 2–3 months lead time before a trail section is opened to include the data in their communications system. The data that should be entered into their system covers maps with the location of trail distance markers (and their reference points), road crossings (and their GPS coordinates) and any helicopter landing zones (and their GPS coordinates) marked on the maps. One set of data should be developed and given to all the communications centres.

14.7 Special agreements

Both the ambulance personnel and police officers indicated there is no need for special formal arrangements between the trail manager and the emergency services for the trail. It is a resource and an activity that the emergency services need to deal with as part of their everyday activities. As noted in 10.4.10, any major events on the trail should trigger early involvement by police and ambulance in particular—this is good practice and ensures good relationships.

14.8 On-trail communications systems

There was some consideration given to the placement of emergency phones on the trail as a way of ensuring that emergencies could be managed. However, this would have been a significant cost item to install (either cable or satellite phones would have been expensive), replace and maintain. In addition, most trail users would have some form of mobile phone and mobile reception is reportedly relatively good over much of the trail, particularly using Next Generation technology and the right handset (and the emergency number 112 works well even with very limited coverage). In addition, it was felt that placing phones on the trail increases the trail manager's liability—if a phone does not work (e.g. it is broken), an aggrieved person may look for recompense from the trail manager. Public phones will be quite accessible from trail-heads and their locations should be shown on all trail mapping (e.g. brochures, trail-heads, websites).

Bibliography

Ballantyne R, Hughes, K and Moscardo, G 2002, *Interpretive signage: principles and practice*, available at http://www.talm.uq.edu.au/signage/

Beeton, S 2006, *Regional communities and cycling: the case of the Murray to the Mountains Rail Trail, Victoria, Australia*, La Trobe University, Bendigo.

Bitgood S 2000, 'Role of attention in designing interpretive labels', *Journal of Interpretation Research*, 5(2); pp. 34–45.

COBR website advice, information and shopping for cycling and outdoor sports, www.cobr.co.uk/e-cobr_information/cycling_initiatives/sections/rail_trails

Colmar Brunton 2004, *Bibbulmun Track user short research project*, Report to the Department of Conservation and Land Management and the Bibbulmun Track Foundation.

Flink, CA, K Olka and Searns RM 2001, *Trails for the twenty-first century*; *2nd Edition*, Rails-to-trails Conservancy, Washington DC.

Ham, S 1992, *Environmental interpretation: a practical guide for people with big ideas and small budgets*, Golden, CO: Fulcrum.

Jessop, M and Bruce, D 2001, *Research summary, attitudes of users towards the Mundaring Recreation Trails*, Sport and Recreation WA, Western Australian Government, Perth Western Australia.

Kerr, J 1998, *Triumph of the narrow gauge: a history of Queensland Railways*, Brisbane, Booralong Press.

Market Equity Pty Ltd 2004, *Trails research project*, A report for the Office of Sport and Recreation in association with Planning SA, Transport Planning and South Australia Tourism Commission.

Ministerial Taskforce on Trails Network 1995, *A report to the government on recreation trails*, Perth.

Otago Central Rail trail Trust 2005, *The Otago Central Rail Trail means business*.

Rails-to-trails Conservancy (USA), website www.railtrails.org

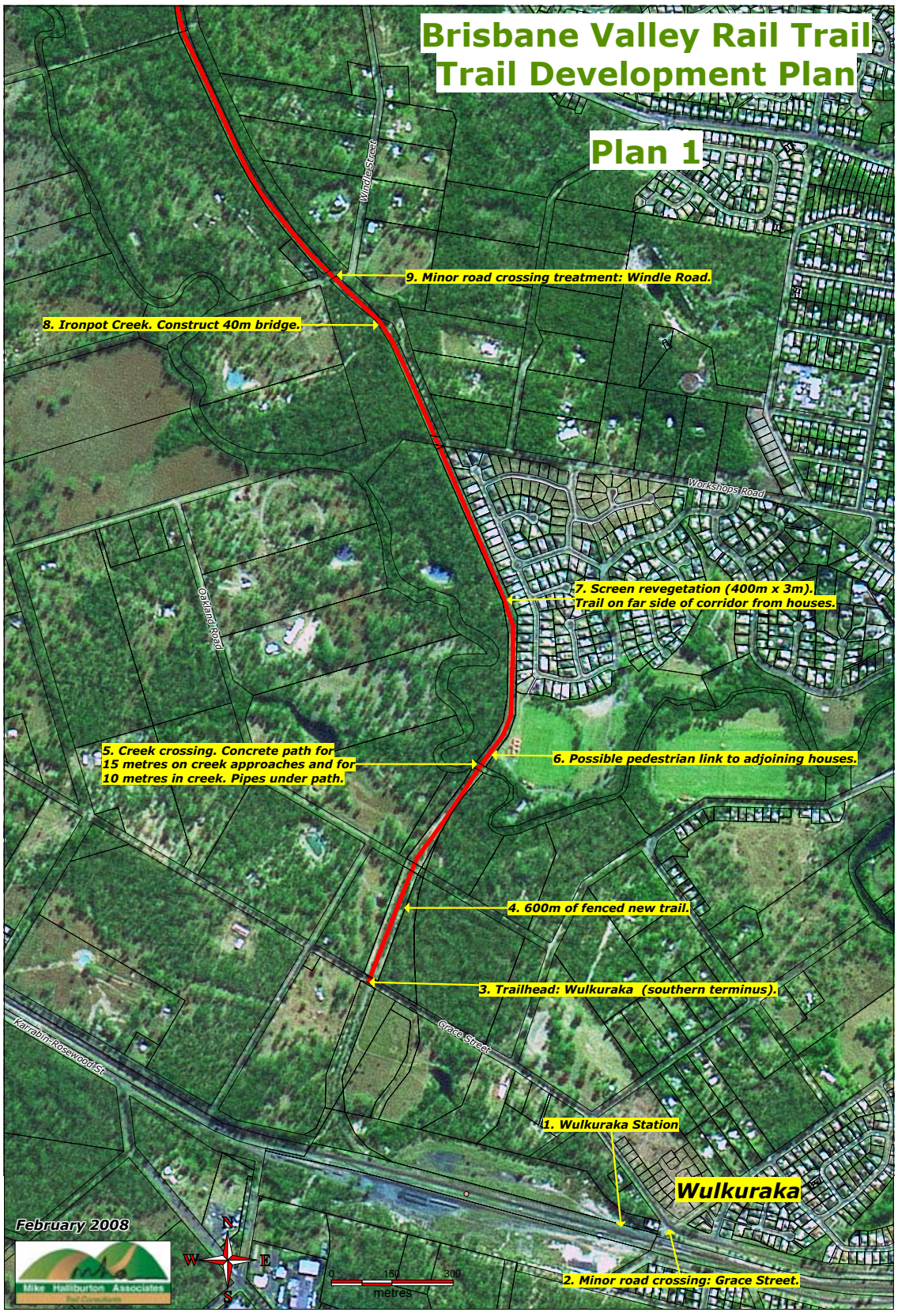
Rail Trails Australia 2003 *Rail trails of Victoria and South Australia*, Rails Trails Australia, Melbourne.

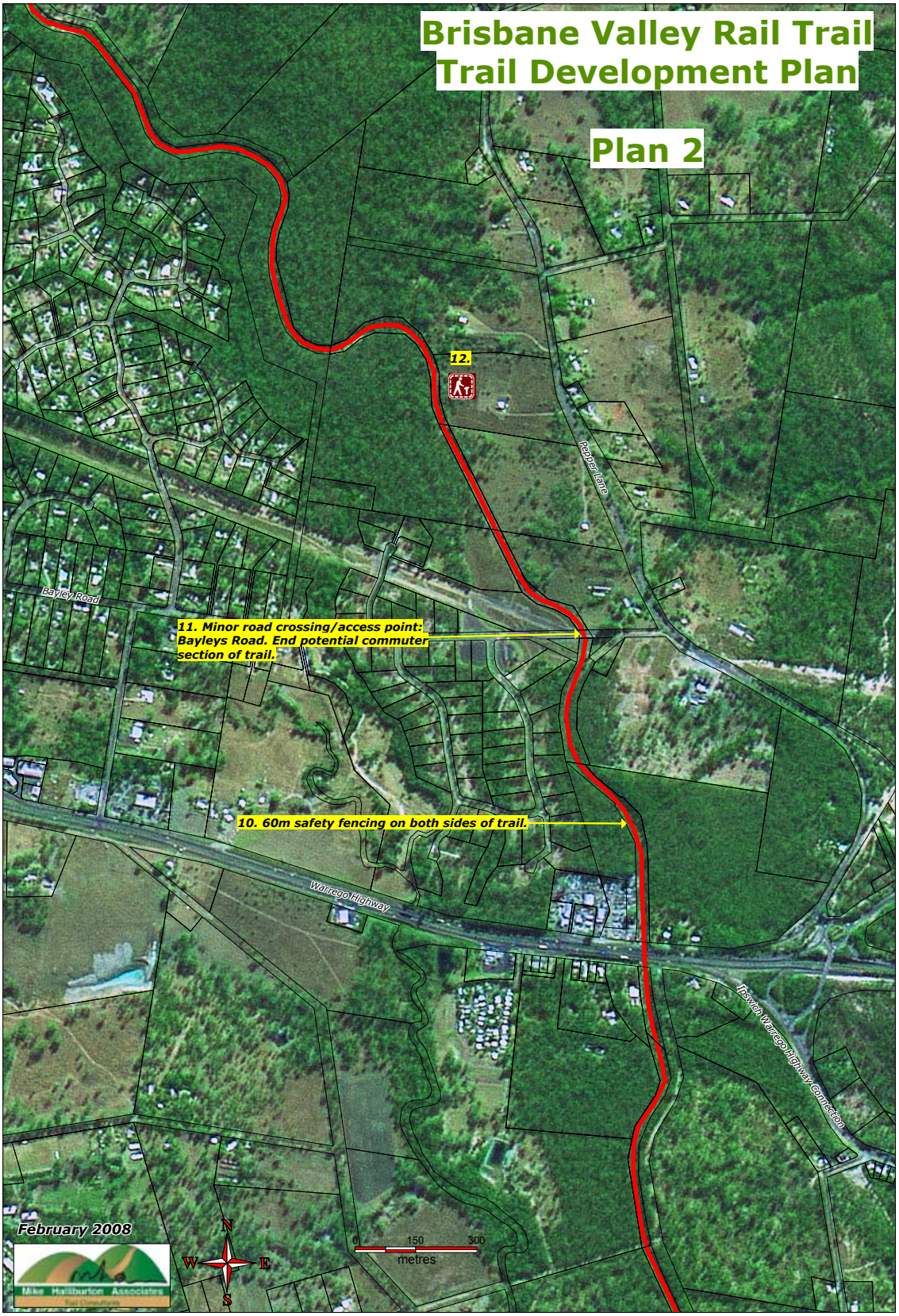
Thagard, S 1995, *Rail trail maintenance: preparing for the future of your trail*, Rails-to-trails Conservancy (USA).

Tilden, F 1957, *Interpreting our heritage*, Chapel Hill, NC: University of North Carolina Press.

Wang, G, Maccera CA, Scudder-Soucie, B, Schmid, T, Pratt, M and Buchner, D 2005, 'A cost-benefit analysis of physical activity using bike/pedestrian trails', *Health Promot Pract*, 2005 Apr; 6 (2): pp. 174–9.

Maps


Brisbane Valley Rail Trail
Trail Development Plan
Plan 1
Windle Street
9. Minor road crossing treatment: Windle Road.
8. Ironpot Creek. Construct 40m bridge.
Workshops Road
Ozland Road
7. Screen revegetation (400m x 3m).
Trail on far side of corridor from houses.
5. Creek crossing. Concrete path for
15 metres on creek approaches and for
10 metres in creek. Pipes under path.
6. Possible pedestrian link to adjoining houses.
4. 600m of fenced new trail.
3. Trailhead: Wulkuraka (southern terminus).
Karrabin-Rosewood St
Grace Street
1. Wulkuraka Station
Wulkuraka
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres
2. Minor road crossing: Grace Street.


Brisbane Valley Rail Trail
Trail Development Plan
Plan 2
12.
Pepper Lane
Bayley Road
11. Minor road crossing/access point: Bayleys Road. End potential commuter section of trail.
10. 60m safety fencing on both sides of trail.
Warrego Highway
Ipswich Warrego Highway Connection
February 2008
N
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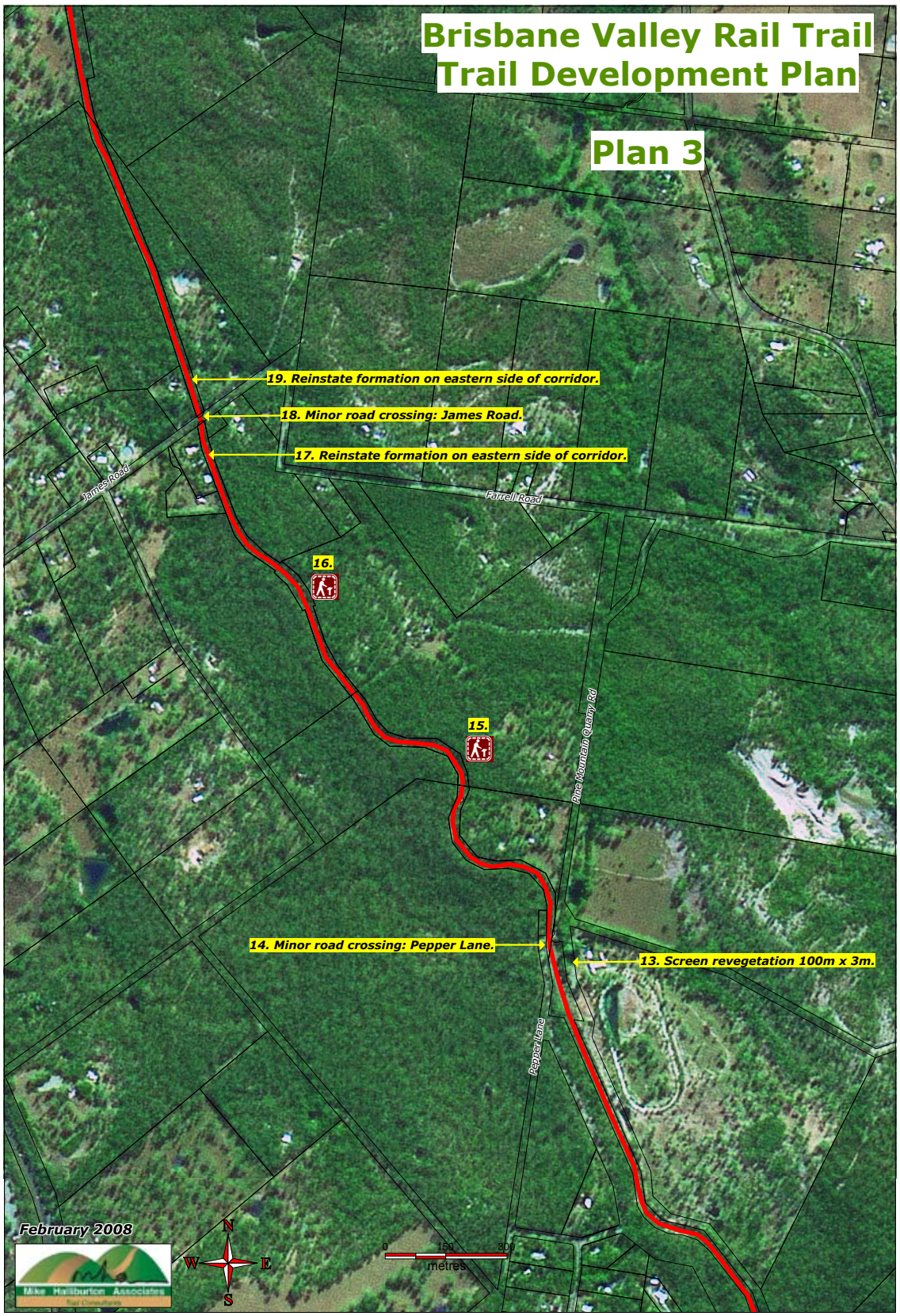
metres
Mike Halliburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 3
19. Reinstate formation on eastern side of corridor.
18. Minor road crossing: James Road.
17. Reinstate formation on eastern side of corridor.
James Road
Farrell Road
16.
15.
Pine Mountain Quarry Rd
14. Minor road crossing: Pepper Lane.
13. Screen revegetation 100m x 3m.
Pepper Lane
February 2008
Mike Halliburton Associates
N
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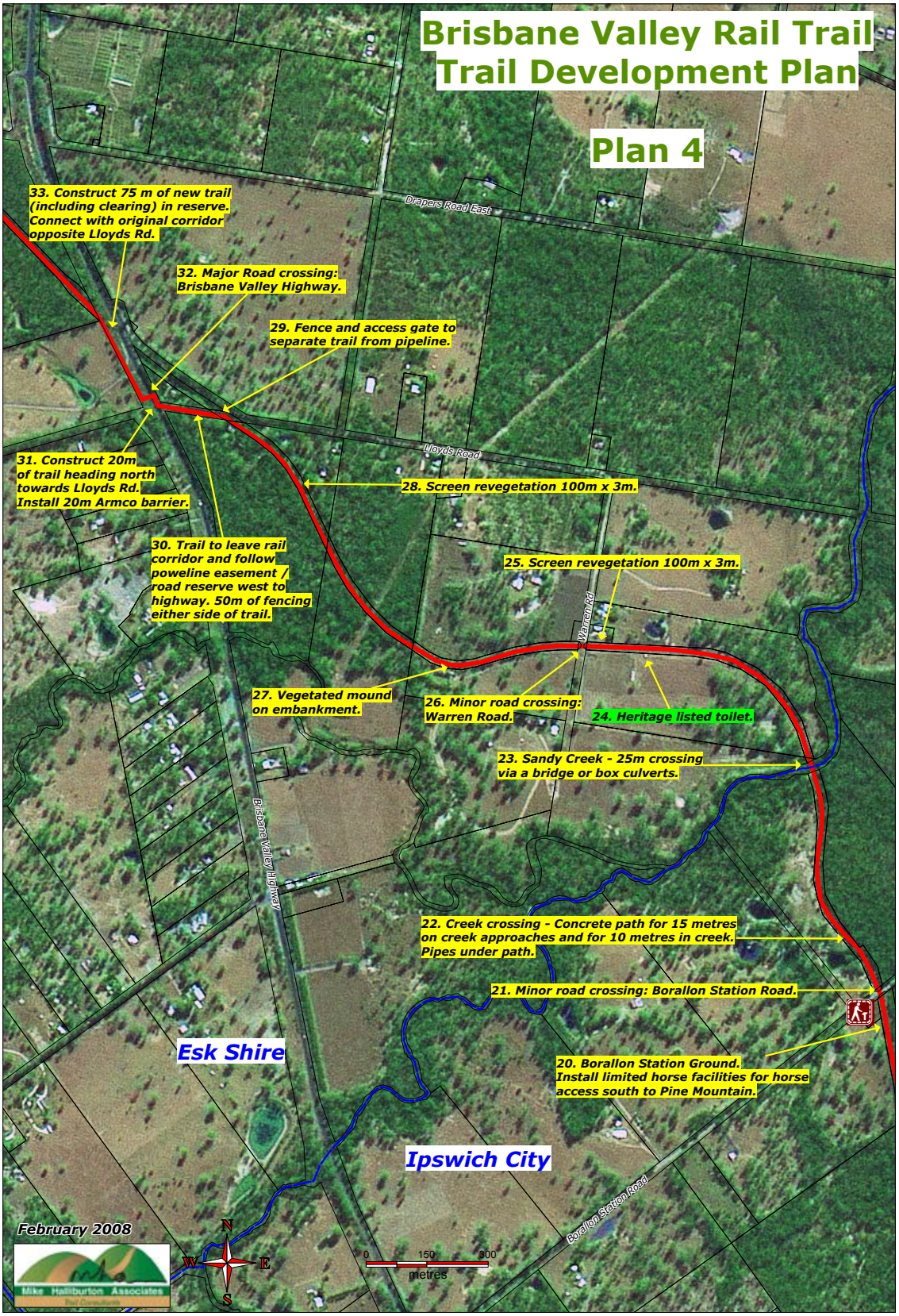
300
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 4
33. Construct 75 m of new trail (including clearing) in reserve. Connect with original corridor opposite Lloyds Rd.
Drapers Road East
32. Major Road crossing: Brisbane Valley Highway.
29. Fence and access gate to separate trail from pipeline.
Lloyds Road
31. Construct 20m of trail heading north towards Lloyds Rd. Install 20m Armco barrier.
28. Screen revegetation 100m x 3m.
30. Trail to leave rail corridor and follow poweline easement / road reserve west to highway. 50m of fencing either side of trail.
25. Screen revegetation 100m x 3m.
Warren Rd
27. Vegetated mound on embankment.
26. Minor road crossing: Warren Road.
24. Heritage listed toilet.
23. Sandy Creek - 25m crossing via a bridge or box culverts.
Brisbane Valley Highway
22. Creek crossing - Concrete path for 15 metres on creek approaches and for 10 metres in creek. Pipes under path.
21. Minor road crossing: Borallon Station Road.
Esk Shire
20. Borallon Station Ground. Install limited horse facilities for horse access south to Pine Mountain.
Ipswich City
Borallon Station Road
February 2008
Mike Halliburton Associates
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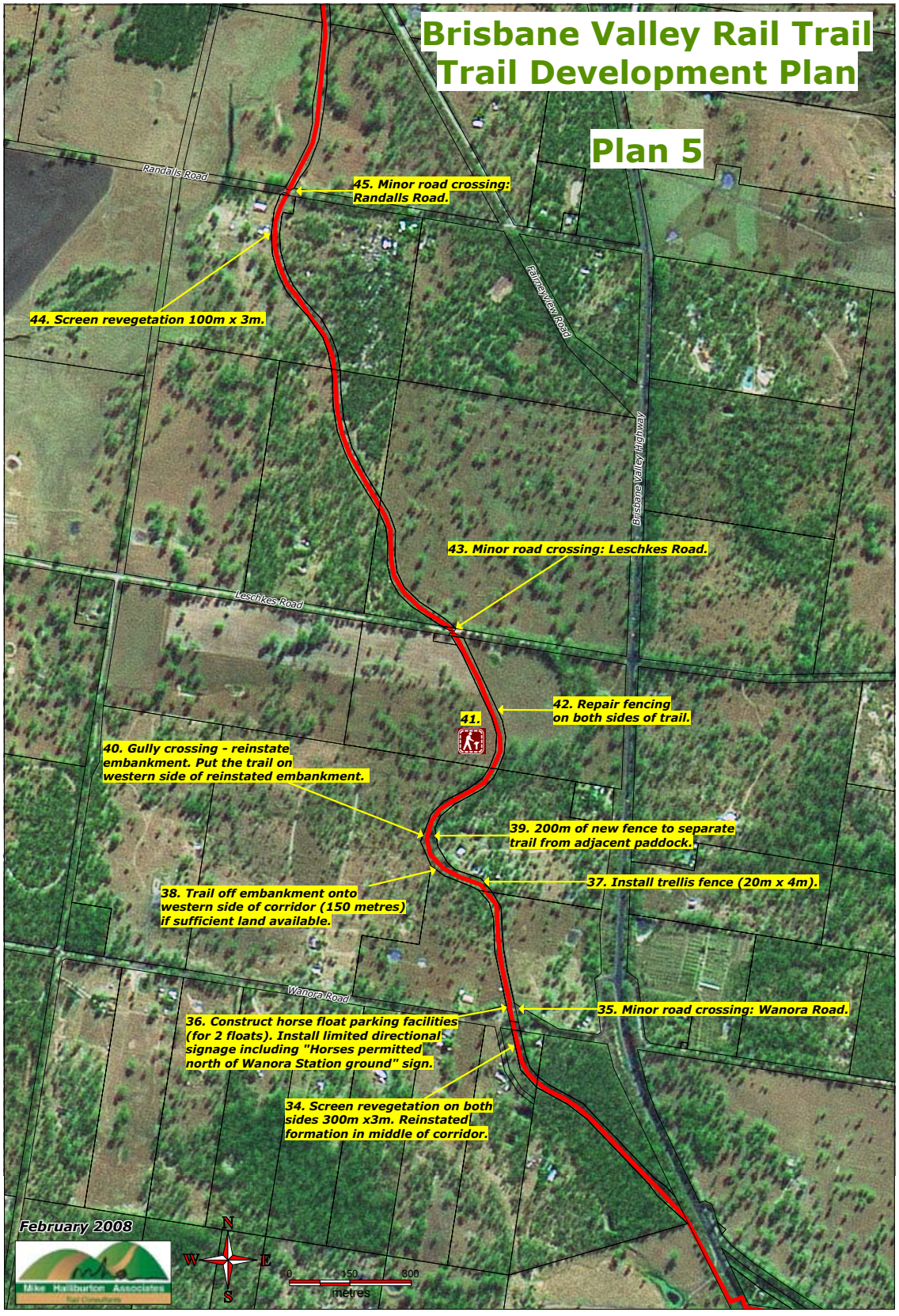
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 5
Randalls Road
45. Minor road crossing: Randalls Road.
44. Screen revegetation 100m x 3m.
Fairmeadview Road
Brisbane Valley Highway
43. Minor road crossing: Leschkes Road.
Leschkes Road
42. Repair fencing on both sides of trail.
41.
40. Gully crossing - reinstate embankment. Put the trail on western side of reinstated embankment.
39. 200m of new fence to separate trail from adjacent paddock.
37. Install trellis fence (20m x 4m).
38. Trail off embankment onto western side of corridor (150 metres) if sufficient land available.
Wanora Road
35. Minor road crossing: Wanora Road.
36. Construct horse float parking facilities (for 2 floats). Install limited directional signage including "Horses permitted north of Wanora Station ground" sign.
34. Screen revegetation on both sides 300m x3m. Reinstated formation in middle of corridor.
February 2008
Mike Halliburton Associates
N
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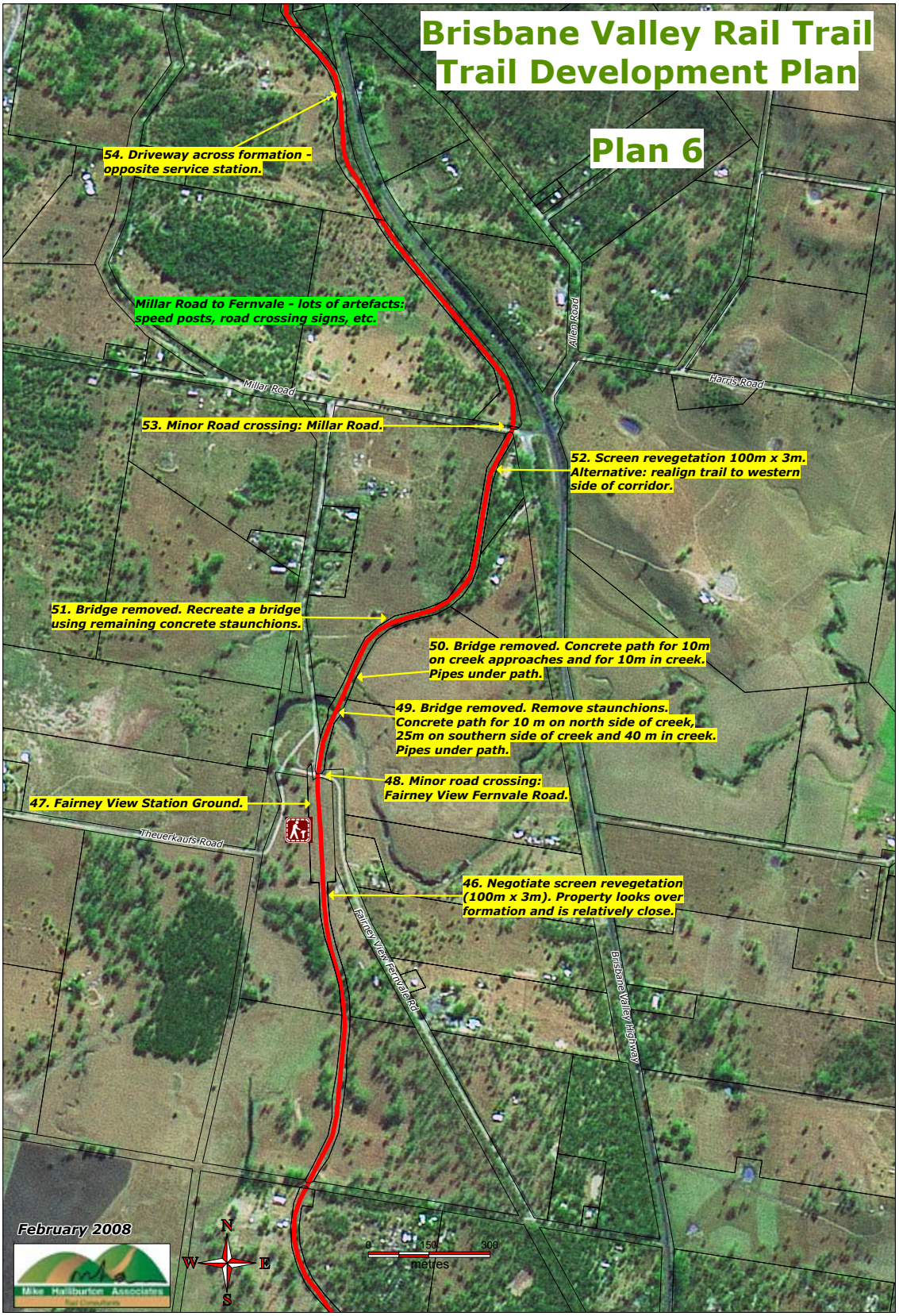
150
600
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 6
54. Driveway across formation - opposite service station.
Millar Road to Fernvale - lots of artefacts: speed posts, road crossing signs, etc.
Millar Road
53. Minor Road crossing: Millar Road.
Allen Road
Harris Road
52. Screen revegetation 100m x 3m. Alternative: realign trail to western side of corridor.
51. Bridge removed. Recreate a bridge using remaining concrete staunchions.
50. Bridge removed. Concrete path for 10m on creek approaches and for 10m in creek. Pipes under path.
49. Bridge removed. Remove staunchions. Concrete path for 10 m on north side of creek, 25m on southern side of creek and 40 m in creek. Pipes under path.
48. Minor road crossing: Fairney View Fernvale Road.
47. Fairney View Station Ground.
Theuerkaufs Road
46. Negotiate screen revegetation (100m x 3m). Property looks over formation and is relatively close.
Fairney View Fernvale Rd
Brisbane Valley Highway
February 2008
Mike Halliburton Associates
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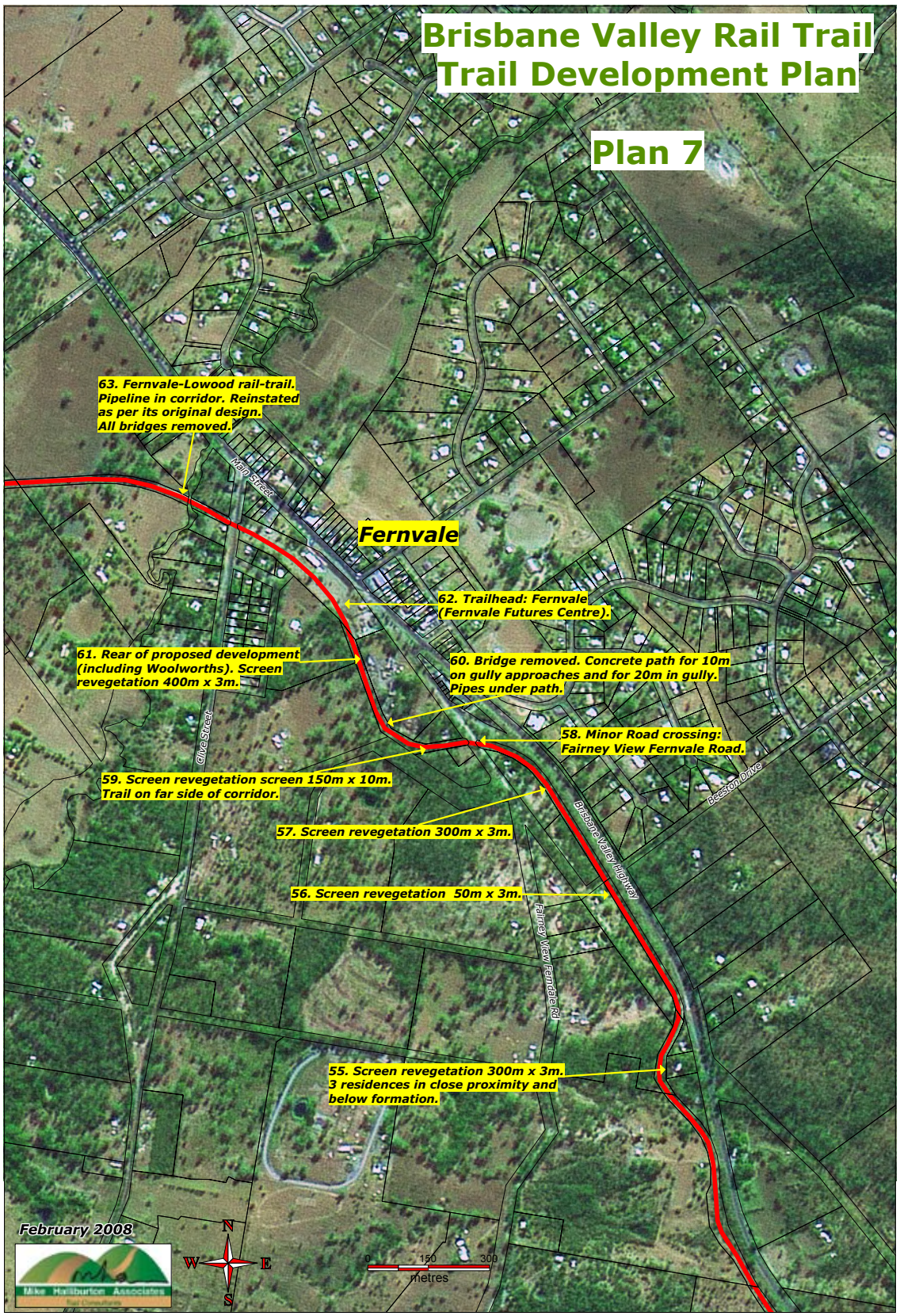
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 7
63. Fernvale-Lowood rail-trail. Pipeline in corridor. Reinstated as per its original design. All bridges removed.
Main Street
Fernvale
62. Trailhead: Fernvale (Fernvale Futures Centre).
61. Rear of proposed development (including Woolworths). Screen revegetation 400m x 3m.
60. Bridge removed. Concrete path for 10m on gully approaches and for 20m in gully. Pipes under path.
Clive Street
58. Minor Road crossing: Fairney View Fernvale Road.
59. Screen revegetation screen 150m x 10m. Trail on far side of corridor.
Beeston Drive
57. Screen revegetation 300m x 3m.
Brisbane Valley Highway
56. Screen revegetation 50m x 3m.
Fairney View Ferndale Rd
55. Screen revegetation 300m x 3m. 3 residences in close proximity and below formation.
February 2008
Mike Halliburton Associates
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metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 8
Brisbane Valley Highway
Forest Hill Fernvale Road
Fielding Road
Brouff Road
Vogler Road
Old Fernvale Road
Teresa Road
64.
February 2008
N
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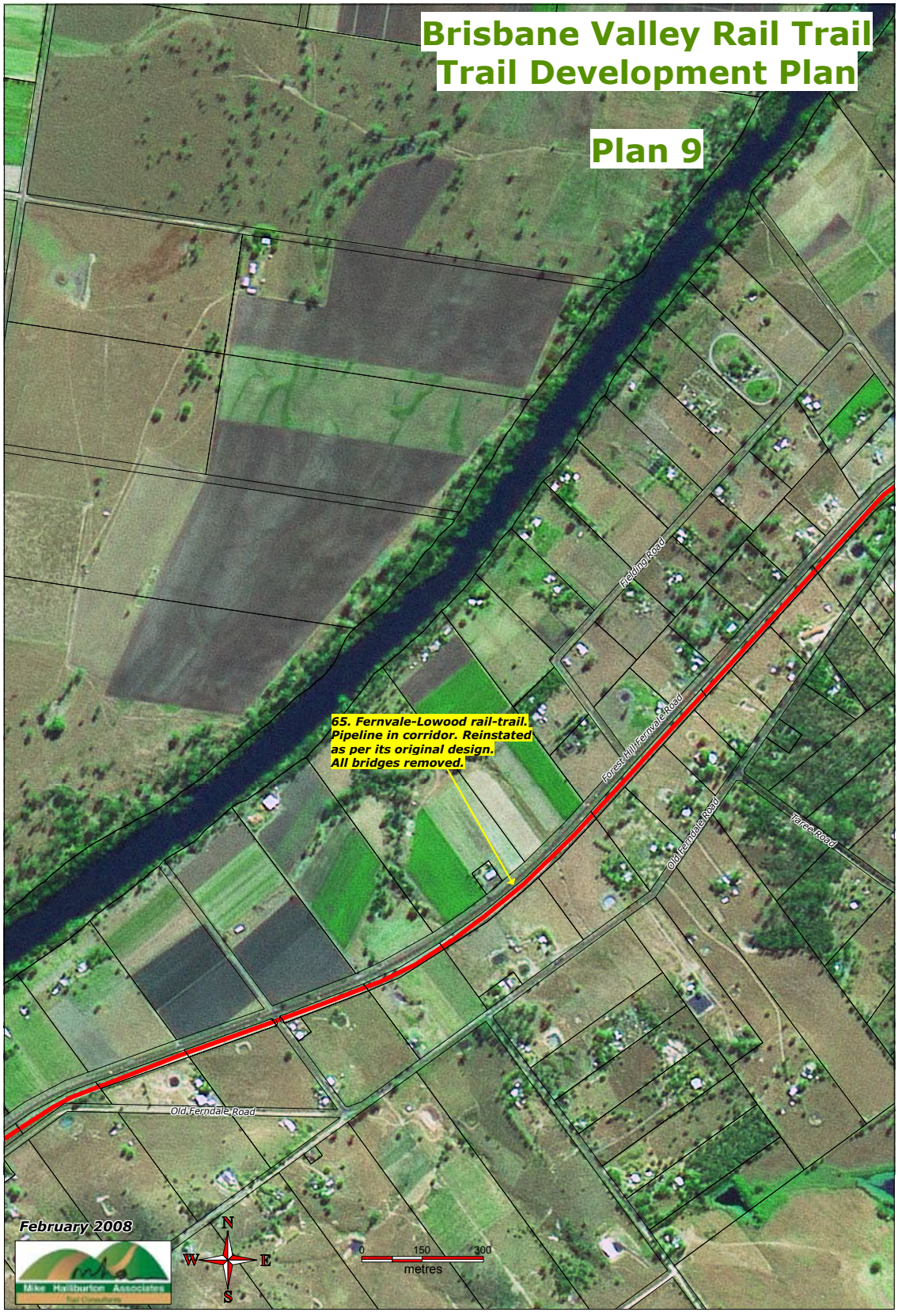
metres
Mike Halsburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 9
65. Fernvale-Lowood rail-trail. Pipeline in corridor. Reinstated as per its original design. All bridges removed.
Redding Road
Forest Hill Fernvale Road
Old Ferndale Road
Taree Road
Old Ferndale Road
February 2008
Mike Halliburton Associates
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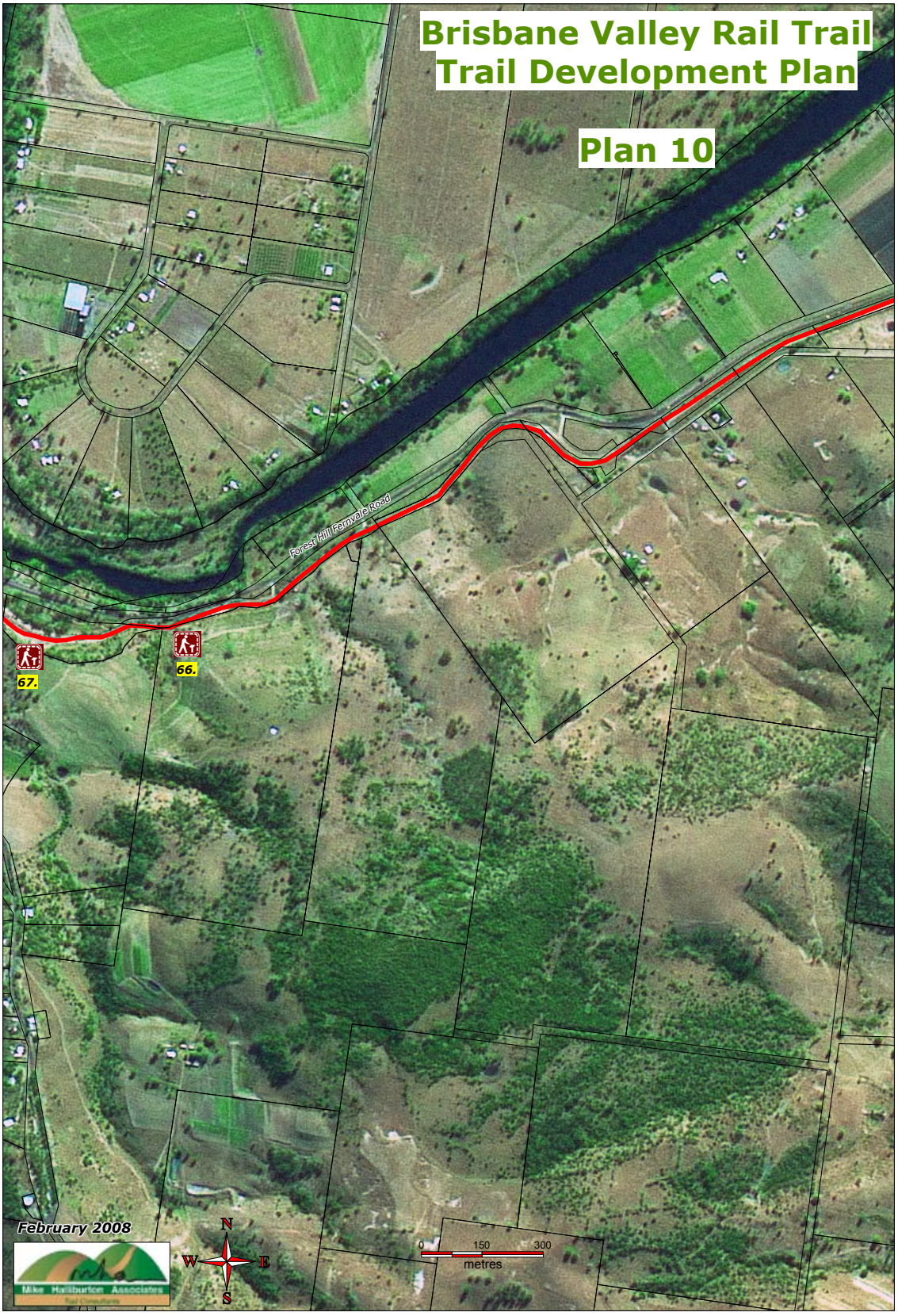
Brisbane Valley Rail Trail
Trail Development Plan
Plan 10
Forest Hill Fernvale Road
67.
66.
February 2008
N
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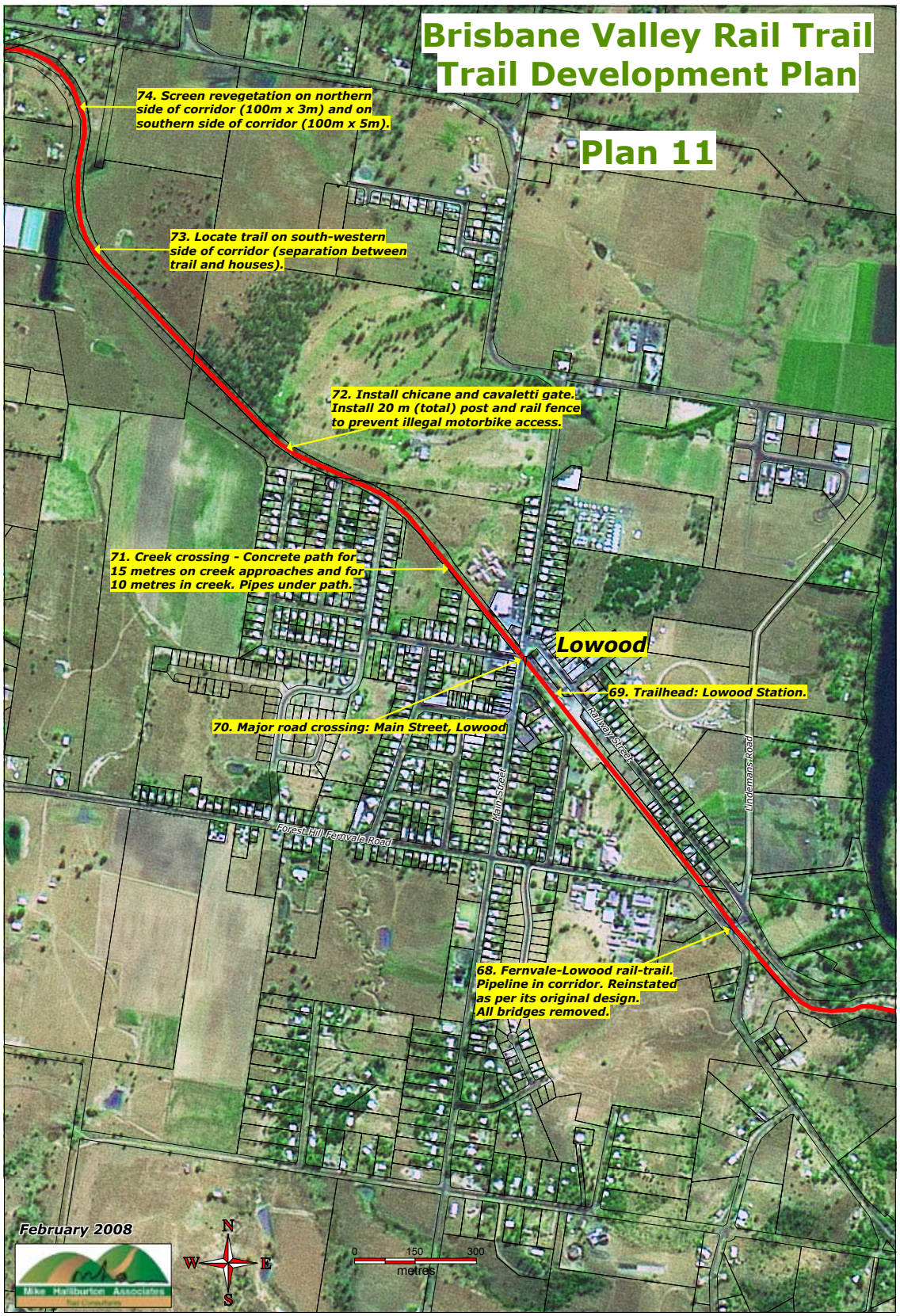
metres
Mike Halliburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 11
74. Screen revegetation on northern side of corridor (100m x 3m) and on southern side of corridor (100m x 5m).
73. Locate trail on south-western side of corridor (separation between trail and houses).
72. Install chicane and cavaletti gate. Install 20 m (total) post and rail fence to prevent illegal motorbike access.
71. Creek crossing - Concrete path for 15 metres on creek approaches and for 10 metres in creek. Pipes under path.
Lowood
69. Trailhead: Lowood Station.
70. Major road crossing: Main Street, Lowood
Railway Street
Main Street
Lindemans Road
Forest Hill Fernvale Road
68. Fernvale-Lowood rail-trail. Pipeline in corridor. Reinstated as per its original design. All bridges removed.
February 2008
Mike Halliburton Associates
N
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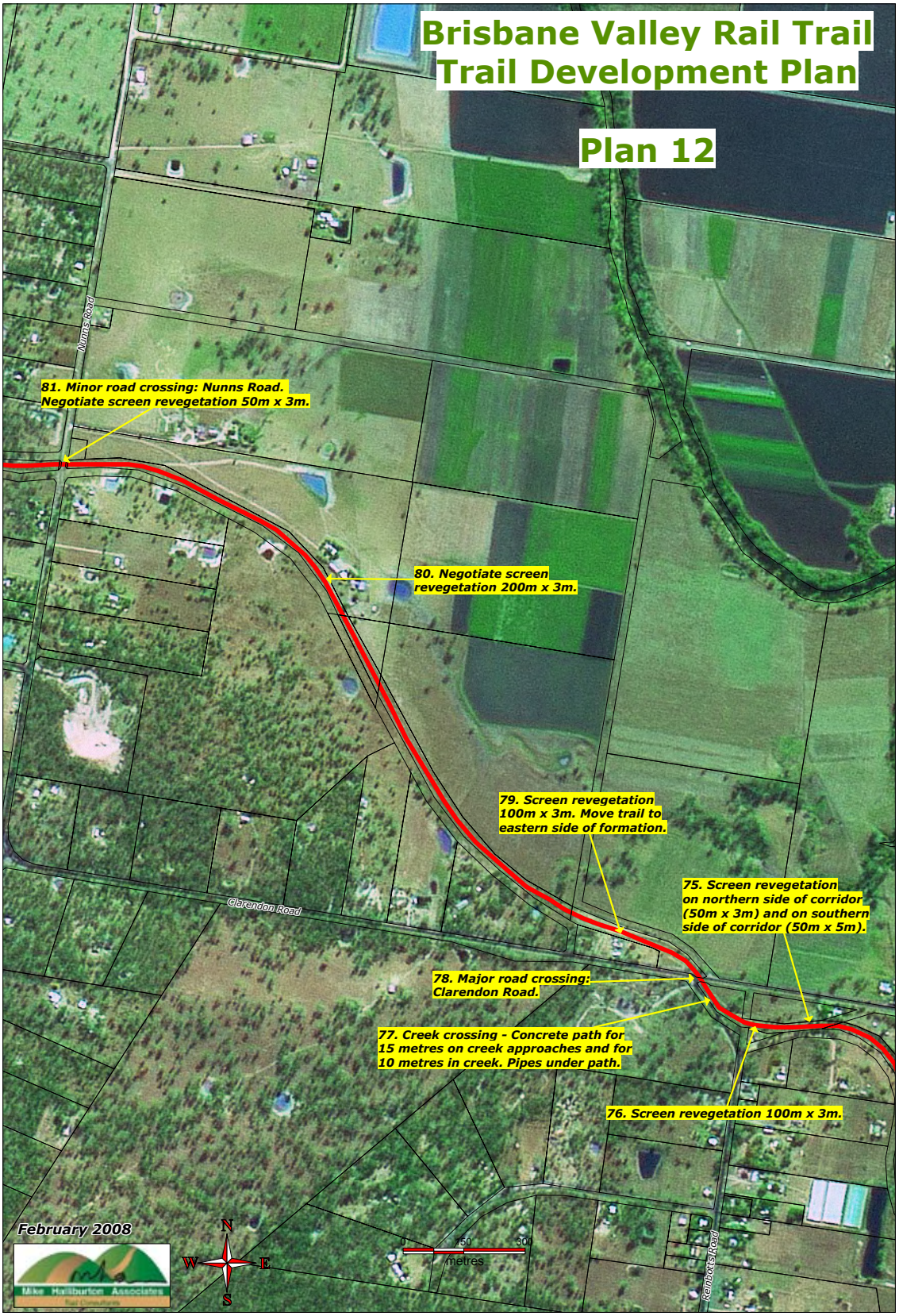
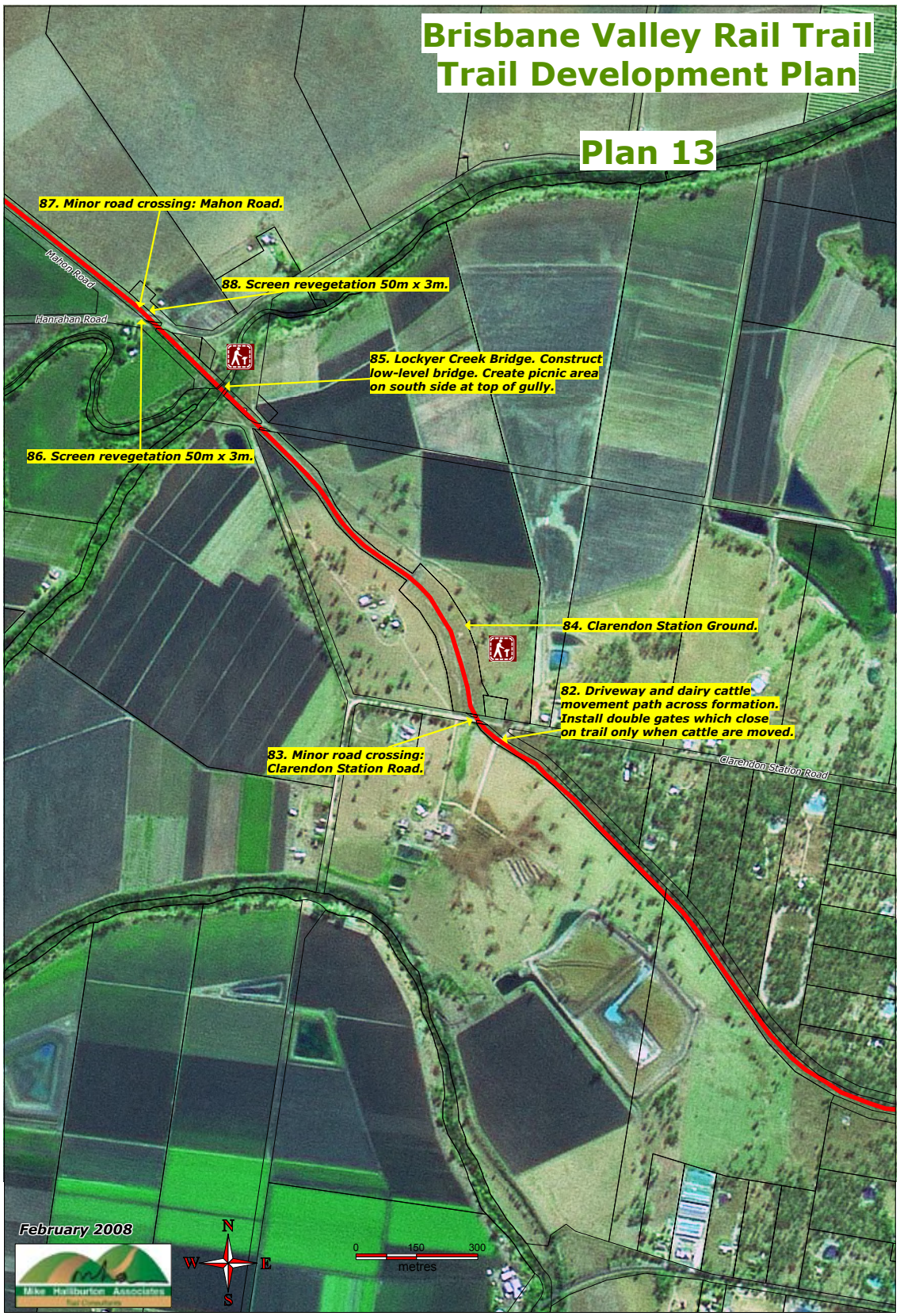
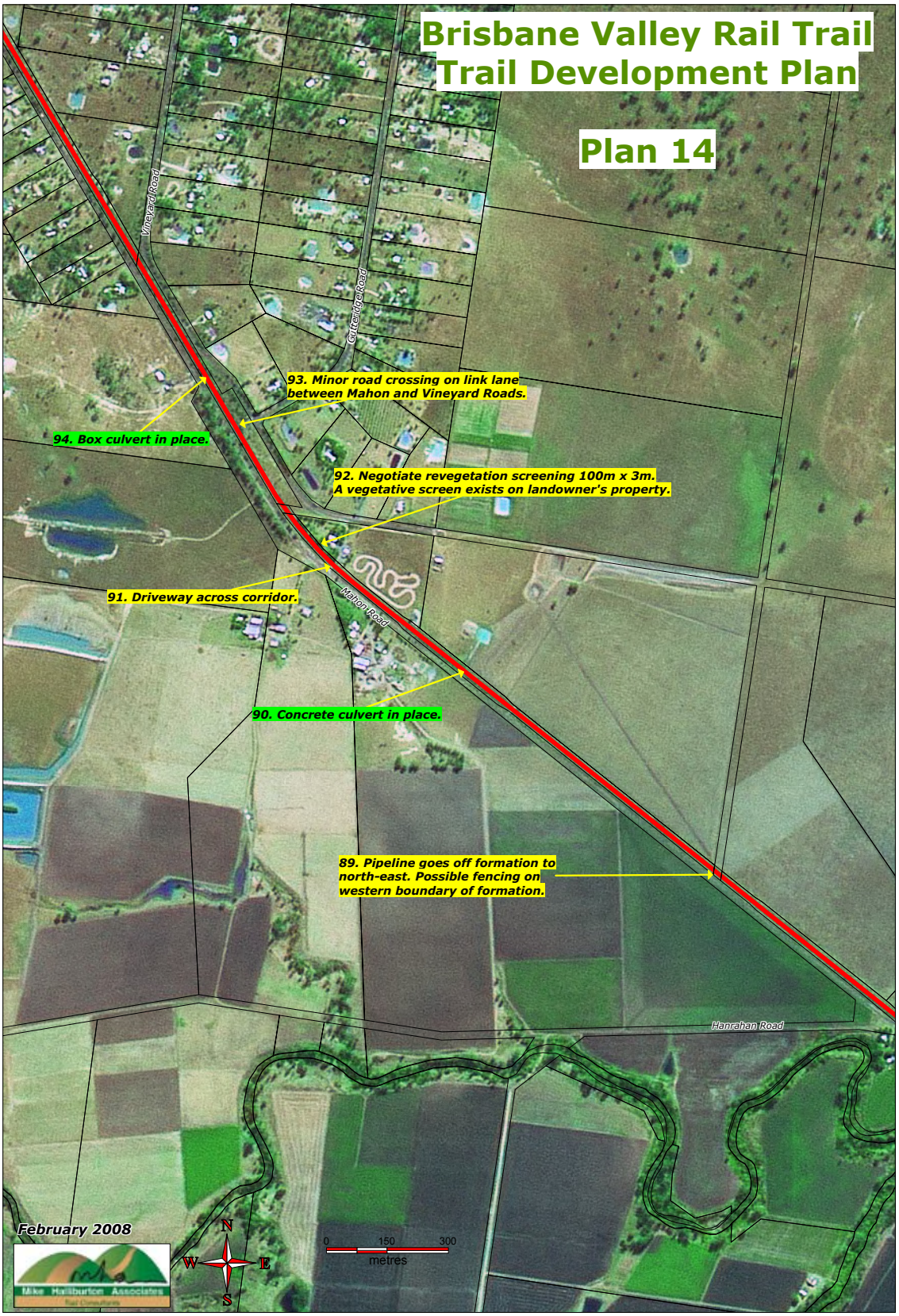
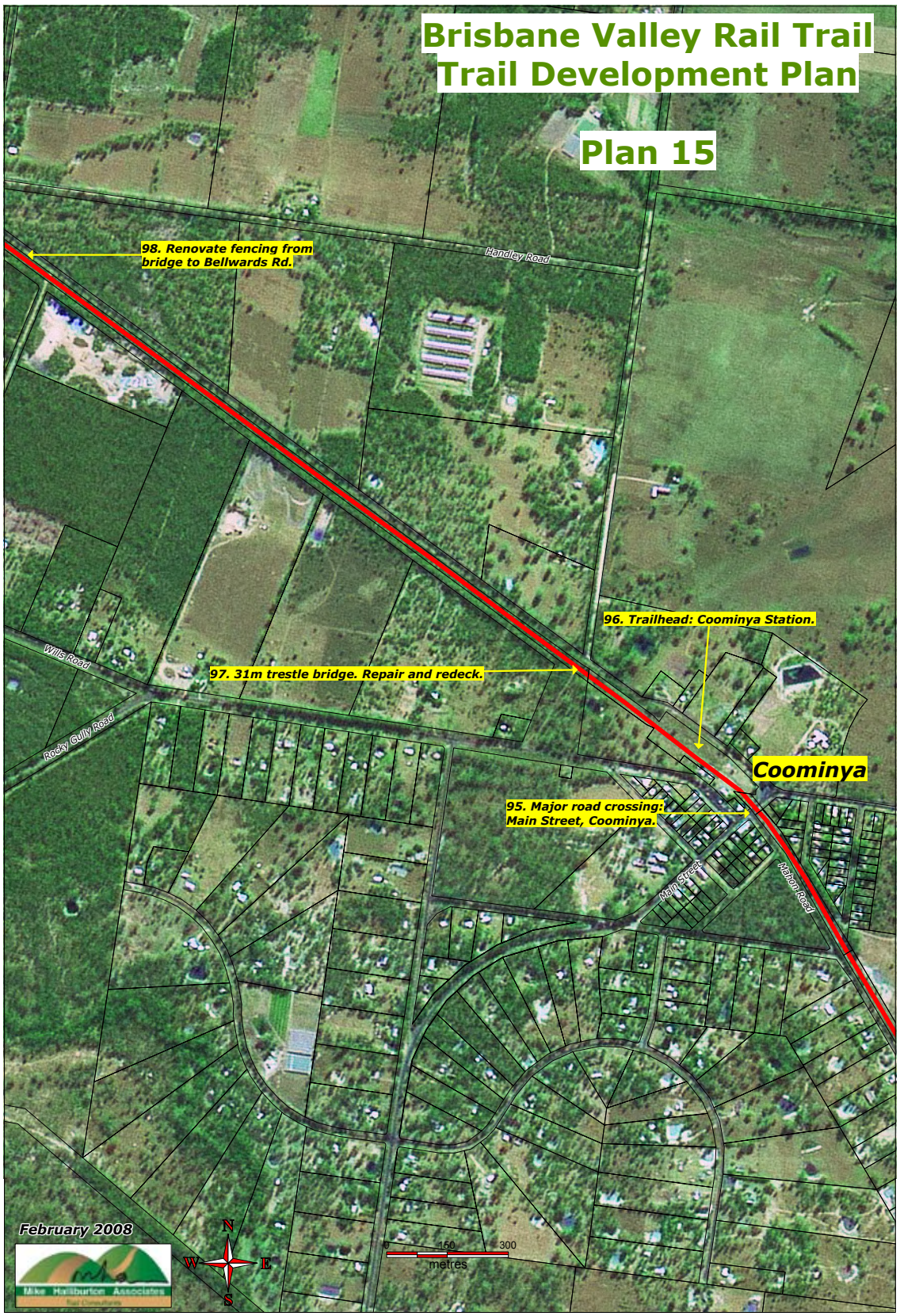
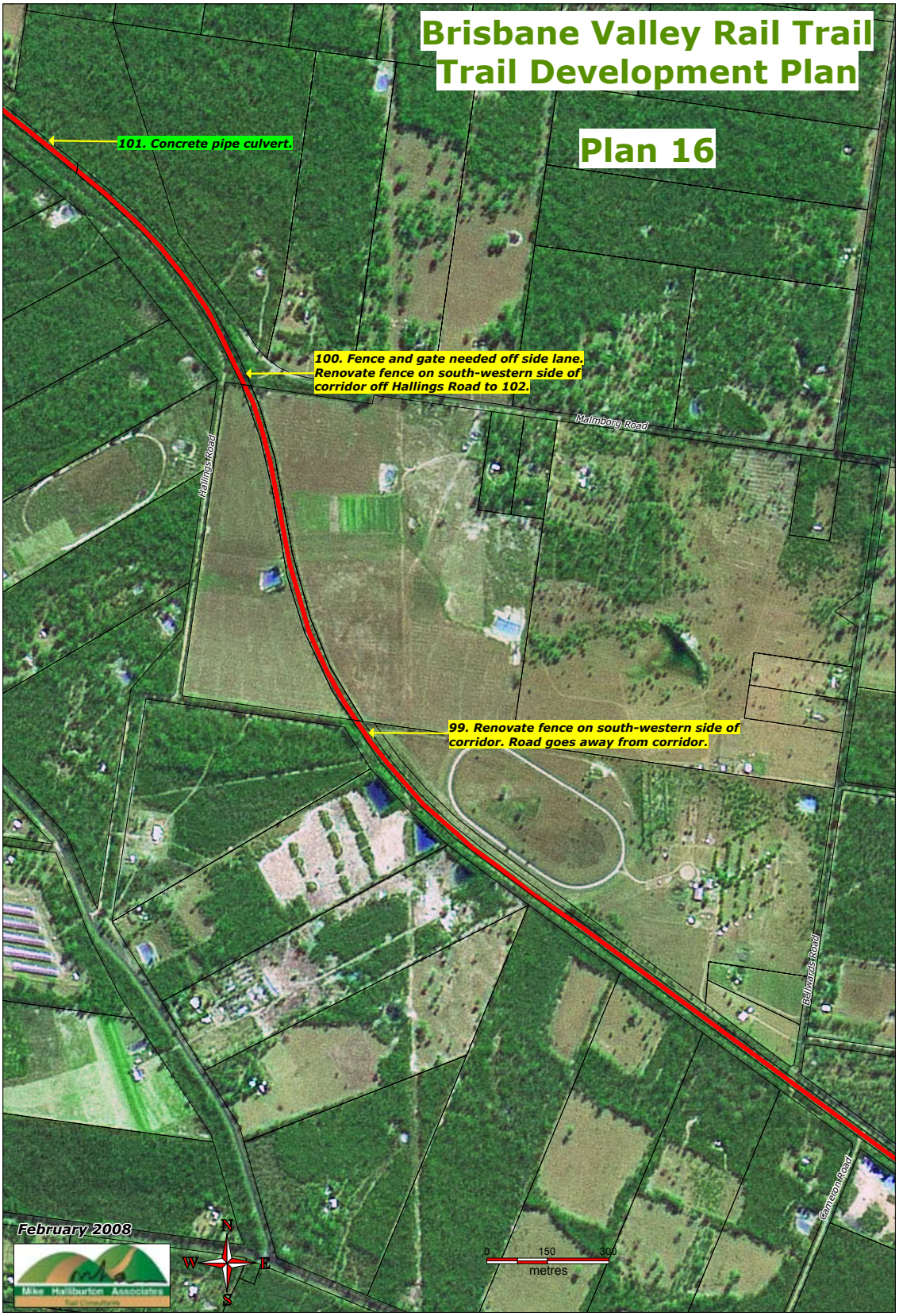
metres

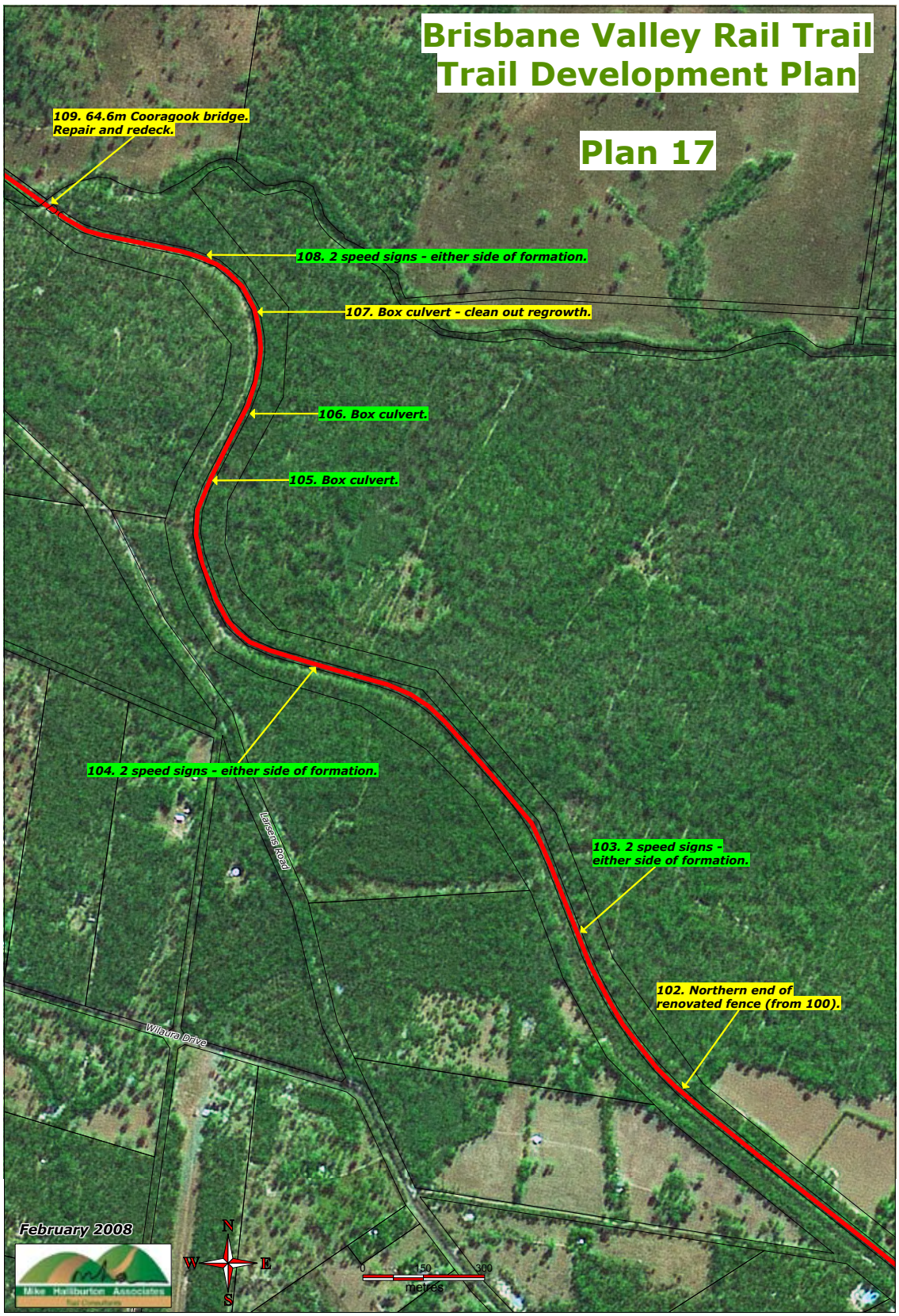

Brisbane Valley Rail Trail
Trail Development Plan
Plan 12
Nunns Road
81. Minor road crossing: Nunns Road.
Negotiate screen revegetation 50m x 3m.
80. Negotiate screen
revegetation 200m x 3m.
79. Screen revegetation
100m x 3m. Move trail to
eastern side of formation.
75. Screen revegetation
on northern side of corridor
(50m x 3m) and on southern
side of corridor (50m x 5m).
Clarendon Road
78. Major road crossing:
Clarendon Road.
77. Creek crossing - Concrete path for
15 metres on creek approaches and for
10 metres in creek. Pipes under path.
76. Screen revegetation 100m x 3m.
Reinbotts Road
February 2008
Mike Halsburton Associates
N
W
E
S
0
150
300
metres

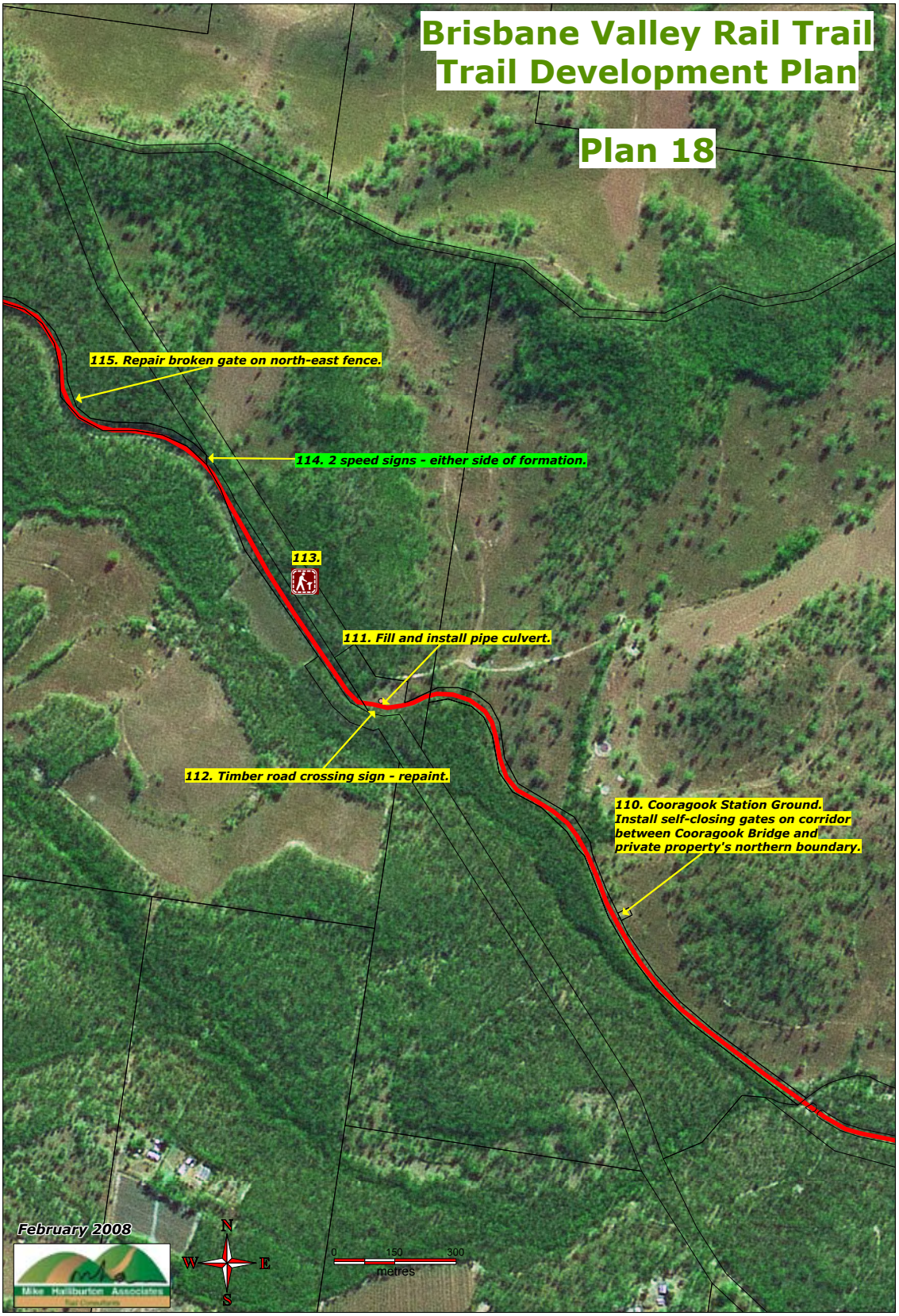

Brisbane Valley Rail Trail
Trail Development Plan
Plan 13
87. Minor road crossing: Mahon Road.
Mahon Road
88. Screen revegetation 50m x 3m.
Hanrahan Road
85. Lockyer Creek Bridge. Construct low-level bridge. Create picnic area on south side at top of gully.
86. Screen revegetation 50m x 3m.
84. Clarendon Station Ground.
82. Driveway and dairy cattle movement path across formation. Install double gates which close on trail only when cattle are moved.
83. Minor road crossing: Clarendon Station Road.
Clarendon Station Road
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

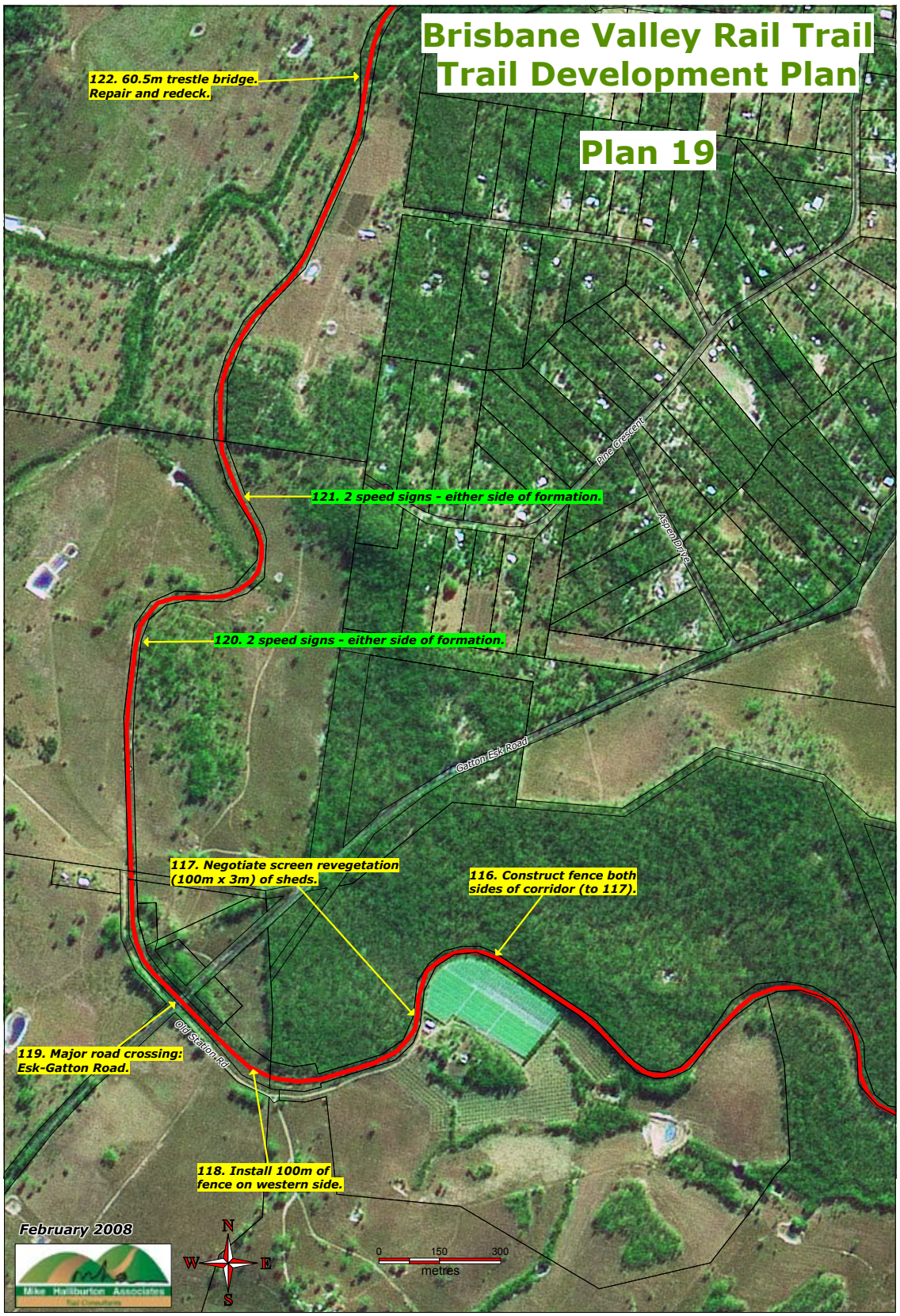

Brisbane Valley Rail Trail
Trail Development Plan
Plan 14
Vineyard Road
Gutteridge Road
93. Minor road crossing on link lane between Mahon and Vineyard Roads.
94. Box culvert in place.
92. Negotiate revegetation screening 100m x 3m. A vegetative screen exists on landowner's property.
91. Driveway across corridor.
Mahon Road
90. Concrete culvert in place.
89. Pipeline goes off formation to north-east. Possible fencing on western boundary of formation.
Hanrahan Road
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

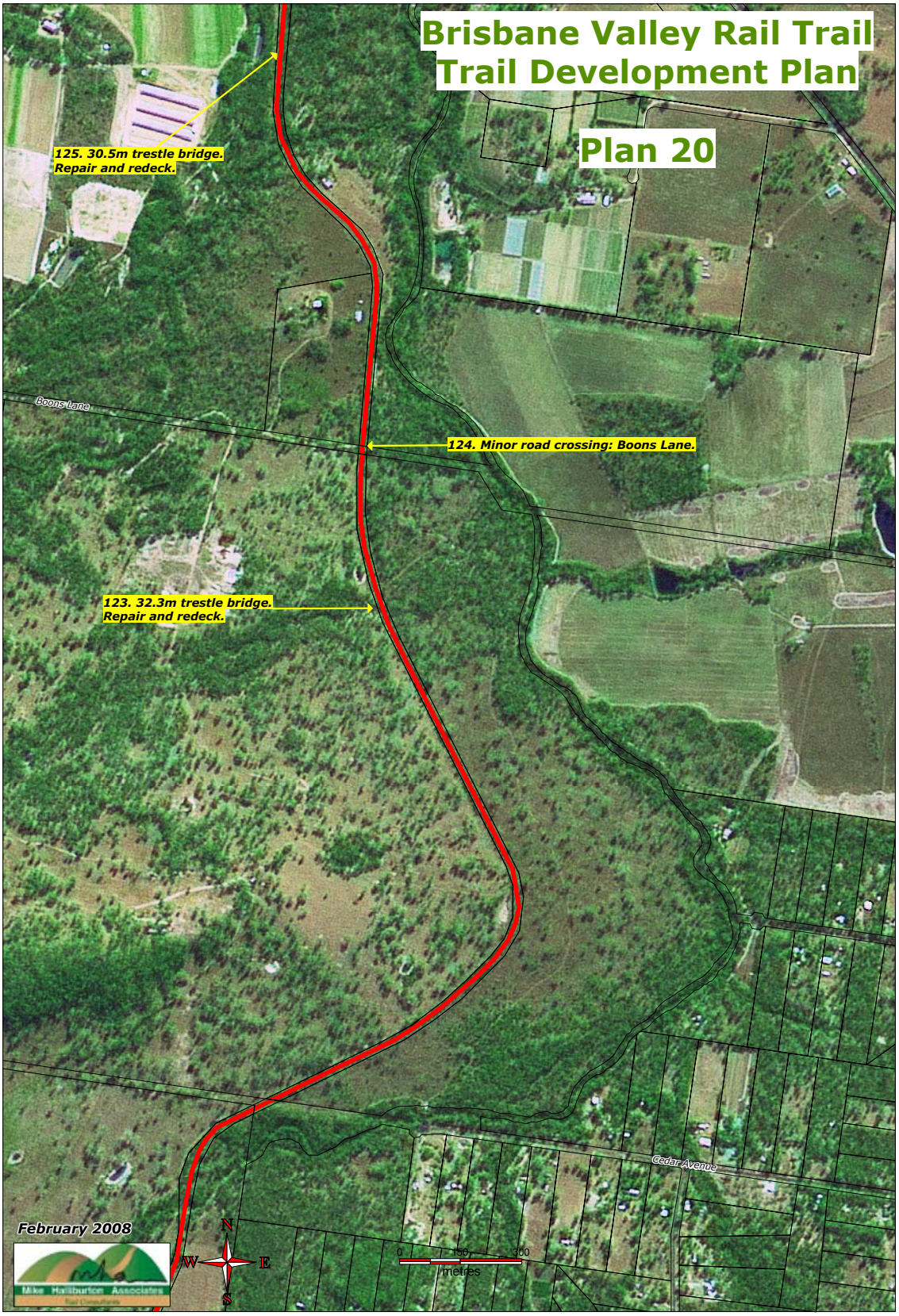

Brisbane Valley Rail Trail
Trail Development Plan
Plan 15
98. Renovate fencing from bridge to Bellwards Rd.
Handley Road
96. Trailhead: Coominya Station.
97. 31m trestle bridge. Repair and redeck.
Wills Road
Rocky Gully Road
Coominya
95. Major road crossing: Main Street, Coominya.
Main Street
Malton Road
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

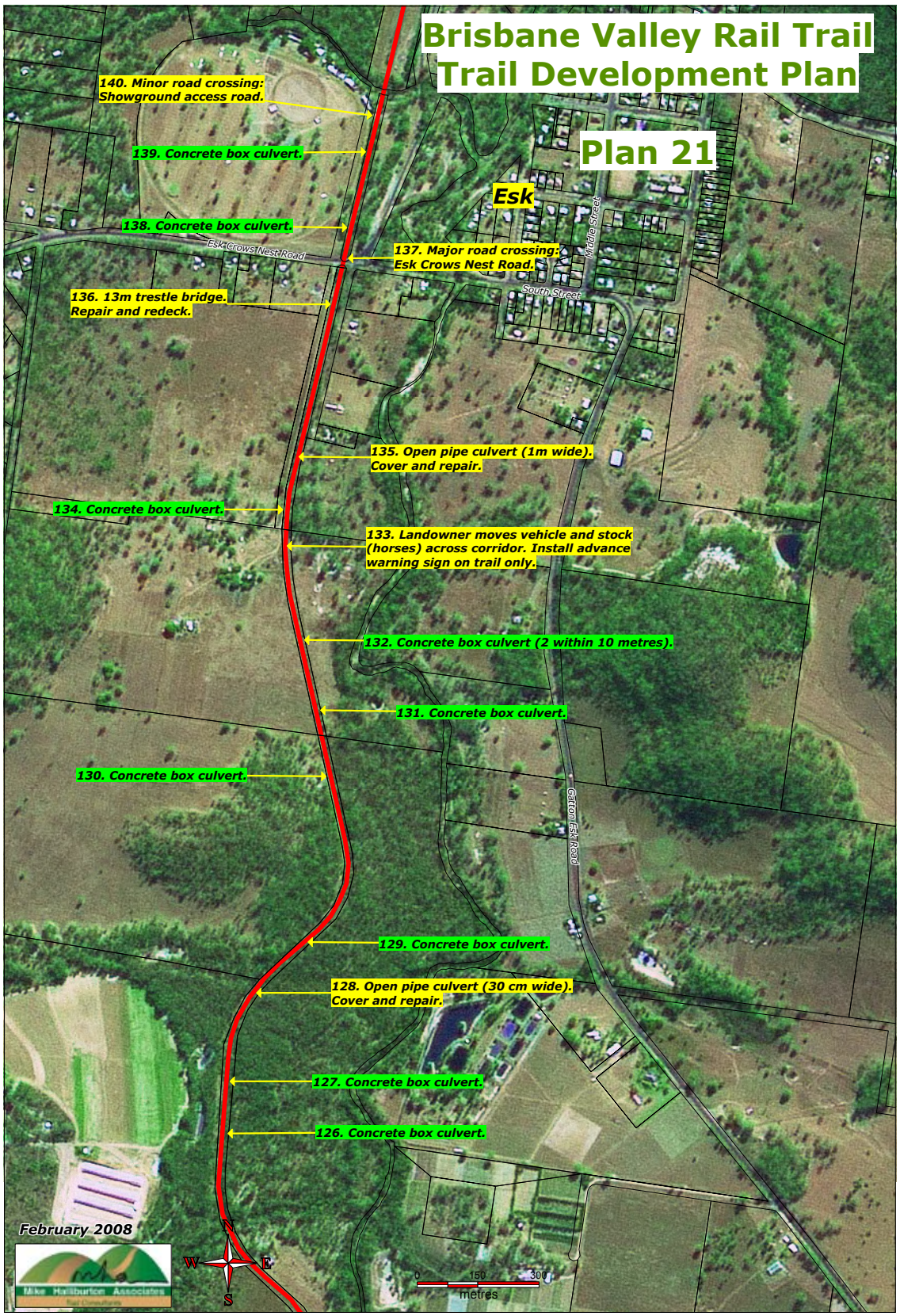

Brisbane Valley Rail Trail
Trail Development Plan
Plan 16
101. Concrete pipe culvert.
100. Fence and gate needed off side lane. Renovate fence on south-western side of corridor off Hallings Road to 102.
99. Renovate fence on south-western side of corridor. Road goes away from corridor.
Hallings Road
Halmborg Road
Bellwards Road
Cameron Road
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

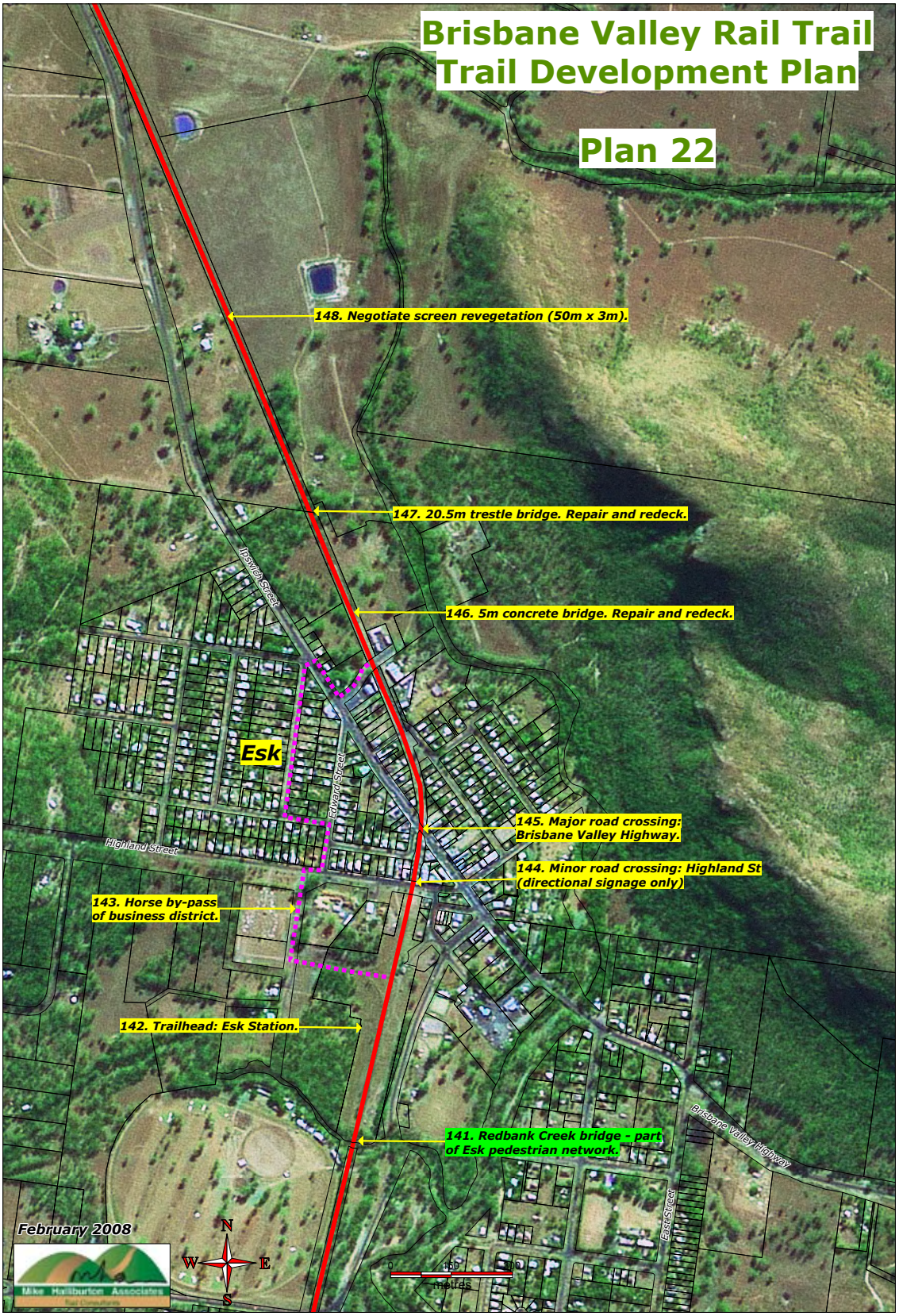

Brisbane Valley Rail Trail
Trail Development Plan
Plan 17
109. 64.6m Cooragook bridge. Repair and redeck.
108. 2 speed signs - either side of formation.
107. Box culvert - clean out regrowth.
106. Box culvert.
105. Box culvert.
104. 2 speed signs - either side of formation.
103. 2 speed signs - either side of formation.
102. Northern end of renovated fence (from 100).
Laisons Road
Wilbura Drive
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

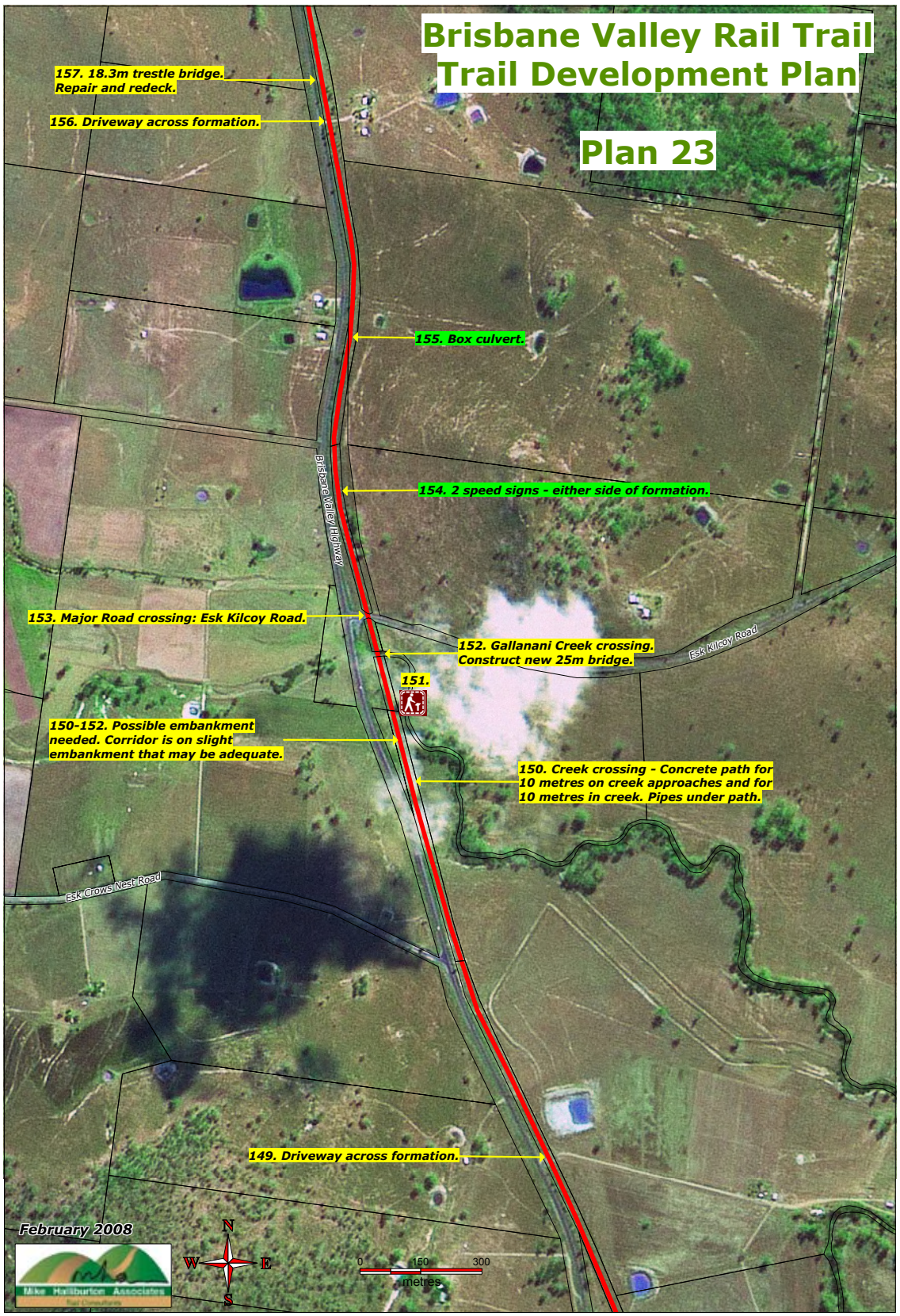

Brisbane Valley Rail Trail
Trail Development Plan
Plan 18
115. Repair broken gate on north-east fence.
114. 2 speed signs - either side of formation.
113.
111. Fill and install pipe culvert.
112. Timber road crossing sign - repaint.
110. Cooragook Station Ground. Install self-closing gates on corridor between Cooragook Bridge and private property's northern boundary.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

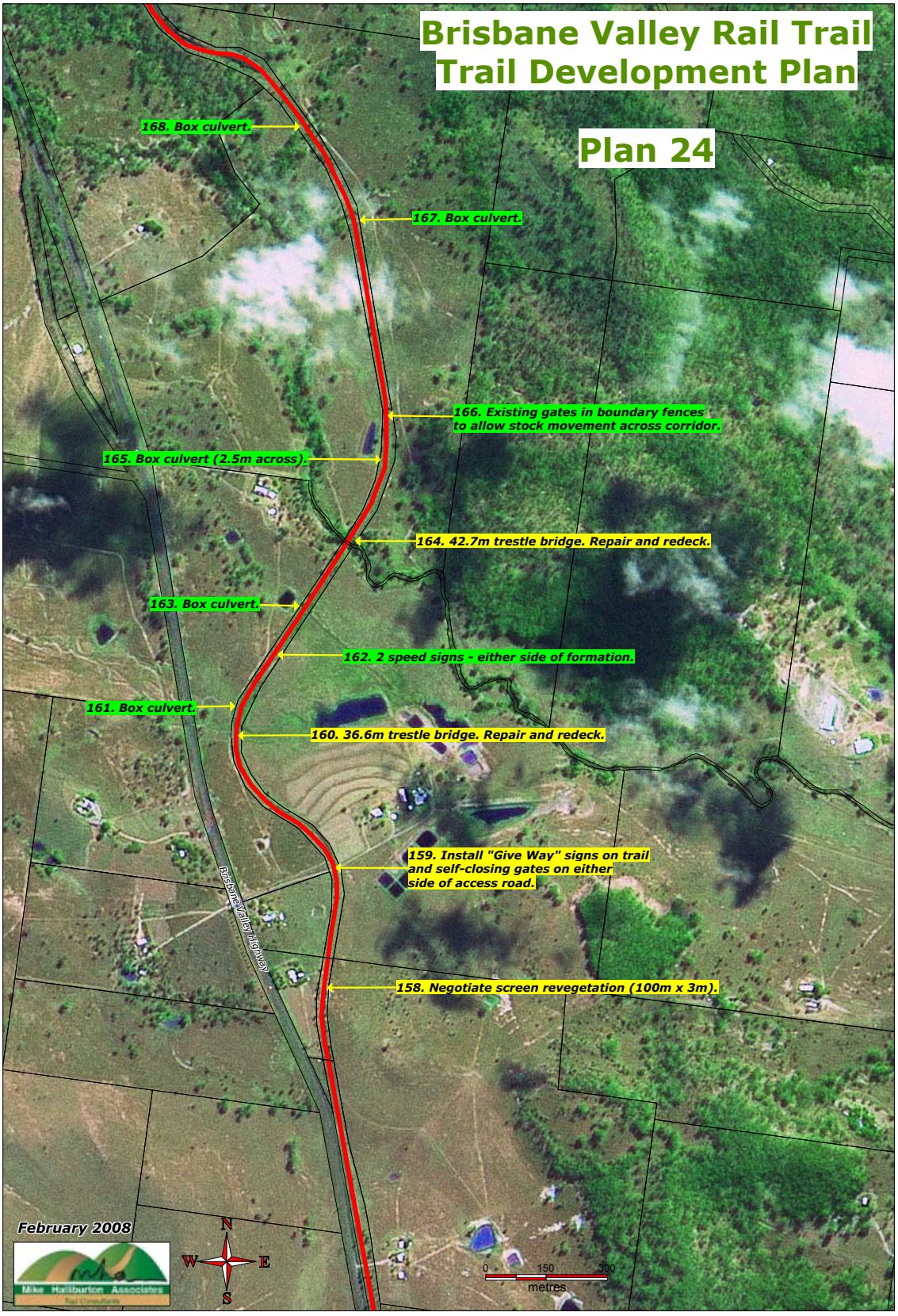

Brisbane Valley Rail Trail
Trail Development Plan
Plan 19
122. 60.5m trestle bridge. Repair and redeck.
121. 2 speed signs - either side of formation.
120. 2 speed signs - either side of formation.
117. Negotiate screen revegetation (100m x 3m) of sheds.
116. Construct fence both sides of corridor (to 117).
119. Major road crossing: Esk-Gatton Road.
118. Install 100m of fence on western side.
Pine Crescent
Aspen Drive
Gatton Esk Road
Old Station Rd
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

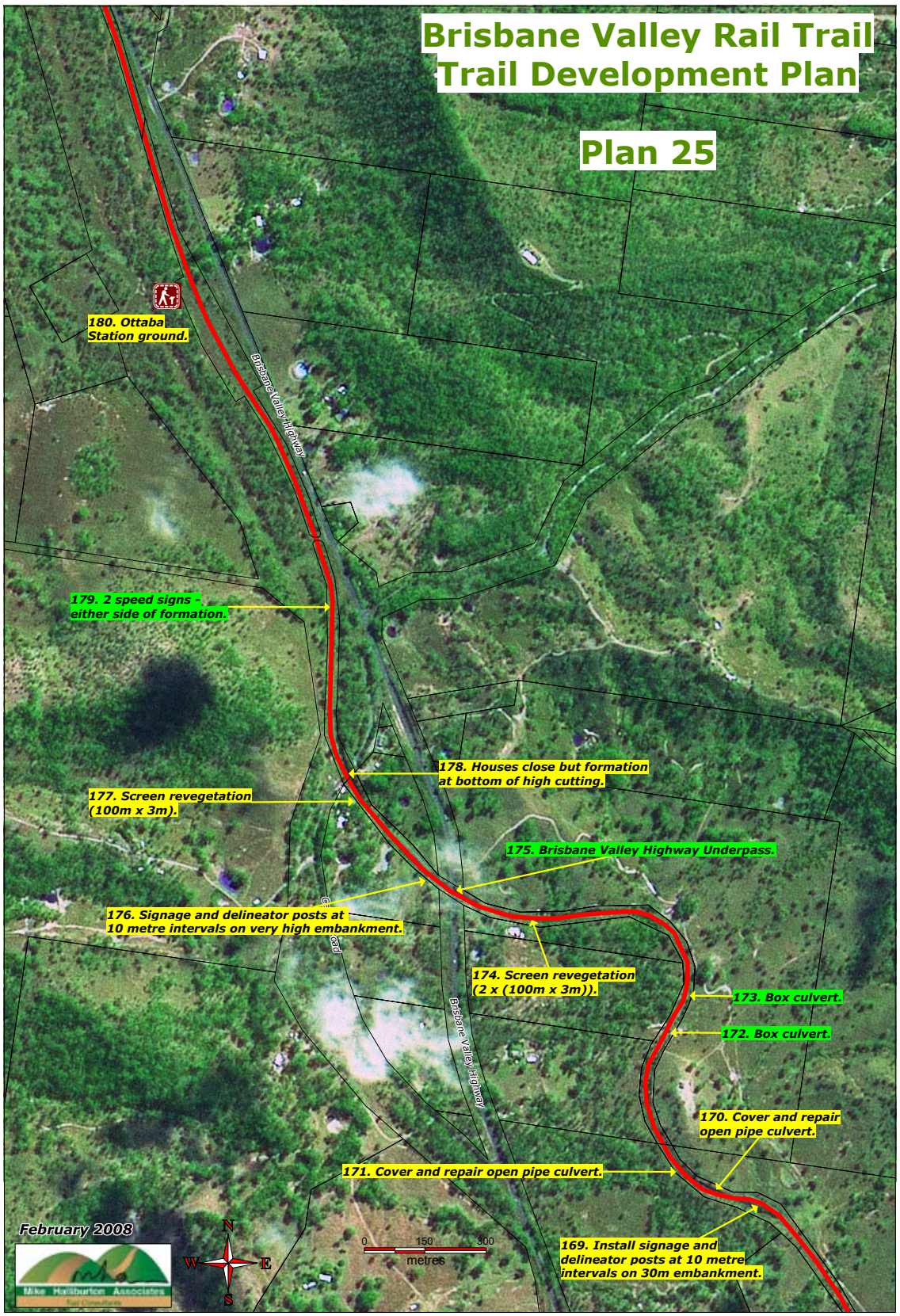

Brisbane Valley Rail Trail
Trail Development Plan
Plan 20
125. 30.5m trestle bridge.
Repair and redeck.
Boons Lane
124. Minor road crossing: Boons Lane.
123. 32.3m trestle bridge.
Repair and redeck.
Cedar Avenue
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

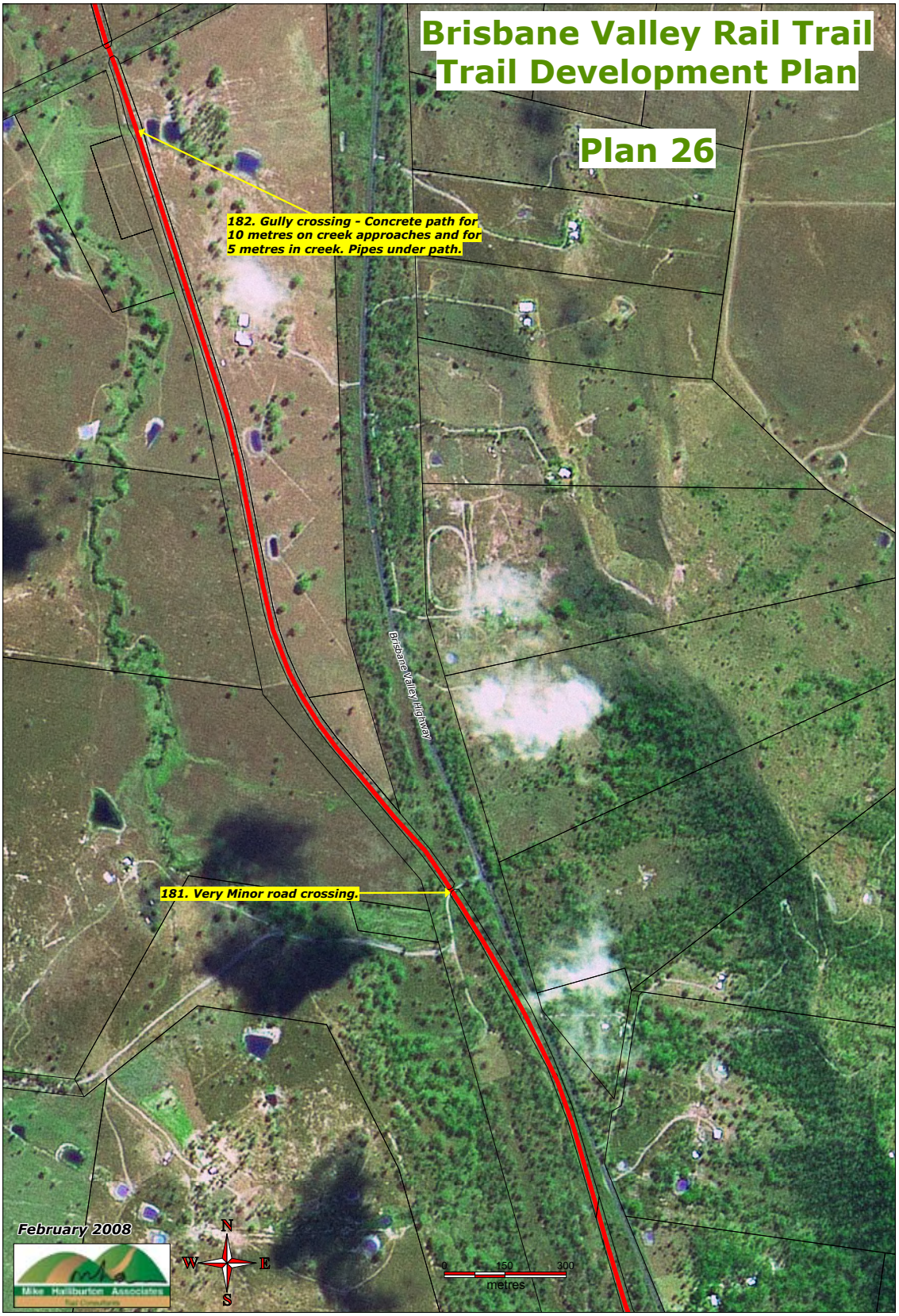

Brisbane Valley Rail Trail
Trail Development Plan
Plan 21
Esk
140. Minor road crossing: Showground access road.
139. Concrete box culvert.
138. Concrete box culvert.
137. Major road crossing: Esk Crows Nest Road.
136. 13m trestle bridge. Repair and redeck.
135. Open pipe culvert (1m wide). Cover and repair.
134. Concrete box culvert.
133. Landowner moves vehicle and stock (horses) across corridor. Install advance warning sign on trail only.
132. Concrete box culvert (2 within 10 metres).
131. Concrete box culvert.
130. Concrete box culvert.
129. Concrete box culvert.
128. Open pipe culvert (30 cm wide). Cover and repair.
127. Concrete box culvert.
126. Concrete box culvert.
Esk Crows Nest Road
Middle Street
South Street
Gatton Esk Road
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

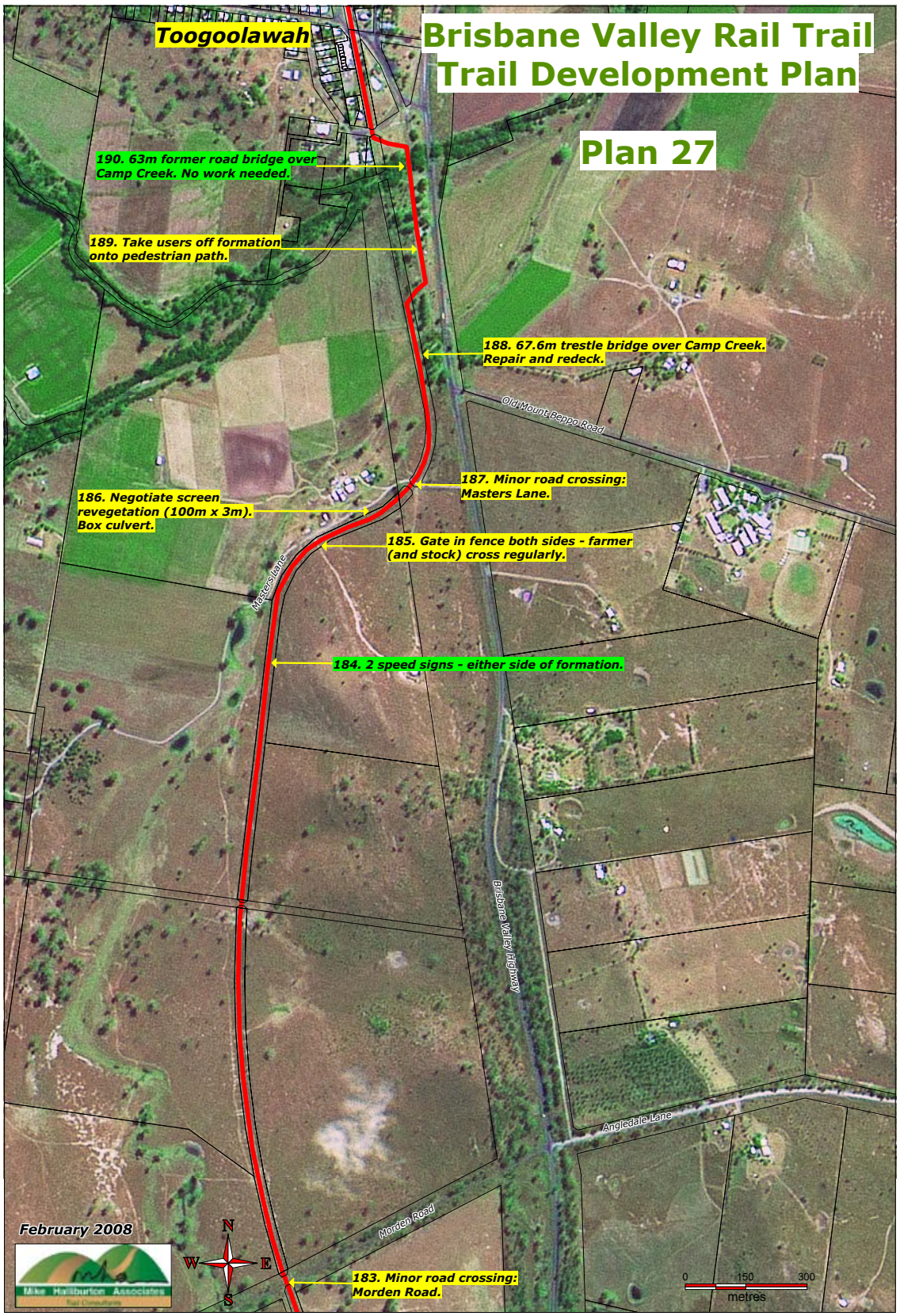

Brisbane Valley Rail Trail
Trail Development Plan
Plan 22
148. Negotiate screen revegetation (50m x 3m).
147. 20.5m trestle bridge. Repair and redeck.
146. 5m concrete bridge. Repair and redeck.
145. Major road crossing: Brisbane Valley Highway.
144. Minor road crossing: Highland St (directional signage only)
143. Horse by-pass of business district.
142. Trailhead: Esk Station.
141. Redbank Creek bridge - part of Esk pedestrian network.
Esk
Ipswich Street
Edward Street
Highland Street
Brisbane Valley Highway
East Street
February 2008
N
W
E
S
0
100
metres

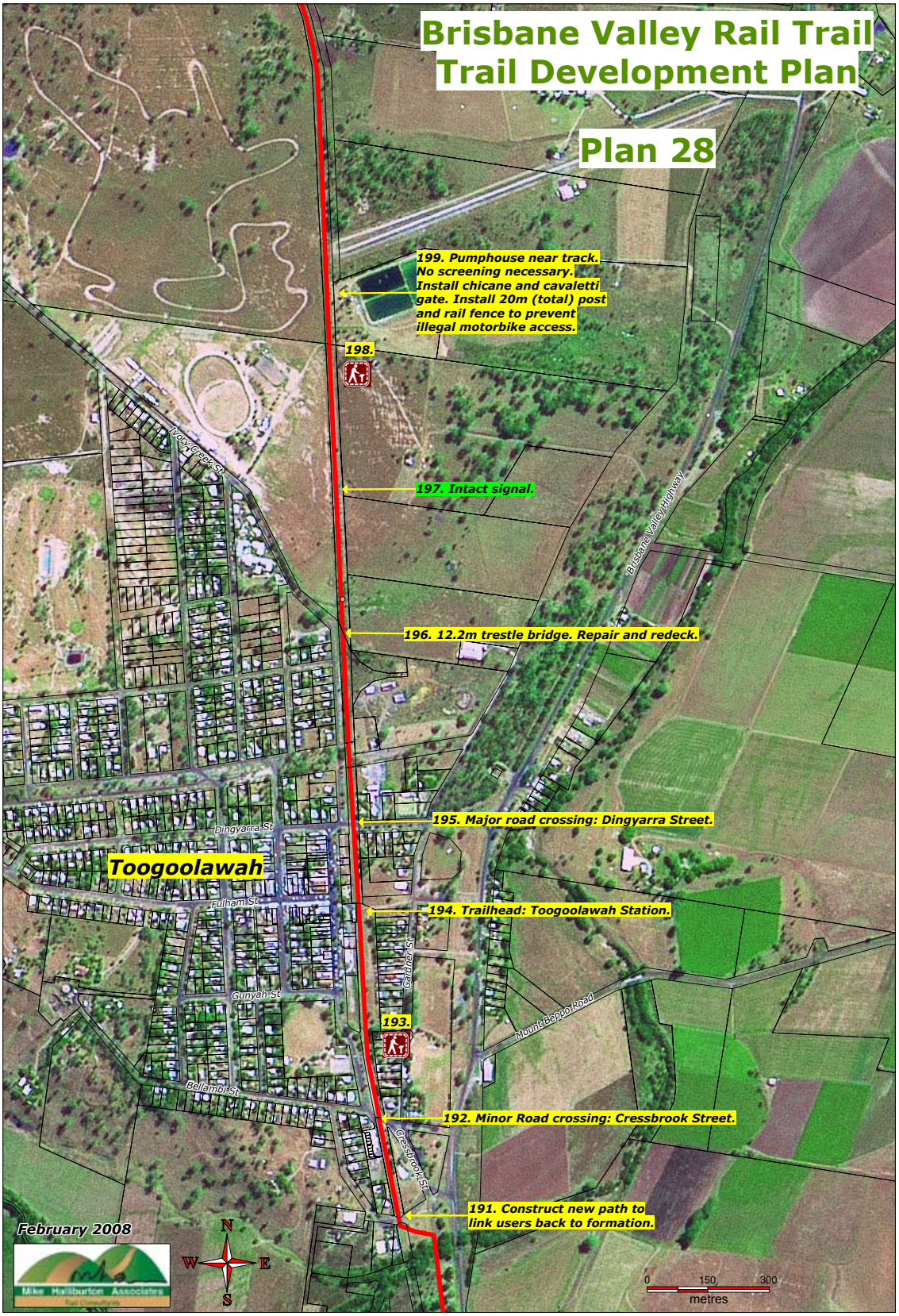

Brisbane Valley Rail Trail
Trail Development Plan
Plan 23
157. 18.3m trestle bridge. Repair and redeck.
156. Driveway across formation.
155. Box culvert.
154. 2 speed signs - either side of formation.
Brisbane Valley Highway
153. Major Road crossing: Esk Kilcoy Road.
152. Gallanani Creek crossing. Construct new 25m bridge.
Esk Kilcoy Road
151.
150-152. Possible embankment needed. Corridor is on slight embankment that may be adequate.
150. Creek crossing - Concrete path for 10 metres on creek approaches and for 10 metres in creek. Pipes under path.
Esk Crows Nest Road
149. Driveway across formation.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

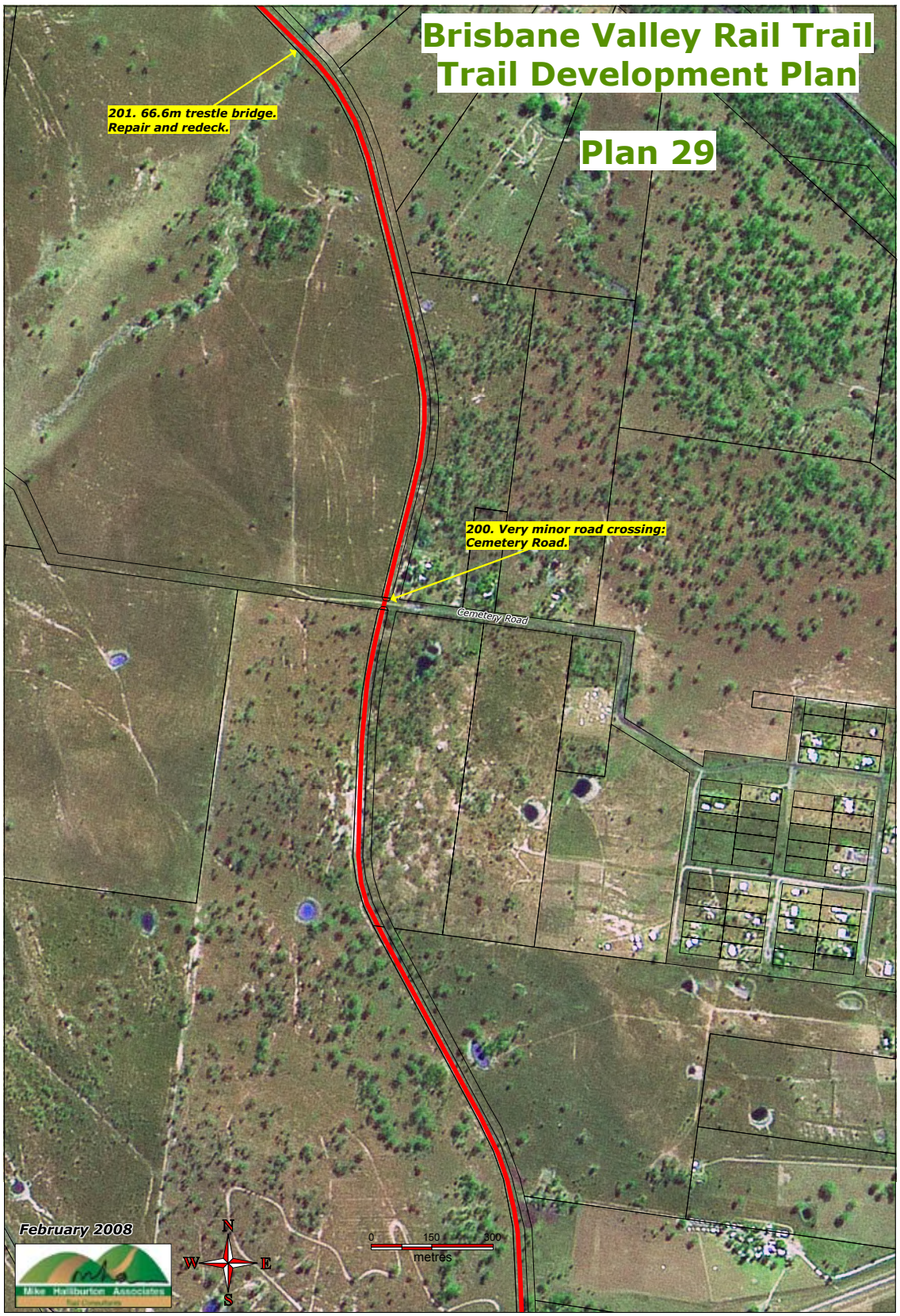

Brisbane Valley Rail Trail
Trail Development Plan
Plan 24
168. Box culvert.
167. Box culvert.
166. Existing gates in boundary fences to allow stock movement across corridor.
165. Box culvert (2.5m across).
164. 42.7m trestle bridge. Repair and redeck.
163. Box culvert.
162. 2 speed signs - either side of formation.
161. Box culvert.
160. 36.6m trestle bridge. Repair and redeck.
159. Install "Give Way" signs on trail and self-closing gates on either side of access road.
158. Negotiate screen revegetation (100m x 3m).
Brisbane Valley Highway
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

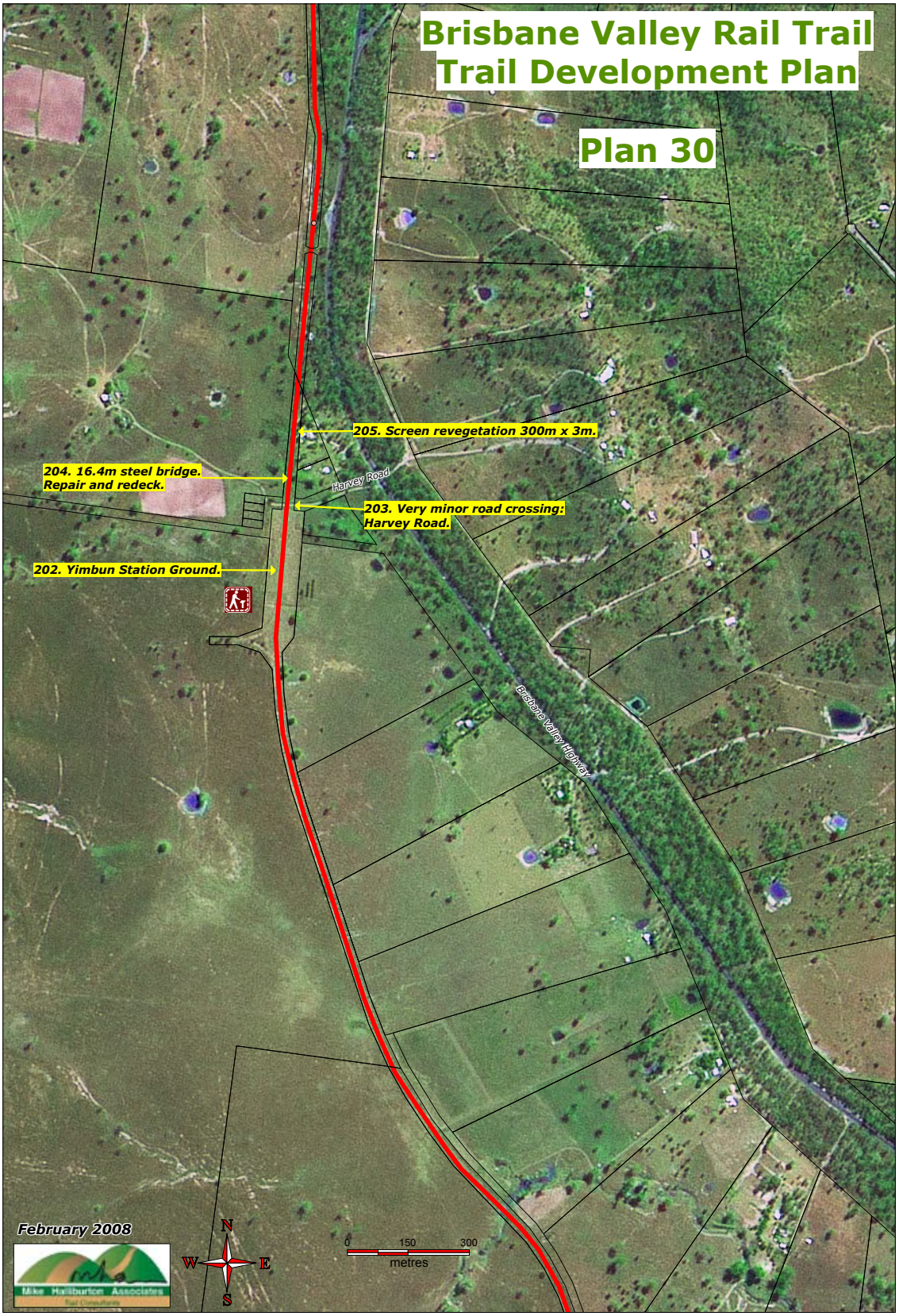

Brisbane Valley Rail Trail
Trail Development Plan
Plan 25
180. Ottaba Station ground.
Brisbane Valley Highway
179. 2 speed signs - either side of formation.
178. Houses close but formation at bottom of high cutting.
177. Screen revegetation (100m x 3m).
175. Brisbane Valley Highway Underpass.
176. Signage and delineator posts at 10 metre intervals on very high embankment.
174. Screen revegetation (2 x (100m x 3m)).
173. Box culvert.
172. Box culvert.
Brisbane Valley Highway
170. Cover and repair open pipe culvert.
171. Cover and repair open pipe culvert.
169. Install signage and delineator posts at 10 metre intervals on 30m embankment.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

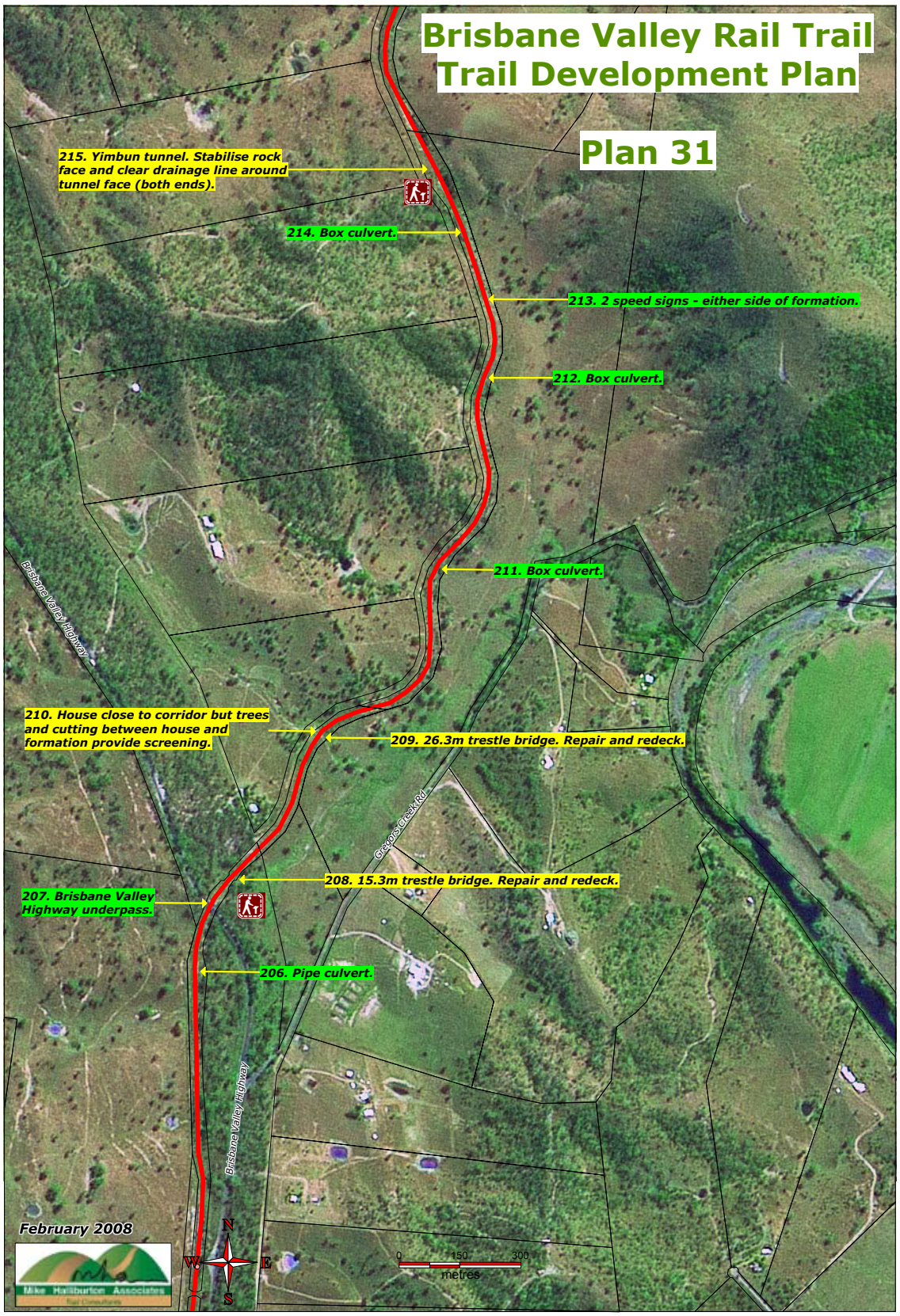

Brisbane Valley Rail Trail
Trail Development Plan
Plan 26
182. Gully crossing - Concrete path for 10 metres on creek approaches and for 5 metres in creek. Pipes under path.
Brisbane Valley Highway
181. Very Minor road crossing.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

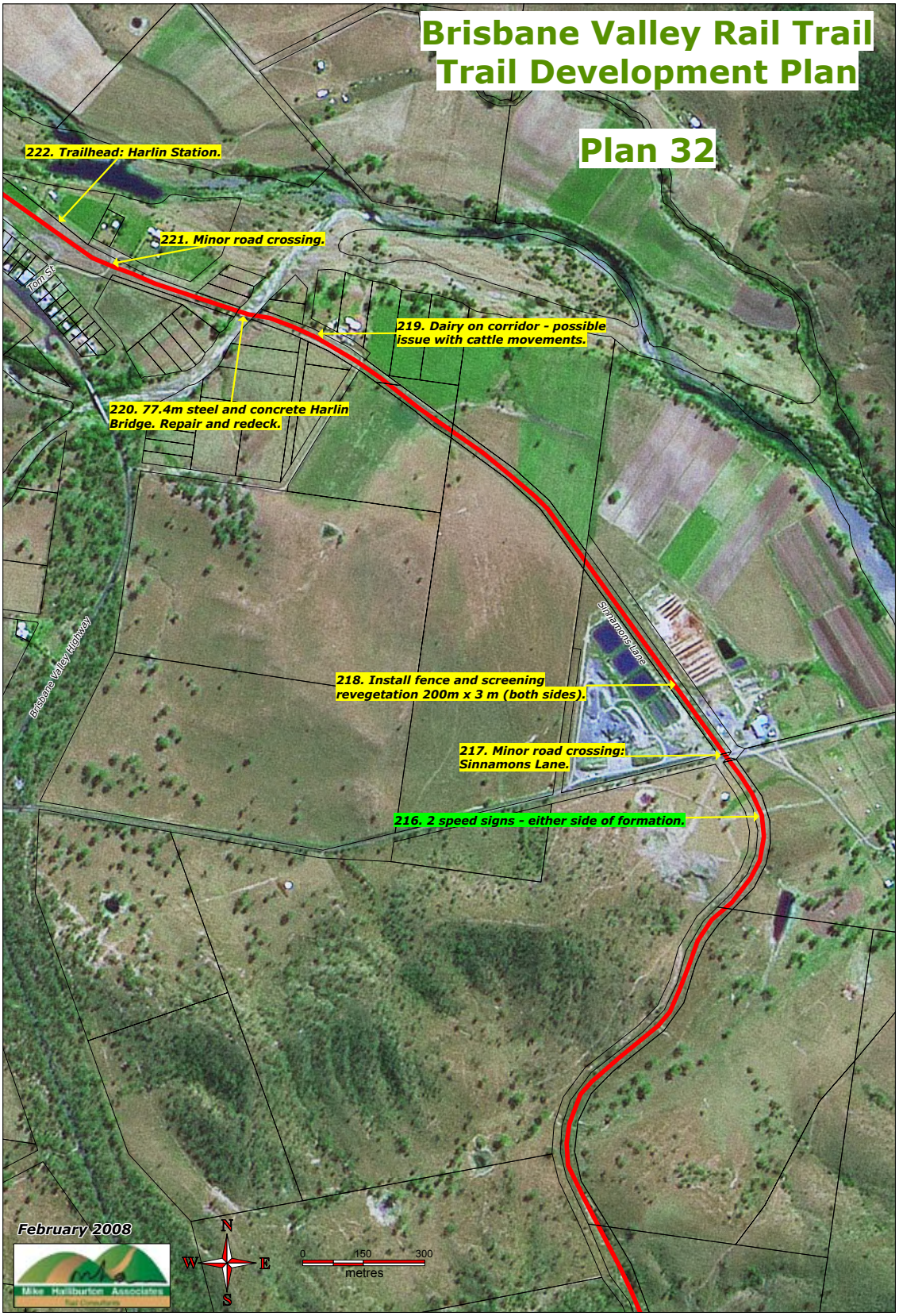

Toogoolawah
Brisbane Valley Rail Trail
Trail Development Plan
Plan 27
190. 63m former road bridge over Camp Creek. No work needed.
189. Take users off formation onto pedestrian path.
188. 67.6m trestle bridge over Camp Creek. Repair and redeck.
Old Mount Beppo Road
187. Minor road crossing: Masters Lane.
186. Negotiate screen revegetation (100m x 3m). Box culvert.
185. Gate in fence both sides - farmer (and stock) cross regularly.
Masters Lane
184. 2 speed signs - either side of formation.
Brisbane Valley Highway
Angledale Lane
Morden Road
183. Minor road crossing: Morden Road.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

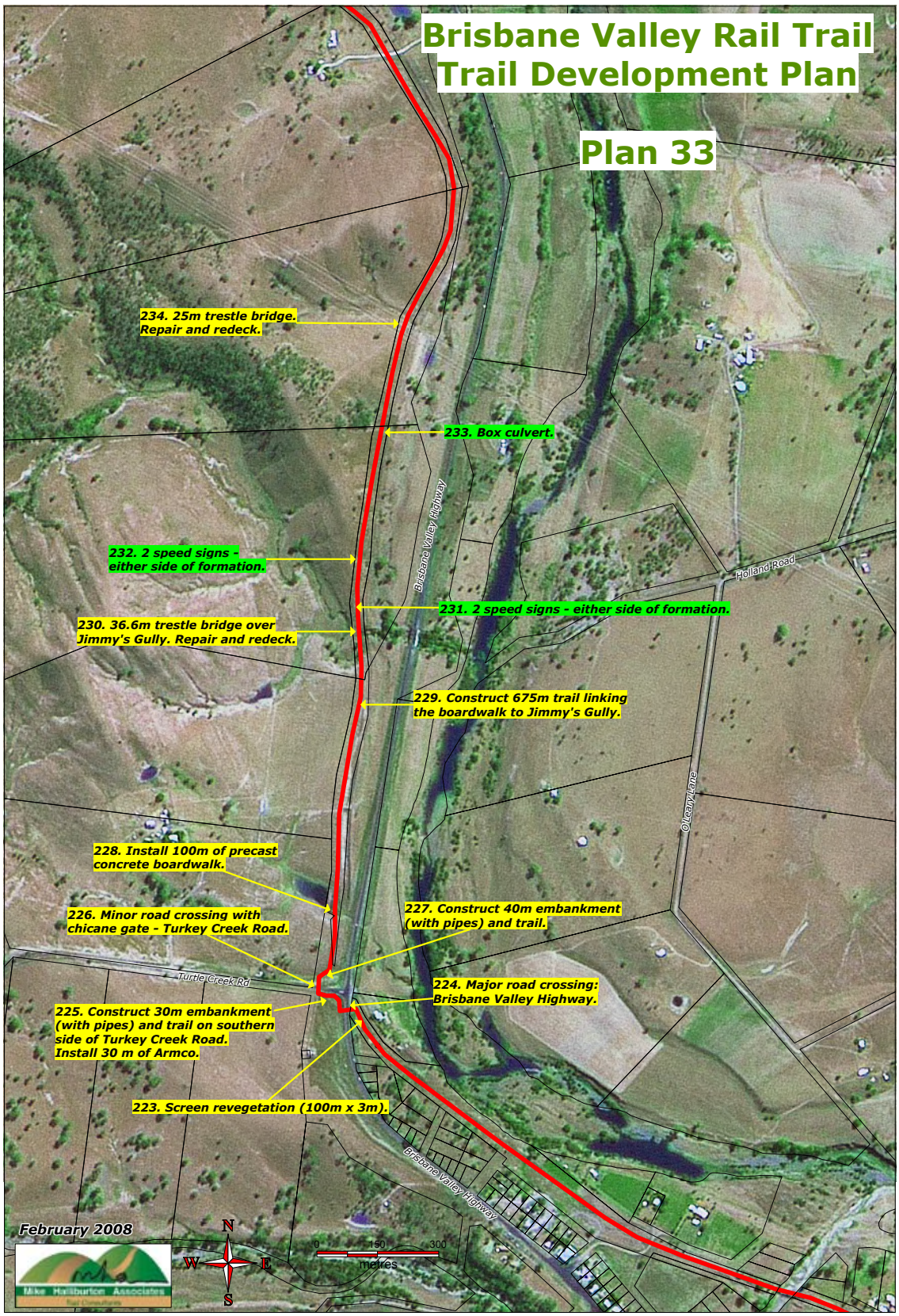

Brisbane Valley Rail Trail
Trail Development Plan
Plan 28
199. Pumphouse near track. No screening necessary. Install chicane and cavaletti gate. Install 20m (total) post and rail fence to prevent illegal motorbike access.
198.
197. Intact signal.
196. 12.2m trestle bridge. Repair and redeck.
195. Major road crossing: Dingyarra Street.
194. Trailhead: Toogoolawah Station.
193.
192. Minor Road crossing: Cressbrook Street.
191. Construct new path to link users back to formation.
Toogoolawah
Dingyarra St
Fulham St
Gunyah St
Bellambi St
Gardner St
Mount Beppo Road
Brisbane Valley Highway
Cressbrook St
Moy Creek St
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

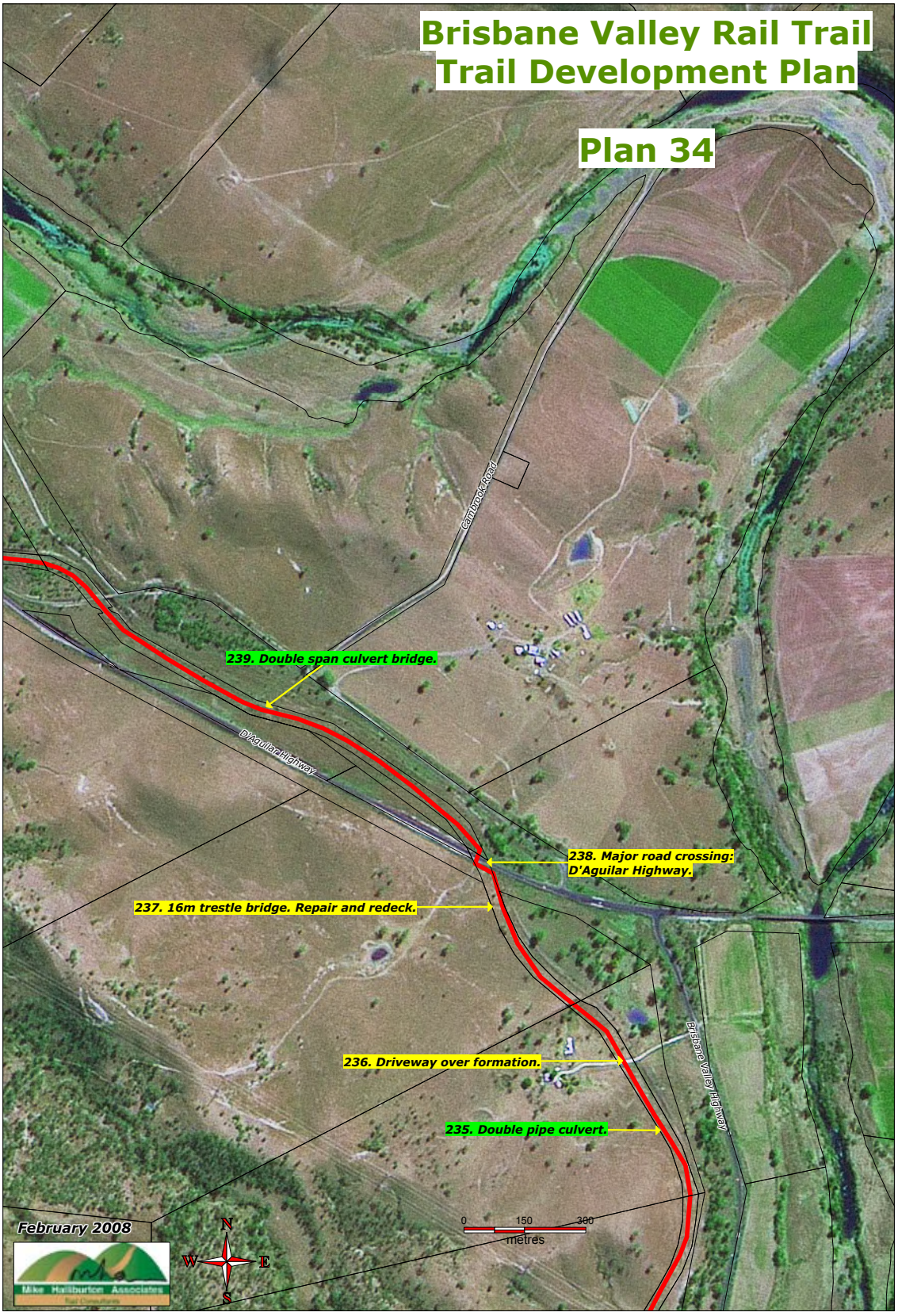

Brisbane Valley Rail Trail
Trail Development Plan
Plan 29
201. 66.6m trestle bridge.
Repair and redeck.
200. Very minor road crossing:
Cemetery Road.
Cemetery Road
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

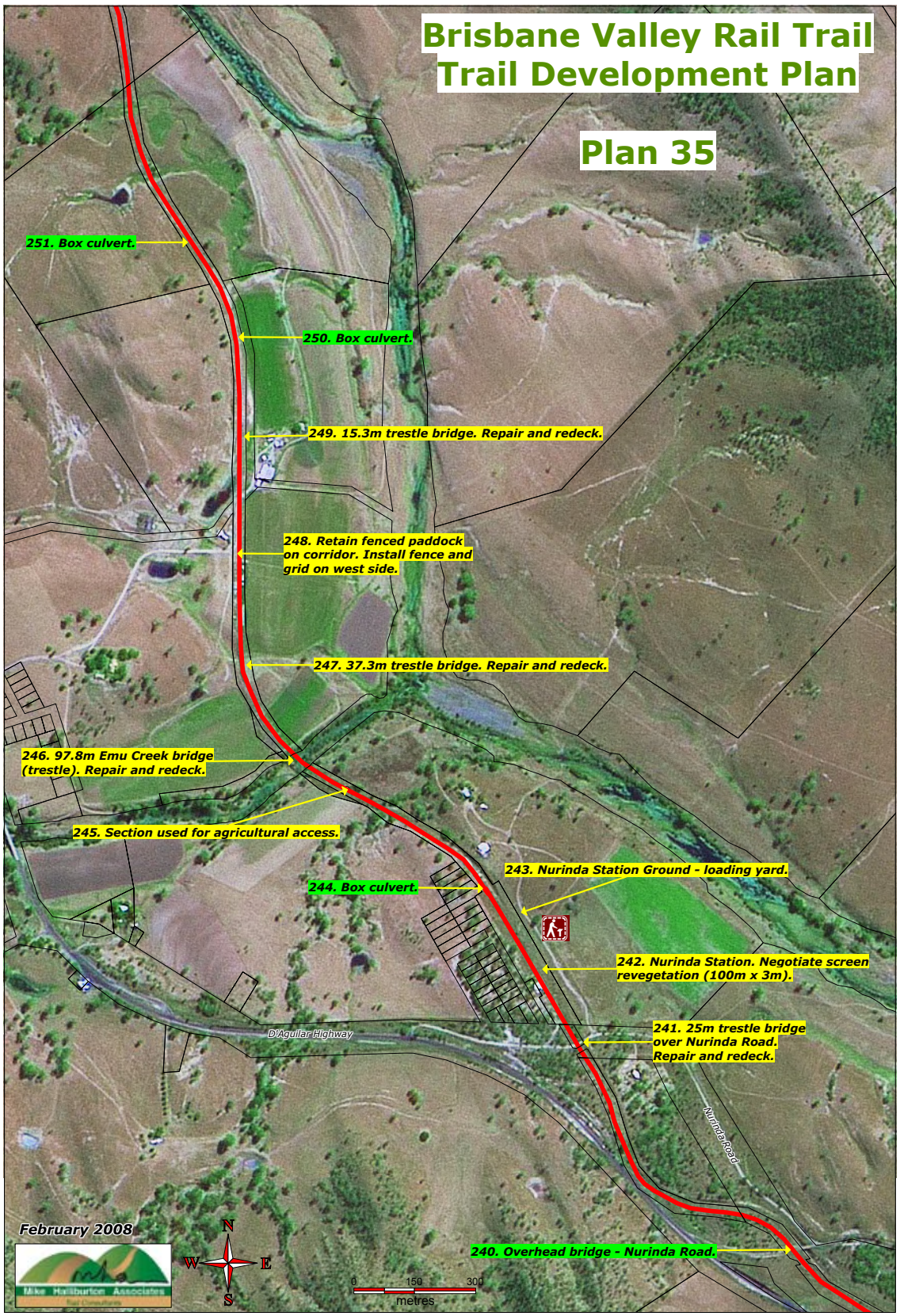

Brisbane Valley Rail Trail
Trail Development Plan
Plan 30
205. Screen revegetation 300m x 3m.
204. 16.4m steel bridge.
Repair and redeck.
Harvey Road
203. Very minor road crossing:
Harvey Road.
202. Yimbun Station Ground.
Brisbane Valley Highway
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

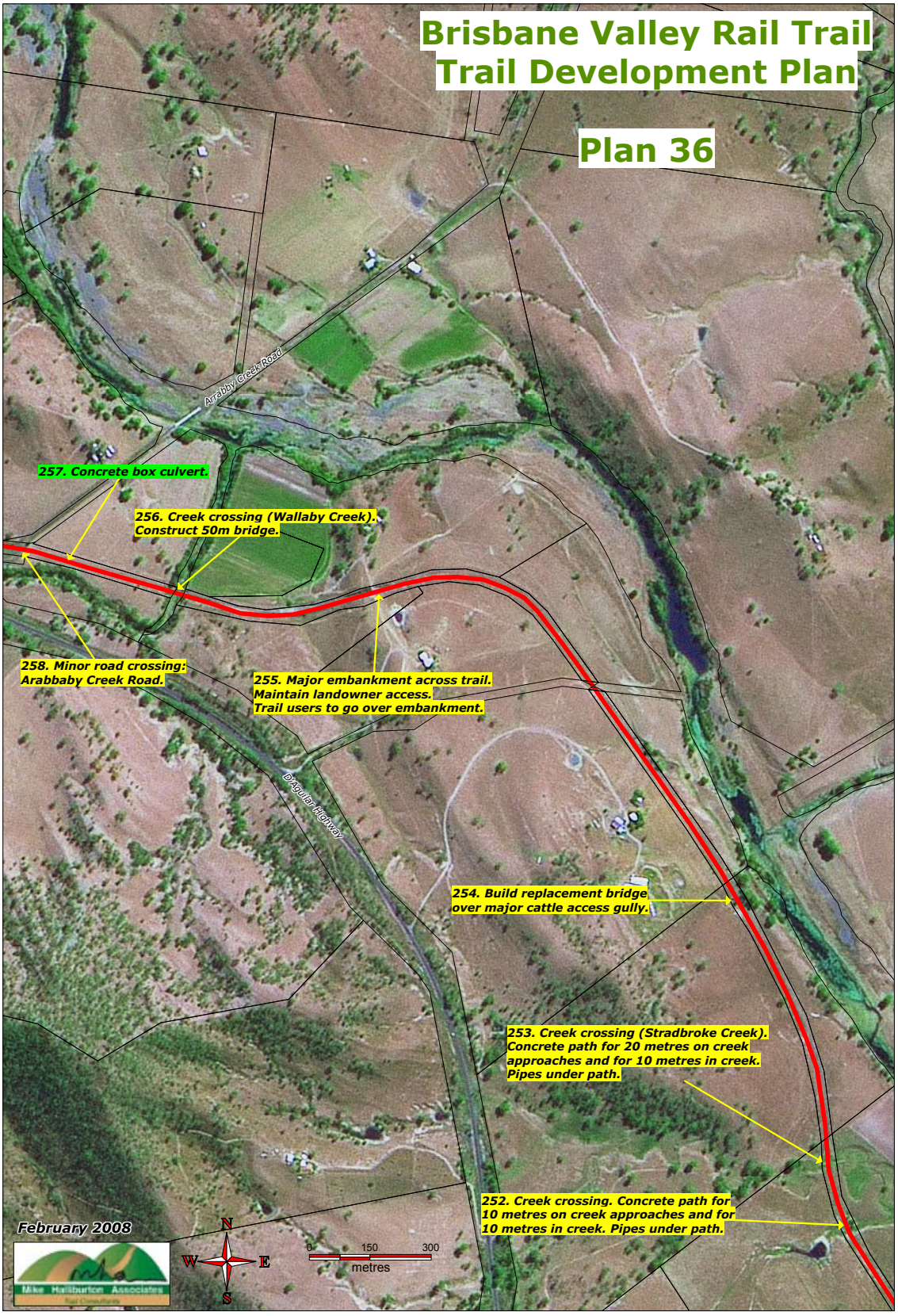

Brisbane Valley Rail Trail
Trail Development Plan
Plan 31
215. Yimbun tunnel. Stabilise rock face and clear drainage line around tunnel face (both ends).
214. Box culvert.
213. 2 speed signs - either side of formation.
212. Box culvert.
211. Box culvert.
210. House close to corridor but trees and cutting between house and formation provide screening.
209. 26.3m trestle bridge. Repair and redeck.
208. 15.3m trestle bridge. Repair and redeck.
207. Brisbane Valley Highway underpass.
206. Pipe culvert.
Brisbane Valley Highway
Gregors Creek Rd
Brisbane Valley Highway
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

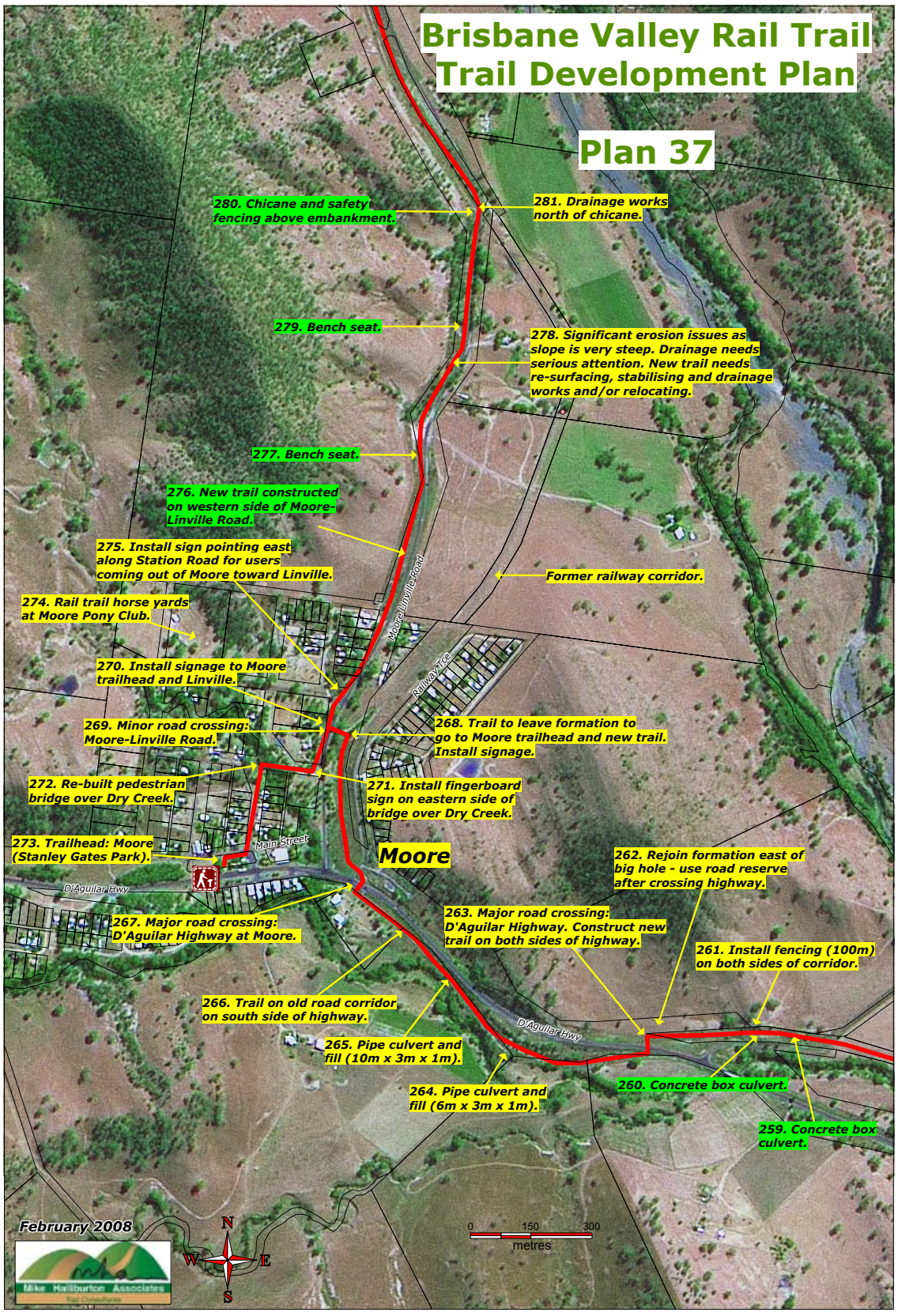

Brisbane Valley Rail Trail
Trail Development Plan
Plan 32
222. Trailhead: Harlin Station.
221. Minor road crossing.
Tom St
219. Dairy on corridor - possible issue with cattle movements.
220. 77.4m steel and concrete Harlin Bridge. Repair and redeck.
Brisbane Valley Highway
Sinnamons Lane
218. Install fence and screening revegetation 200m x 3 m (both sides).
217. Minor road crossing: Sinnamons Lane.
216. 2 speed signs - either side of formation.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

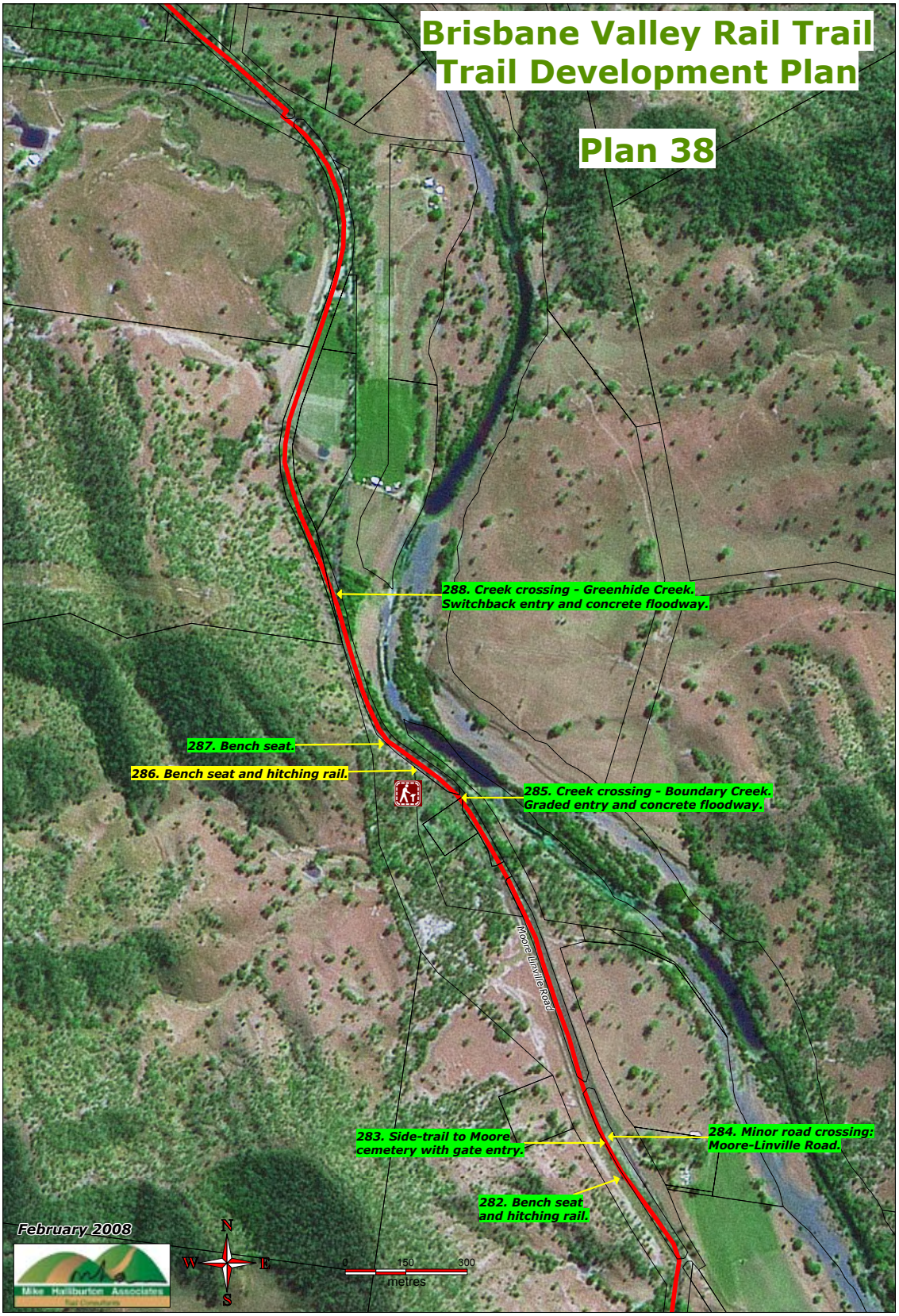

Brisbane Valley Rail Trail
Trail Development Plan
Plan 33
234. 25m trestle bridge. Repair and redeck.
233. Box culvert.
232. 2 speed signs - either side of formation.
231. 2 speed signs - either side of formation.
230. 36.6m trestle bridge over Jimmy's Gully. Repair and redeck.
229. Construct 675m trail linking the boardwalk to Jimmy's Gully.
228. Install 100m of precast concrete boardwalk.
227. Construct 40m embankment (with pipes) and trail.
226. Minor road crossing with chicane gate - Turkey Creek Road.
224. Major road crossing: Brisbane Valley Highway.
225. Construct 30m embankment (with pipes) and trail on southern side of Turkey Creek Road. Install 30 m of Armco.
223. Screen revegetation (100m x 3m).
Brisbane Valley Highway
Holland Road
Oleary Lane
Turtle Creek Rd
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

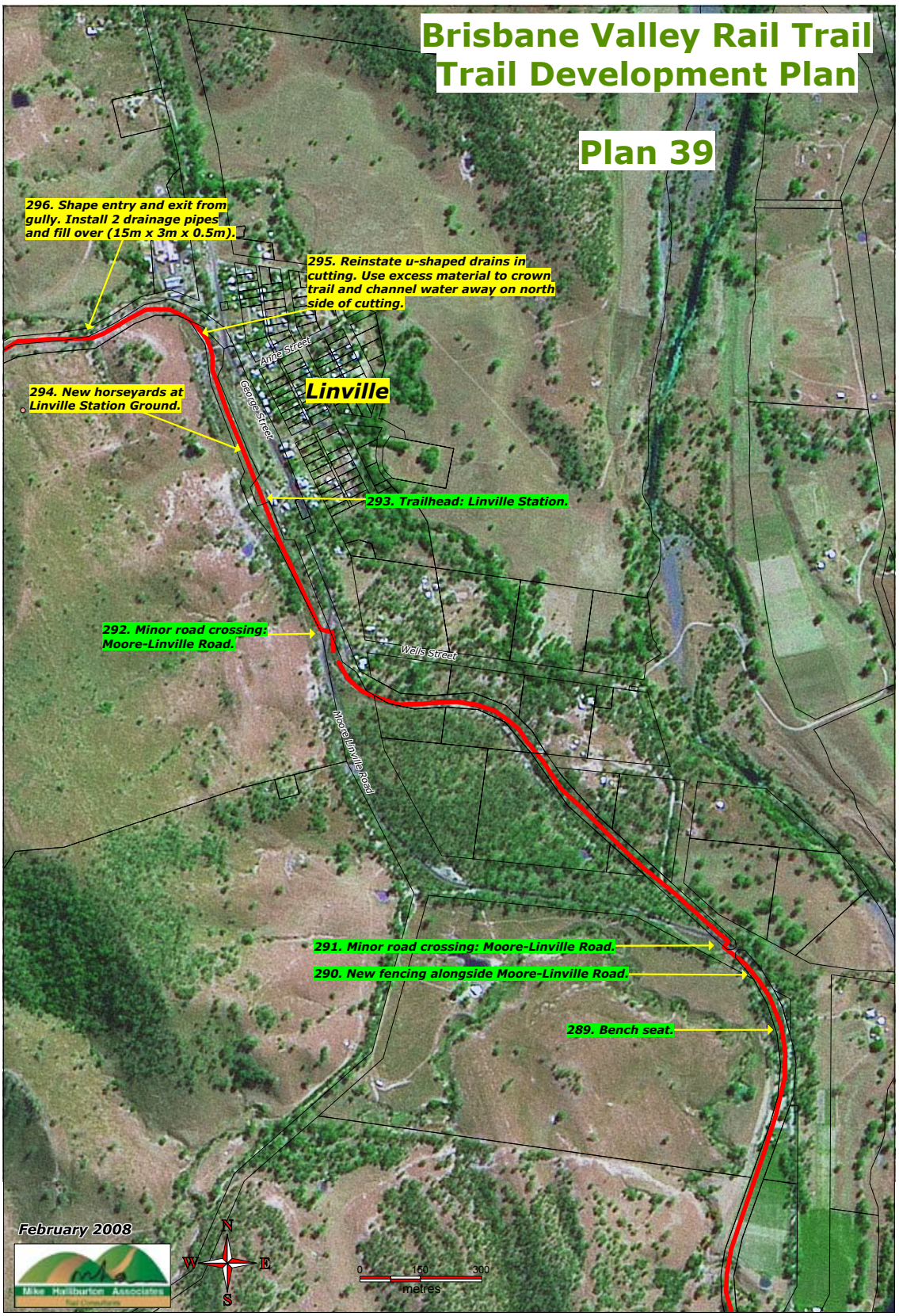

Brisbane Valley Rail Trail
Trail Development Plan
Plan 34
Cambroon Road
239. Double span culvert bridge.
D'Aguilar Highway
238. Major road crossing:
D'Aguilar Highway.
237. 16m trestle bridge. Repair and redeck.
236. Driveway over formation.
Brisbane Valley Highway
235. Double pipe culvert.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

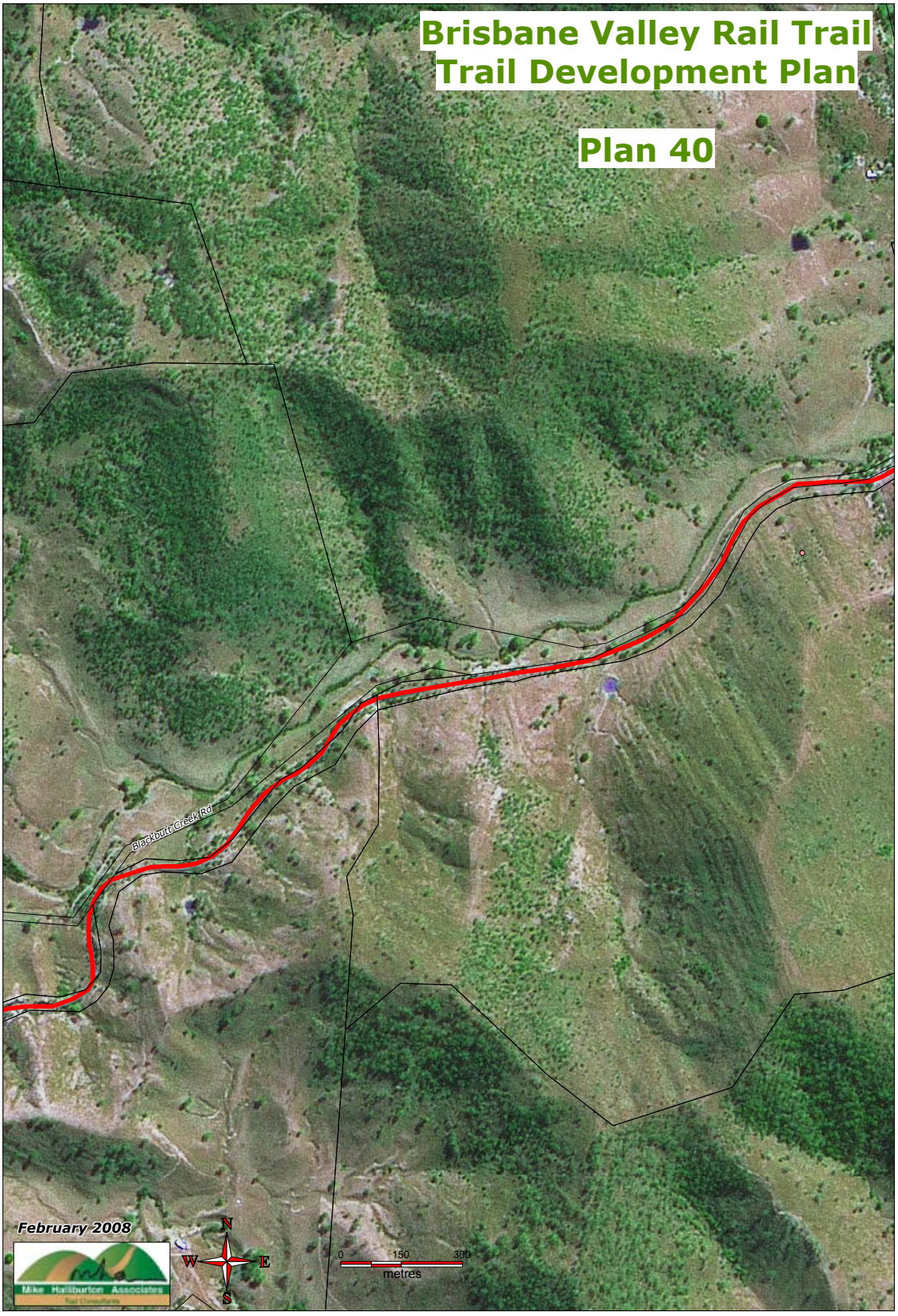

Brisbane Valley Rail Trail
Trail Development Plan
Plan 35
251. Box culvert.
250. Box culvert.
249. 15.3m trestle bridge. Repair and redeck.
248. Retain fenced paddock on corridor. Install fence and grid on west side.
247. 37.3m trestle bridge. Repair and redeck.
246. 97.8m Emu Creek bridge (trestle). Repair and redeck.
245. Section used for agricultural access.
244. Box culvert.
243. Nurinda Station Ground - loading yard.
242. Nurinda Station. Negotiate screen revegetation (100m x 3m).
241. 25m trestle bridge over Nurinda Road. Repair and redeck.
240. Overhead bridge - Nurinda Road.
D'Aguilar Highway
Nurinda Road
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

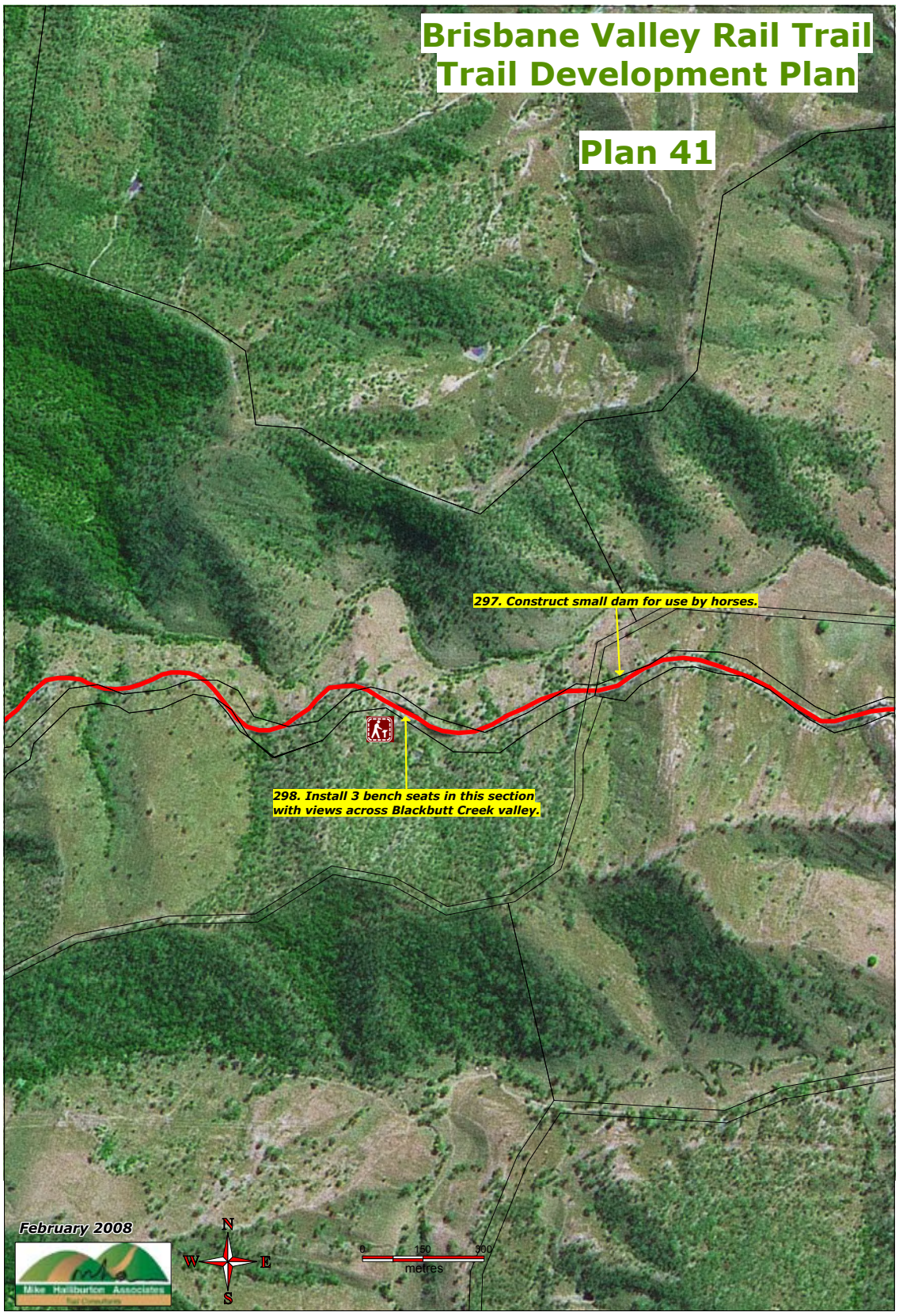

Brisbane Valley Rail Trail
Trail Development Plan
Plan 36
Arrababy Creek Road
257. Concrete box culvert.
256. Creek crossing (Wallaby Creek). Construct 50m bridge.
258. Minor road crossing: Arrababy Creek Road.
255. Major embankment across trail. Maintain landowner access. Trail users to go over embankment.
D'Aguilar Highway
254. Build replacement bridge over major cattle access gully.
253. Creek crossing (Stradbroke Creek). Concrete path for 20 metres on creek approaches and for 10 metres in creek. Pipes under path.
252. Creek crossing. Concrete path for 10 metres on creek approaches and for 10 metres in creek. Pipes under path.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

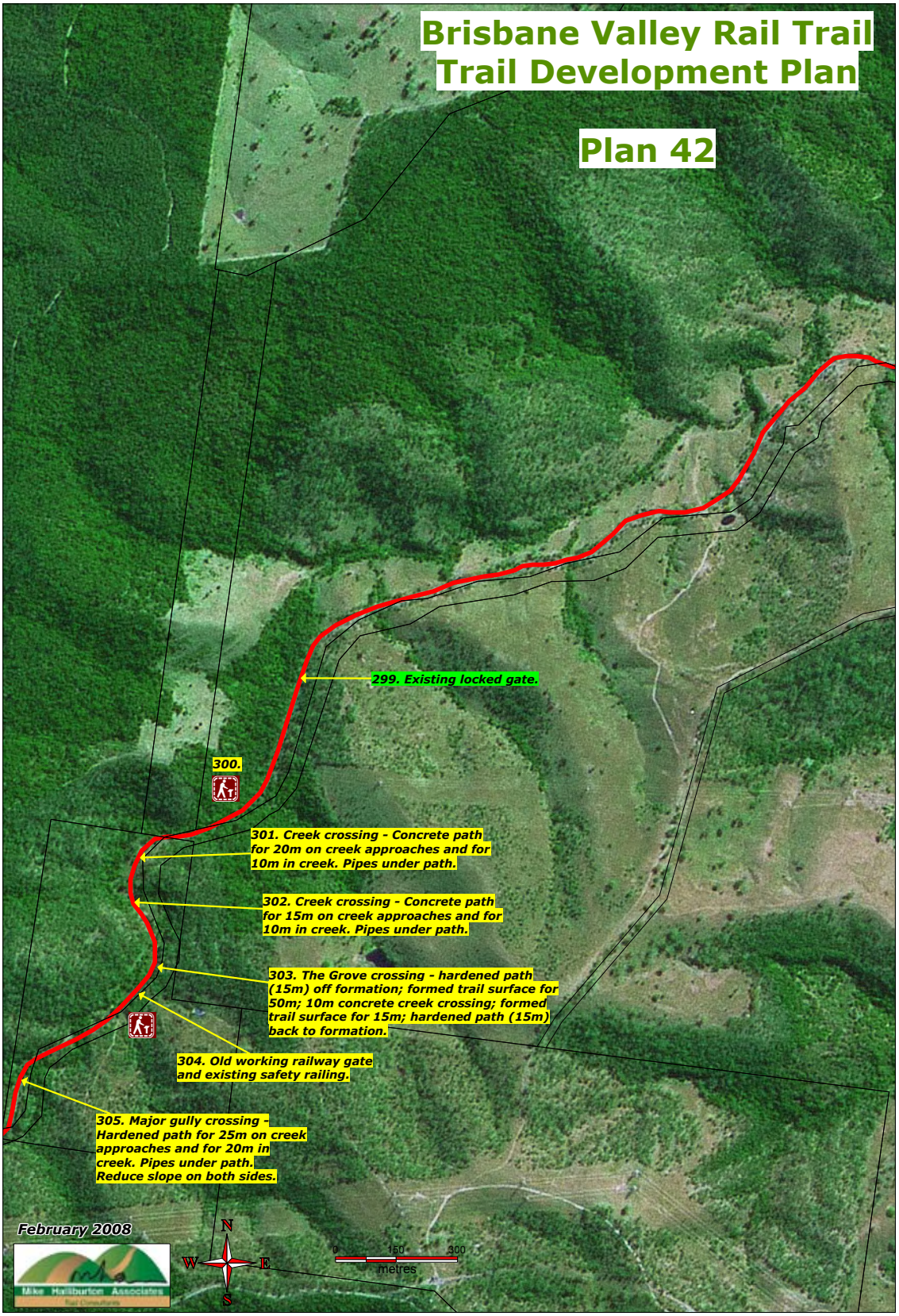

Brisbane Valley Rail Trail
Trail Development Plan
Plan 37
280. Chicane and safety fencing above embankment.
281. Drainage works north of chicane.
279. Bench seat.
278. Significant erosion issues as slope is very steep. Drainage needs serious attention. New trail needs re-surfacing, stabilising and drainage works and/or relocating.
277. Bench seat.
276. New trail constructed on western side of Moore-Linville Road.
275. Install sign pointing east along Station Road for users coming out of Moore toward Linville.
Former railway corridor.
274. Rail trail horse yards at Moore Pony Club.
Moore-Linville Road
Railway Ave
270. Install signage to Moore trailhead and Linville.
269. Minor road crossing: Moore-Linville Road.
268. Trail to leave formation to go to Moore trailhead and new trail. Install signage.
272. Re-built pedestrian bridge over Dry Creek.
271. Install fingerboard sign on eastern side of bridge over Dry Creek.
273. Trailhead: Moore (Stanley Gates Park).
Main Street
Moore
262. Rejoin formation east of big hole - use road reserve after crossing highway.
D'Aguilar Hwy
267. Major road crossing: D'Aguilar Highway at Moore.
263. Major road crossing: D'Aguilar Highway. Construct new trail on both sides of highway.
261. Install fencing (100m) on both sides of corridor.
266. Trail on old road corridor on south side of highway.
D'Aguilar Hwy
265. Pipe culvert and fill (10m x 3m x 1m).
260. Concrete box culvert.
264. Pipe culvert and fill (6m x 3m x 1m).
259. Concrete box culvert.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

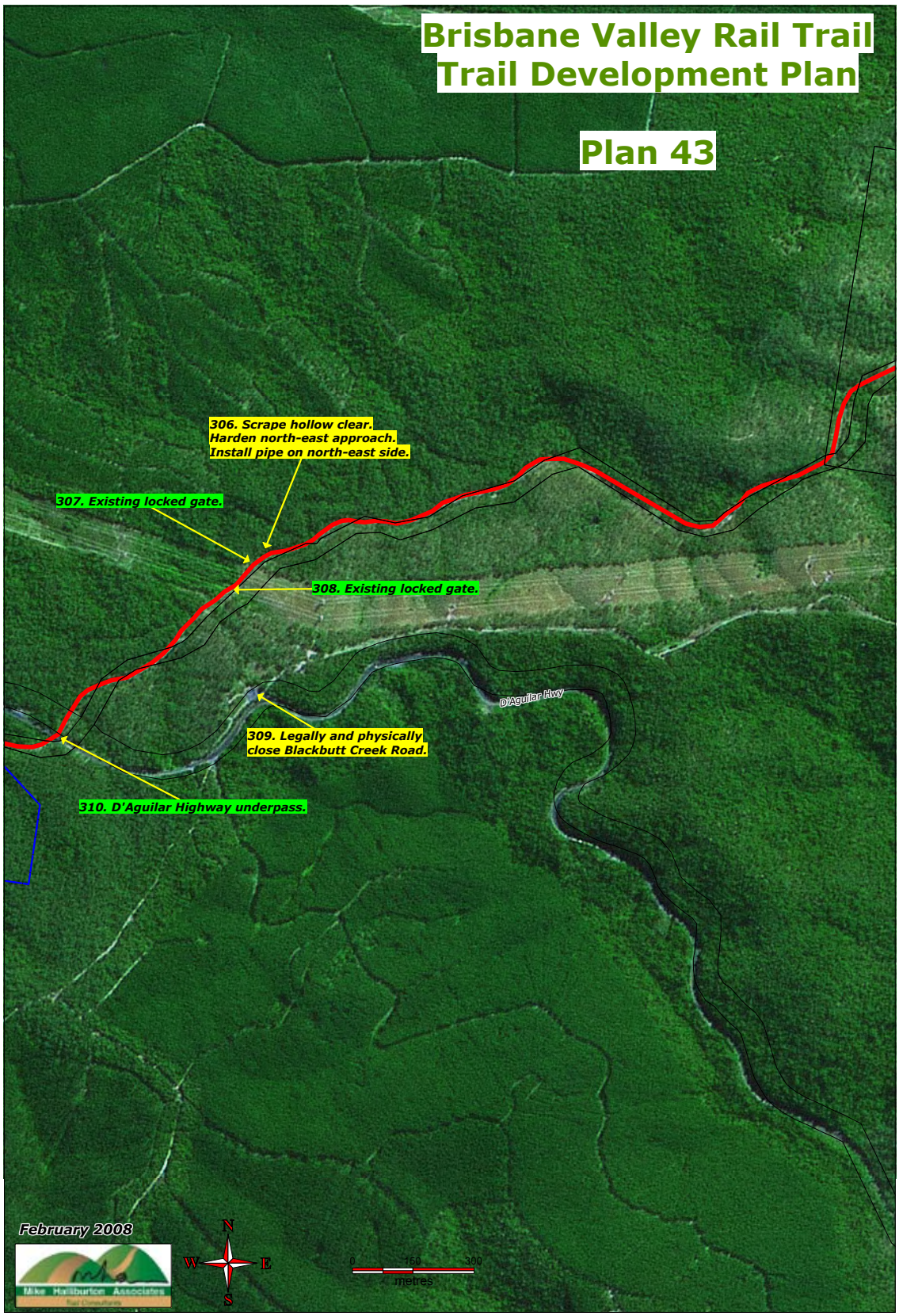

Brisbane Valley Rail Trail
Trail Development Plan
Plan 38
288. Creek crossing - Greenhide Creek.
Switchback entry and concrete floodway.
287. Bench seat.
286. Bench seat and hitching rail.
285. Creek crossing - Boundary Creek.
Graded entry and concrete floodway.
Moore Linville Road
283. Side-trail to Moore
cemetery with gate entry.
284. Minor road crossing:
Moore-Linville Road.
282. Bench seat
and hitching rail.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 39
296. Shape entry and exit from gully. Install 2 drainage pipes and fill over (15m x 3m x 0.5m).
295. Reinstate u-shaped drains in cutting. Use excess material to crown trail and channel water away on north side of cutting.
Anne Street
George Street
Linville
294. New horseyards at Linville Station Ground.
293. Trailhead: Linville Station.
292. Minor road crossing: Moore-Linville Road.
Wells Street
Moore Linville Road
291. Minor road crossing: Moore-Linville Road.
290. New fencing alongside Moore-Linville Road.
289. Bench seat.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

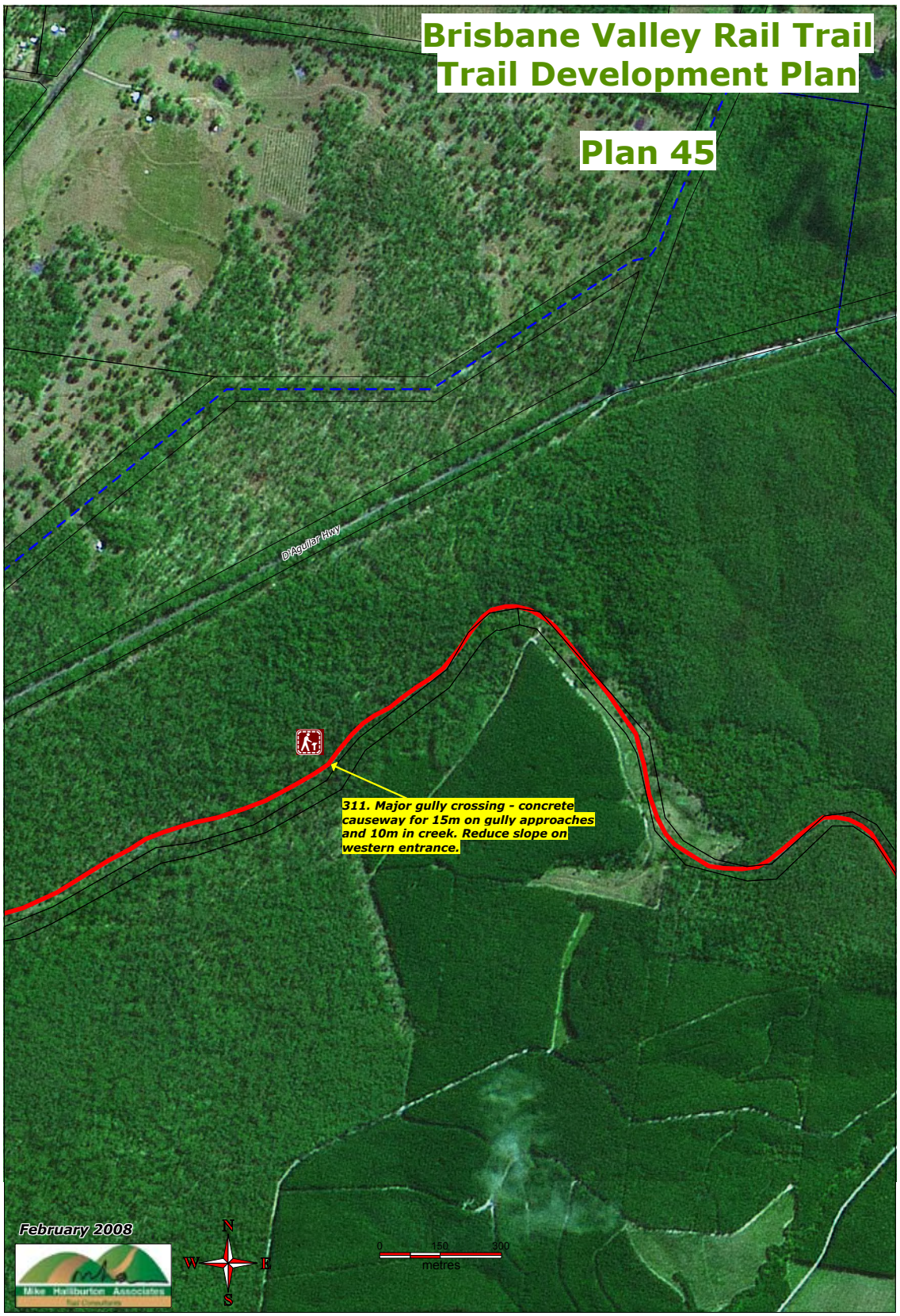

Brisbane Valley Rail Trail
Trail Development Plan
Plan 40
Blackbutt Creek Rd
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates

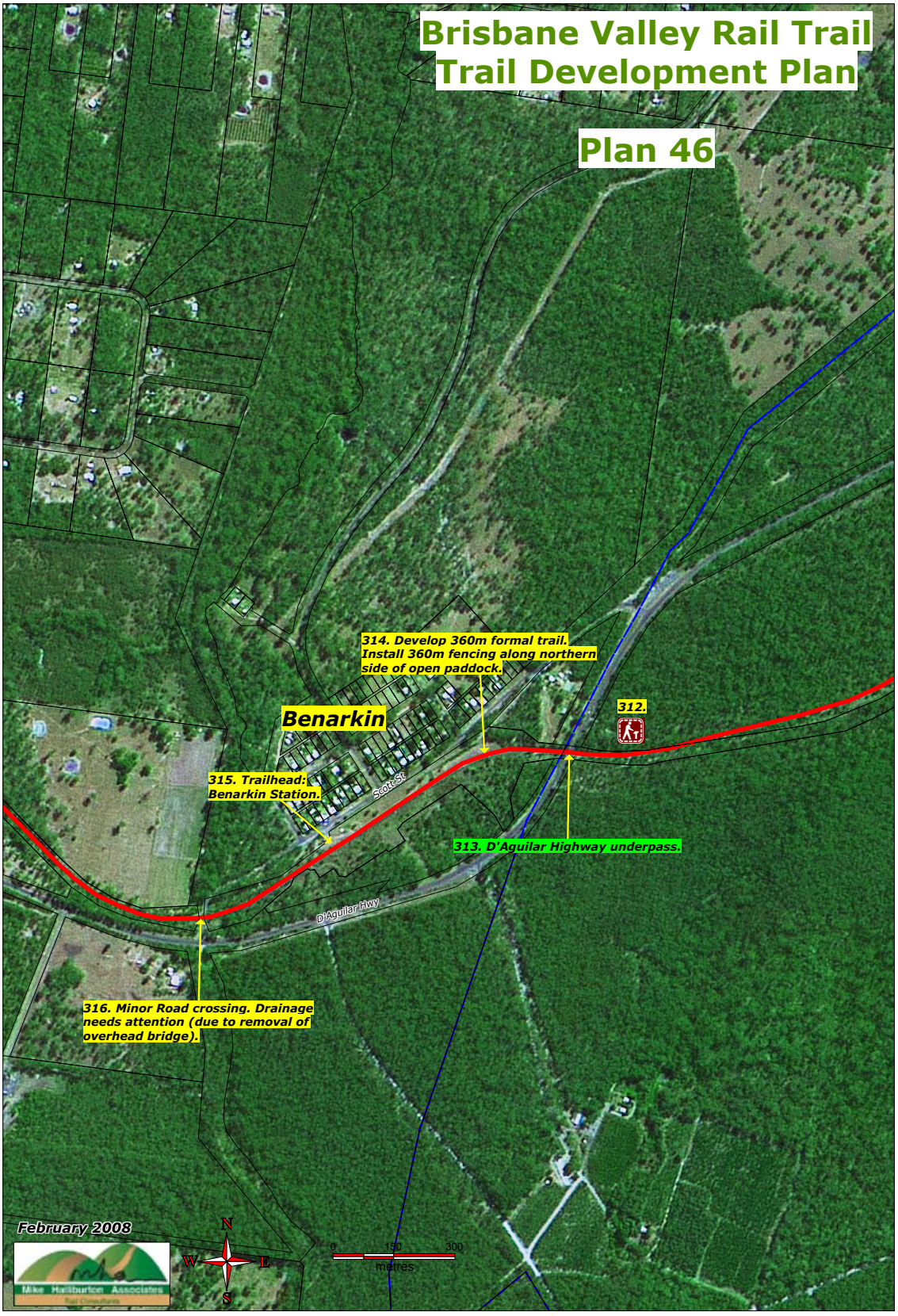

Brisbane Valley Rail Trail
Trail Development Plan
Plan 41
297. Construct small dam for use by horses.
298. Install 3 bench seats in this section with views across Blackbutt Creek valley.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

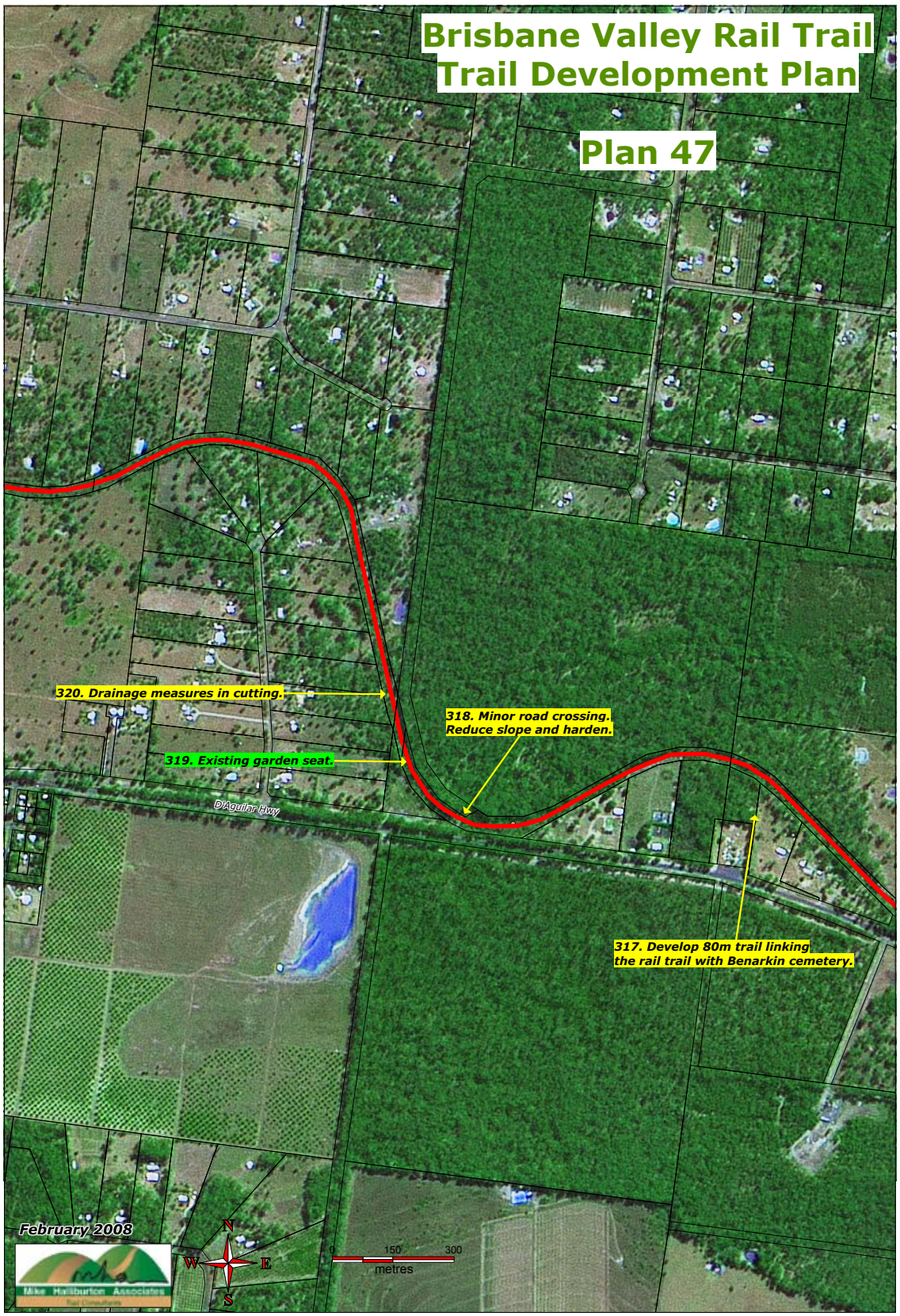

Brisbane Valley Rail Trail
Trail Development Plan
Plan 42
299. Existing locked gate.
300.
301. Creek crossing - Concrete path for 20m on creek approaches and for 10m in creek. Pipes under path.
302. Creek crossing - Concrete path for 15m on creek approaches and for 10m in creek. Pipes under path.
303. The Grove crossing - hardened path (15m) off formation; formed trail surface for 50m; 10m concrete creek crossing; formed trail surface for 15m; hardened path (15m) back to formation.
304. Old working railway gate and existing safety railing.
305. Major gully crossing - Hardened path for 25m on creek approaches and for 20m in creek. Pipes under path. Reduce slope on both sides.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres

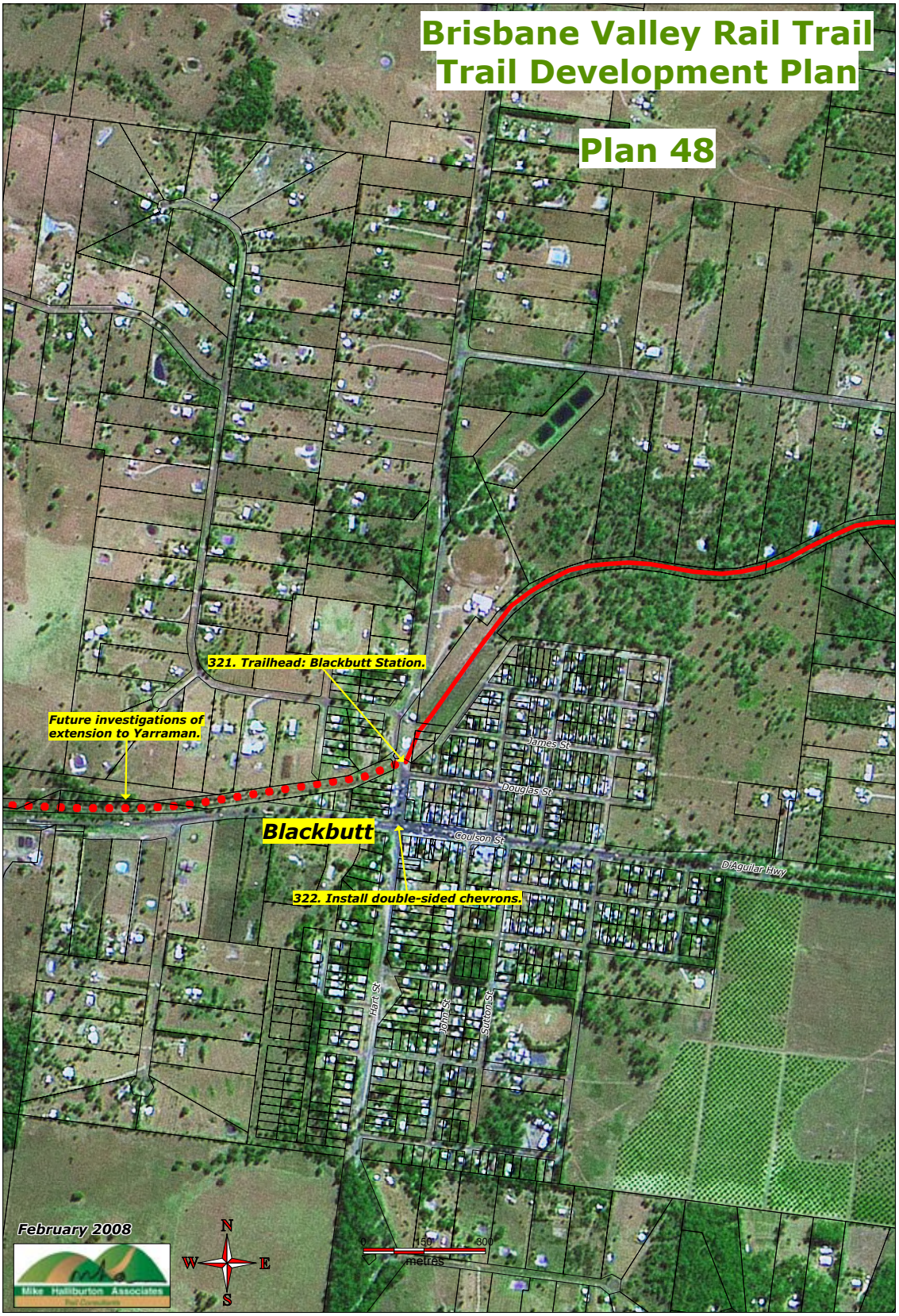

Brisbane Valley Rail Trail
Trail Development Plan
Plan 43
306. Scrape hollow clear.
Harden north-east approach.
Install pipe on north-east side.
307. Existing locked gate.
308. Existing locked gate.
D'Aguilar Hwy
309. Legally and physically
close Blackbutt Creek Road.
310. D'Aguilar Highway underpass.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 44
D'Aguilar Hwy
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 45
D'Aguilar Hwy
311. Major gully crossing - concrete causeway for 15m on gully approaches and 10m in creek. Reduce slope on western entrance.
February 2008
Mike Halliburton Associates
N
W
E
S
0
150
300
metres


Brisbane Valley Rail Trail
Trail Development Plan
Plan 46
314. Develop 360m formal trail. Install 360m fencing along northern side of open paddock.
Benarkin
312.
315. Trailhead: Benarkin Station.
Scott St
313. D'Aguilar Highway underpass.
D'Aguilar Hwy
316. Minor Road crossing. Drainage needs attention (due to removal of overhead bridge).
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 47
320. Drainage measures in cutting.
318. Minor road crossing. Reduce slope and harden.
319. Existing garden seat.
D'Aguilar Hwy
317. Develop 80m trail linking the rail trail with Benarkin cemetery.
February 2008
N
W
E
S
0
150
300
metres
Mike Halliburton Associates


Brisbane Valley Rail Trail
Trail Development Plan
Plan 48
321. Trailhead: Blackbutt Station.
Future investigations of extension to Yarraman.
Blackbutt
322. Install double-sided chevrons.
James St
Douglas St
Coulson St
D'Aguilar Hwy
Hart St
John St
Sutton St
February 2008
N
W
E
S
0
150
600
metres
Mike Halliburton Associates

Appendix 1.
Timeline of the development of the Brisbane Valley Rail Line

1880	• Survey of Brisbane Valley Rail Line (*Queensland Times* 7 Oct 1880, p2)
1881	• Plans approved for Brisbane Valley Junction (Wulkuraka) to Lowood line
1882	• Contract for line to Lowood awarded to O'Rourke & McSharry. Work began in October
1884	• Opening of Brisbane Valley Junction to Lowood (16 June) (i)Wulkuraka, (ii) Muirlea, (iii) Pine Mountain, (iv) Borallon, (v) Wanora, (vi) Fairney View, (vii) Fernvale, (viii) Vernor, (ix) Lowood • Plans approved for extension from Lowood to Esk (5 August) • Contract for line from Lowood to Esk awarded to Henry Brigg • Decrease in wool prices
1886	• Opening of Brisbane Valley Line to Esk (9 Aug) (ix) Lowood, (x) Clarendon, (xi) Coominya, (xii) Cooragook, (xiii) Mt. Hallen, (xiv) Silverwater (xv) Esk
1888	Formation of Queensland Shearers Union
1890	First of many land slips at Vernor
1891	Shearers' Strike with Railway employees deputised as special constables
1893	• Serious flooding in Brisbane Valley destroys Vernor-Lowood Rail line • Queensland National Bank, Bank of North Queensland & Royal Bank of Queensland close in May • Queensland Government agrees to a scheme of reconstruction for Queensland National Bank
1895	• Railway Guarantee Scheme proposed where taxes increased for landowners in benefited areas to cover half the cost of new railways • Plans for extension from Esk to Biarra under Railway Guarantee Scheme were defeated in Parliament (13 November)
1896	• Queensland National Bank again in crisis, state government provided a second reconstruction scheme • Derailment on Esk extension killing 100 head of cattle
1900	• Plans for extension of rail line from Esk to Colinton approved without a contribution from the benefited land owners (December)
1902	• Day labourers commenced work on Esk to Colinton extension (March)
1903	• Rail line reduced in length: Esk to Cressbrook Creek (May) and finally Esk to Moorabool (October)
1904	• Opening of Brisbane Valley Line to Moorabool (8 February) (xv) Esk, (xvi) Newton later Ottaba, (xvii) Cressbrook later Toogoolawah, (xviii) Moorabool then Kannangur later Yimbun
1908	• Plans for extension of Brisbane Valley Line under the Railway Guarantee Scheme from Kannangur to Blackbutt were approved (1 April) • Work on extension commenced by day labour (September)
1909	• Strikes at Railway camp at Kannangur (March)
1910	• Extension of Brisbane Valley Rail Line approved from Blackbutt to Yarraman (December) under Railway Guarantee Scheme but not with contract day labour • Rail line reached Harlin (May) and Mooretown (18 August) • Brisbane Valley Rail Line opened at Linville (22 November)
1911	• Thomas Love & John Macdonald killed and Matthew Ambrosini injured working on Blackbutt Extension (February) • Opening of Brisbane Valley Rail Line to Well Hole (8 May) (xviii) Kannangur, (xix) Harlin, (xx) Nurinda previously Colinton, (xxi) Moore, (xxii) Linville, (xxiii) Well Hole later Blackbutt later Benarkin • Work commenced on final section to Yarraman Creek (11 June)
1912	• General Strike initiated by Tramways Union to which Railway Union joined • Brisbane Valley Rail Line opened to Gilla, opening held at Blackbutt Railway Station (19 December)
1913	• Brisbane Valley Rail Line opened to terminus at Yarraman Creek (1 May) (xxiii) Benarkin (xxiv) Blackbutt, (xxv) Nukku, (xxvi) Gilla, (xxvii) Pidna, (xxviii) Yarraman Creek

Appendix 2.
Testimonials from law enforcement officers

CITY OF
LOUISVILLE
CONSTITUTION TOWN

DEPARTMENT OF SAFETY
DIVISION OF POLICE 330/875-1607

May 13, 1997

Hugh Morris
Rails to Trails Conservancy
1100 Seventeenth St. NW
Washington, DC 20036

Dear Mr. Morris,

I came to Louisville in August of 1991 as the Chief of Police. At that time, the City was completing plans for the conversion of an old railway line to a walking path. I was concerned for the safety of citizens due, in part, to the remote area that was traversed by the line. I strongly encouraged the placement of emergency call boxes along the walkway. The call boxes were never installed.

I am very pleased to report that crime incidents along the walkway are almost nonexistent. I attribute this to several factors. Primarily, the high volume of use by families along this walking path has created a community ownership of the path. Police also regularly patrol the area, but it is unlikely that anyone will travel the path for more than a quarter of a mile without coming into contact with other path users.

The incidents of vandalism over five years has been only two small areas of the asphalt that were spray painted. Those were immediately cleaned up by city crews. It should be noted that the path is also along an area that is a frequent loitering place for juveniles that have little supervision. Still, the criminal complaints along the path are almost zero.

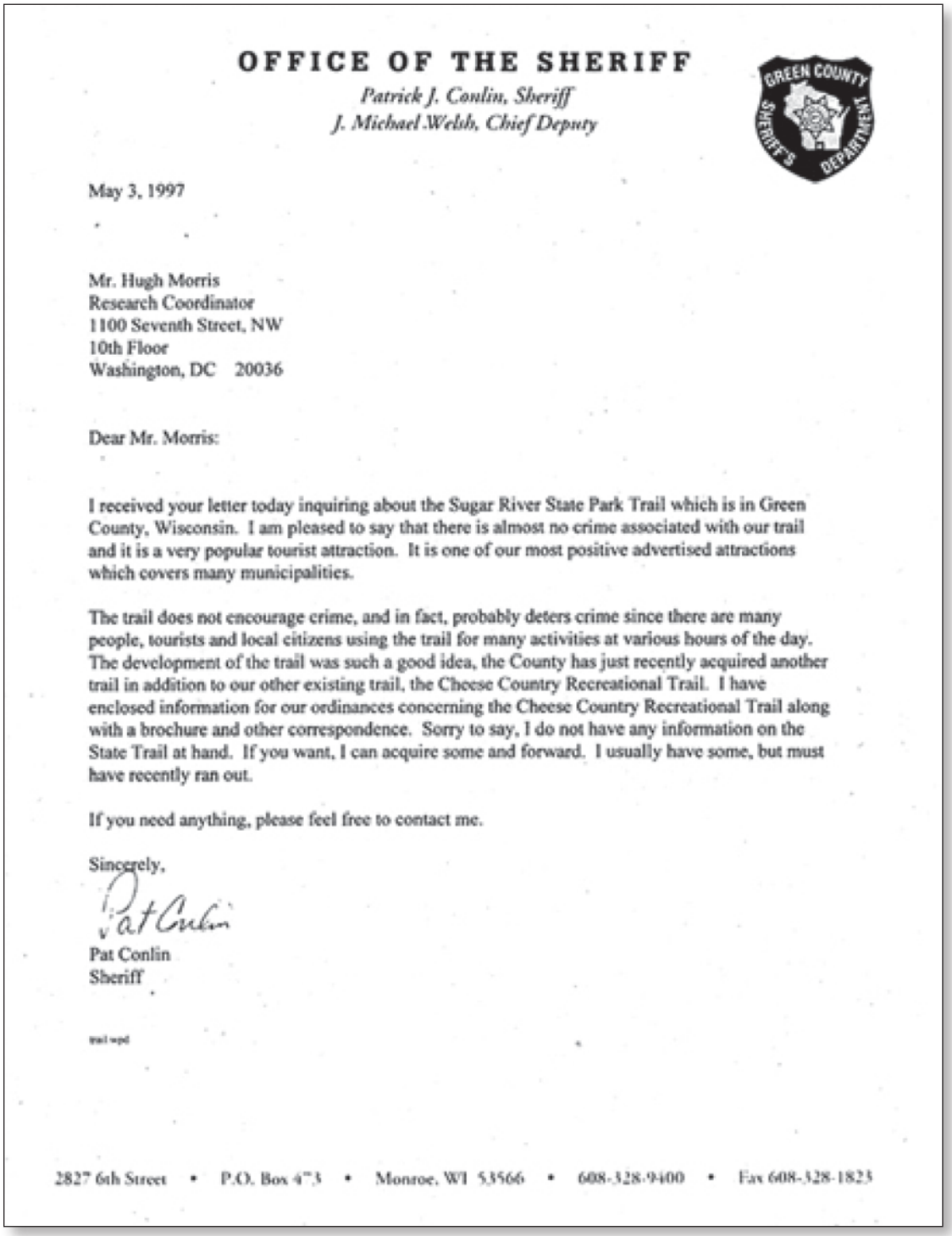
Two weeks ago, my family and I took part in a community clean-up day. My wife, one daughter, and I elected to walk the path to pick up litter. Each of us armed with a large trash bag and work gloves, we started out. By the end of the mile and a half, we had found ONE piece of litter almost too small to have noticed. We did encounter, however, several familes walking and a police patrol car. I can only attribute the cleanliness to the ownership that citizens have taken for this area. I should also note that once you leave the path and continue where the railway line had been, the trash and graffiti are overwhelming.

I hope that you will find this information useful. If I can be of further assistance, please do not hesitate to call upon me.

Sincerely,

Ross L. Riggs
Chief of Police

215 South Mill Street • Louisville, Ohio 44641 • Fax 330/875-1820



OFFICE OF THE SHERIFF

Patrick J. Conlin, Sheriff
J. Michael Welsh, Chief Deputy

GREEN COUNTY SHERIFF'S DEPARTMENT

May 3, 1997

Mr. Hugh Morris
Research Coordinator
1100 Seventh Street, NW
10th Floor
Washington, DC 20036

Dear Mr. Morris:

I received your letter today inquiring about the Sugar River State Park Trail which is in Green County, Wisconsin. I am pleased to say that there is almost no crime associated with our trail and it is a very popular tourist attraction. It is one of our most positive advertised attractions which covers many municipalities.

The trail does not encourage crime, and in fact, probably deters crime since there are many people, tourists and local citizens using the trail for many activities at various hours of the day. The development of the trail was such a good idea, the County has just recently acquired another trail in addition to our other existing trail, the Cheese Country Recreational Trail. I have enclosed information for our ordinances concerning the Cheese Country Recreational Trail along with a brochure and other correspondence. Sorry to say, I do not have any information on the State Trail at hand. If you want, I can acquire some and forward. I usually have some, but must have recently ran out.

If you need anything, please feel free to contact me.

Sincerely,

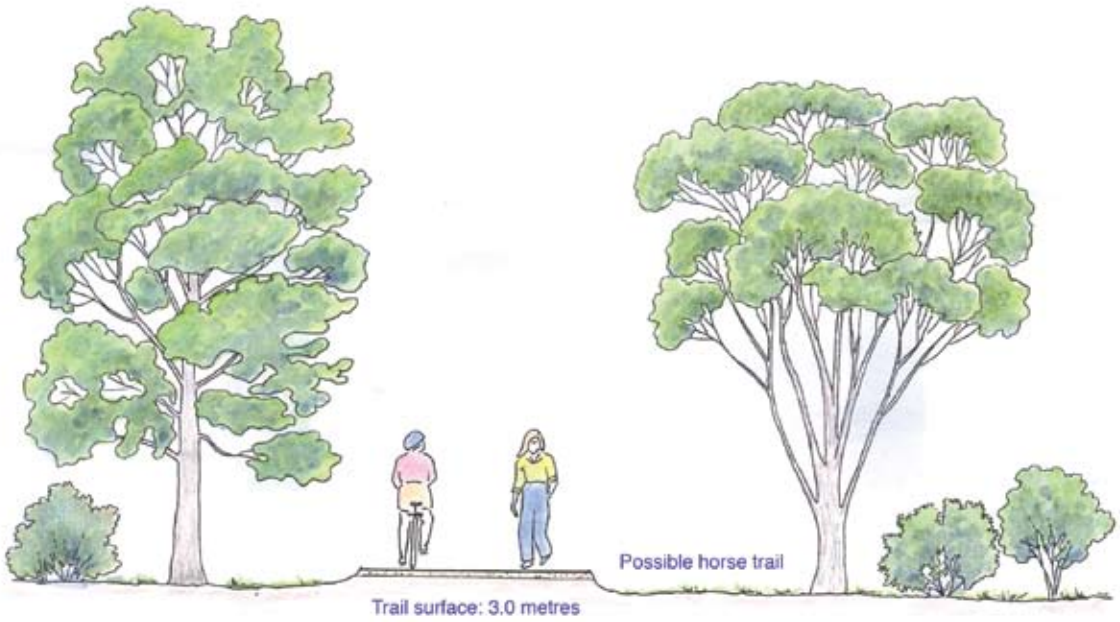
Pat Conlin

Pat Conlin
Sheriff

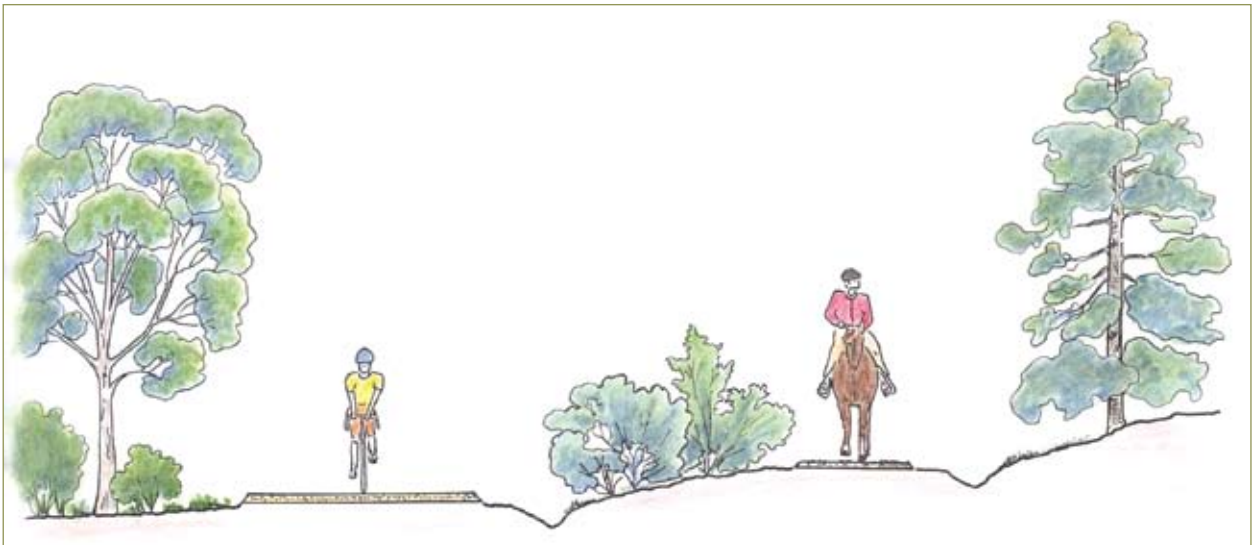
trail wpd

2827 6th Street • P.O. Box 473 • Monroe, WI 53566 • 608-328-9400 • Fax 608-328-1823

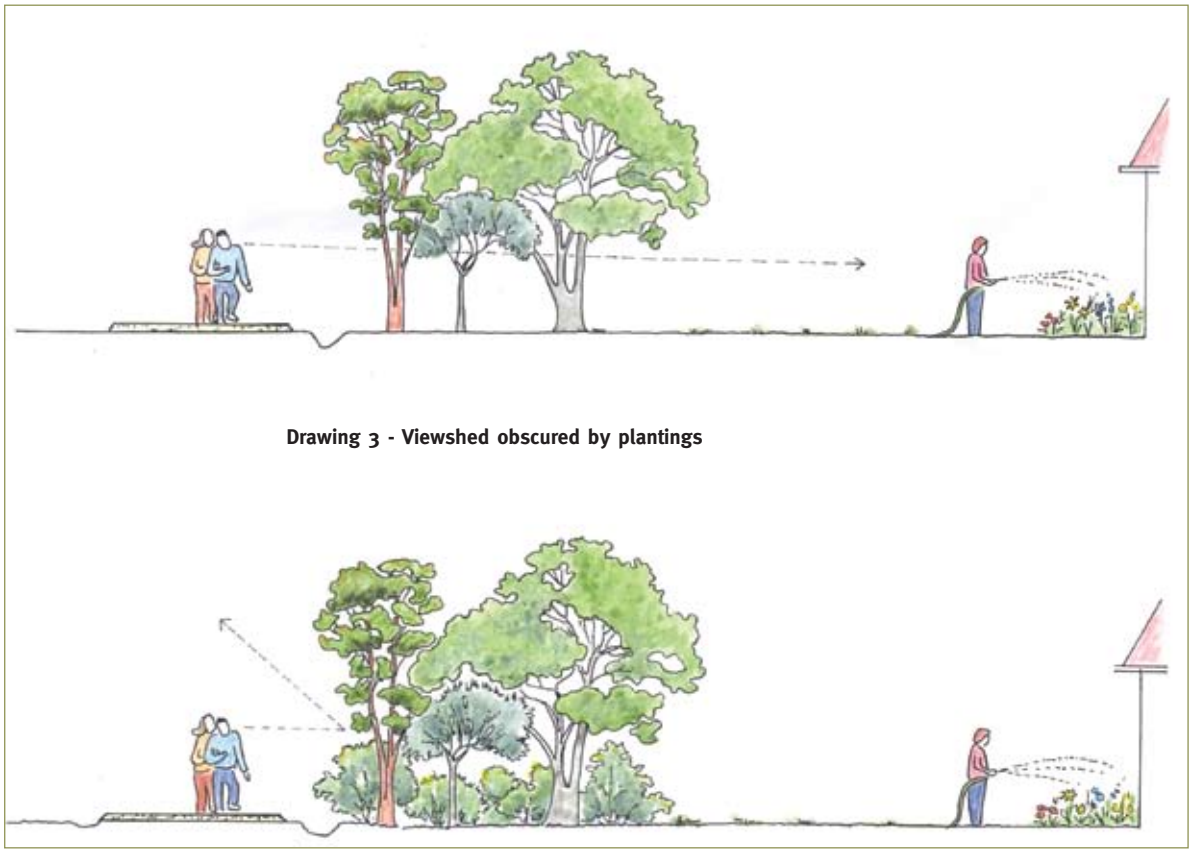
Appendix 3.
Drawings and artists impressions



Drawing 1 - Typical cross section

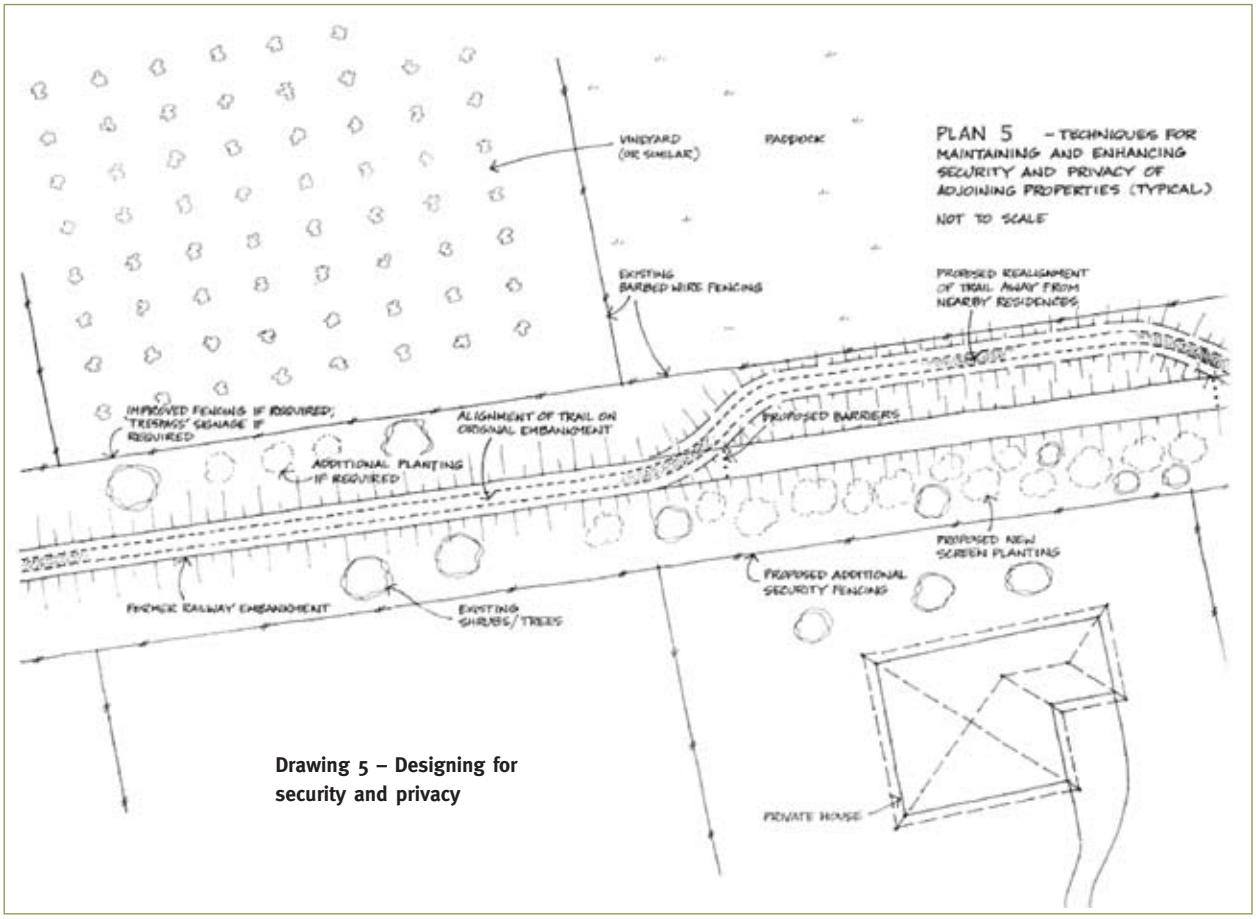


Drawing 2 - Cross section with horse trail

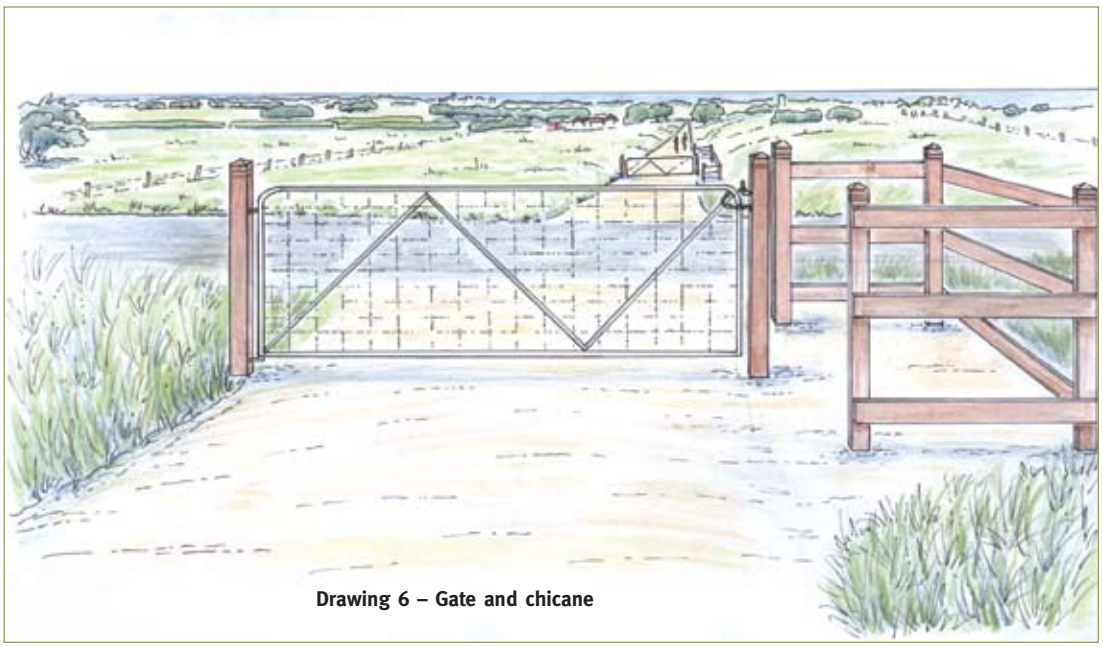


Drawing 3 - Viewshed obscured by plantings

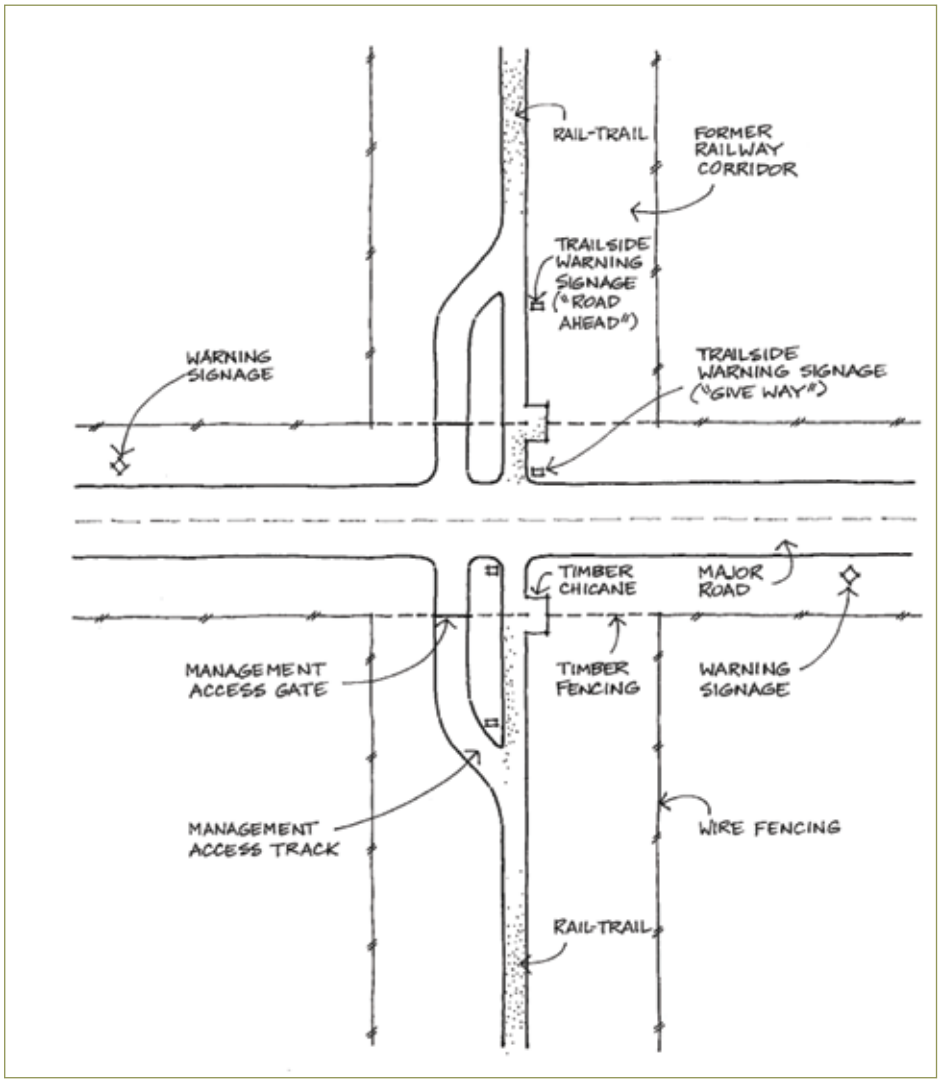
Drawing 4 - Typical scene through grazing land with relocated fencing



Drawing 5 – Designing for security and privacy

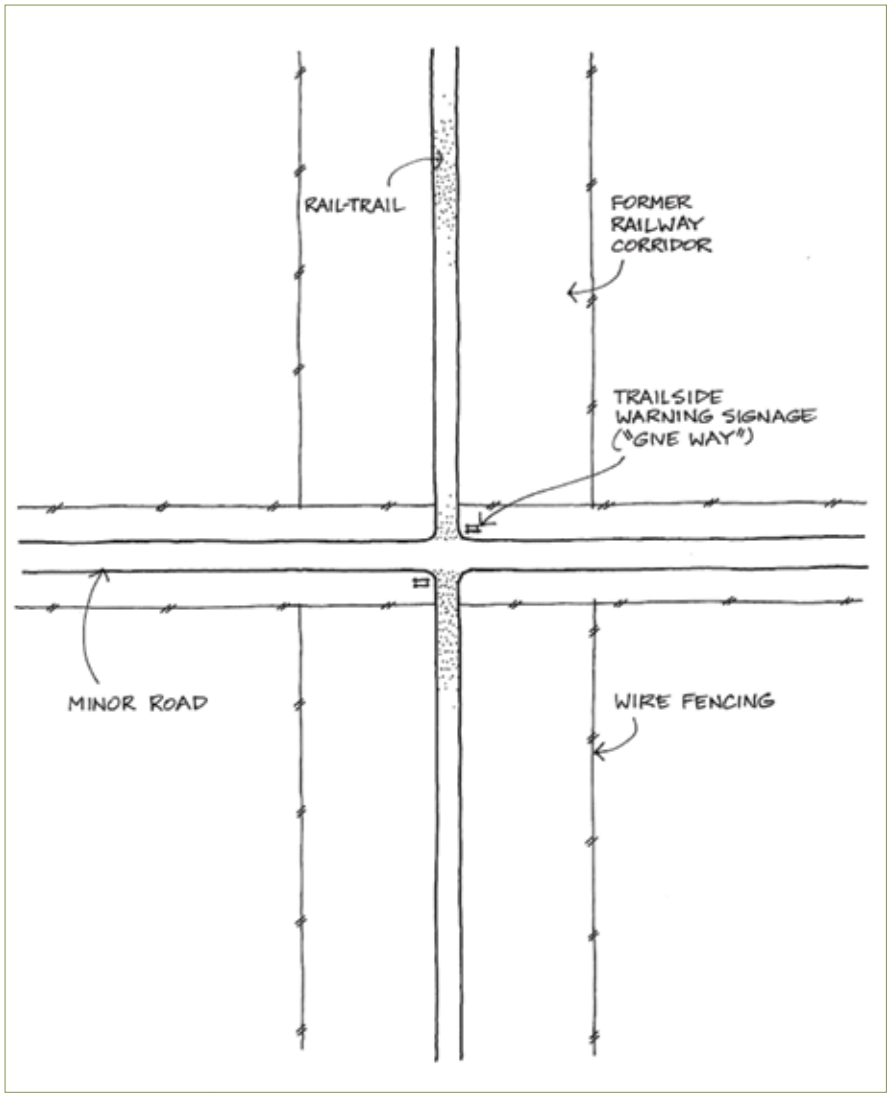


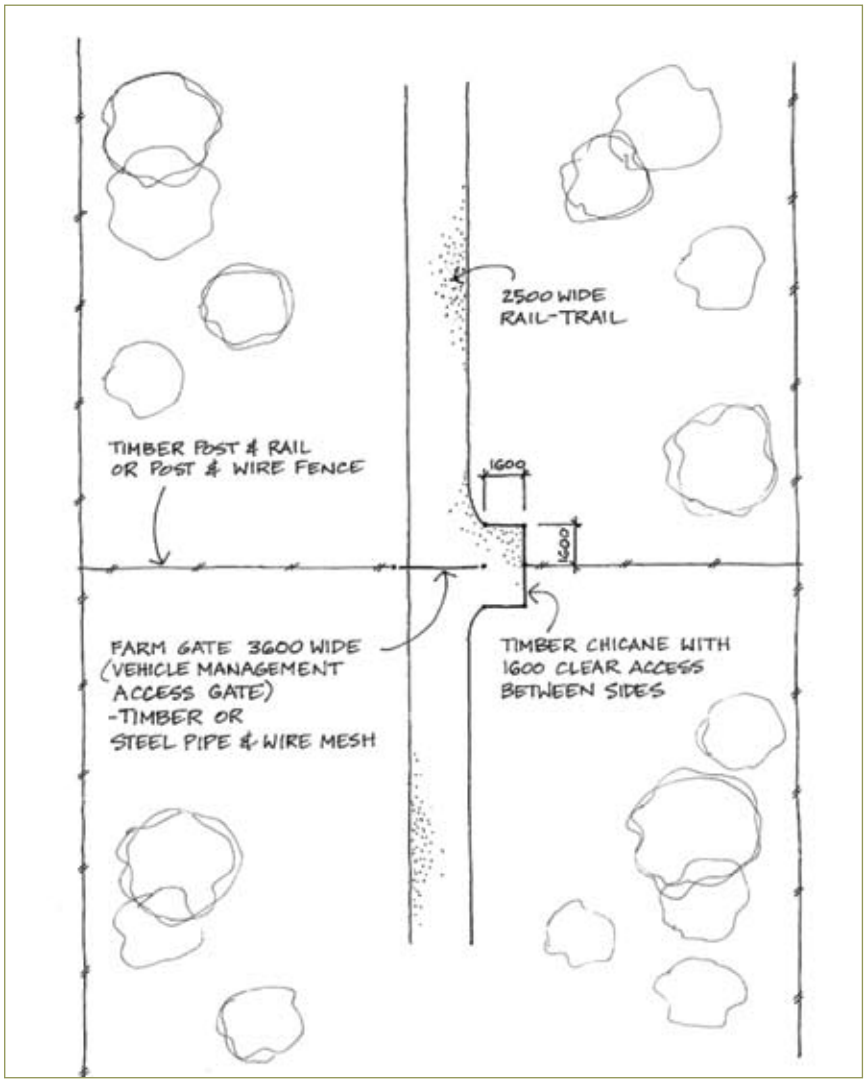
Drawing 6 – Gate and chicane



Drawing 7 – Major road crossing

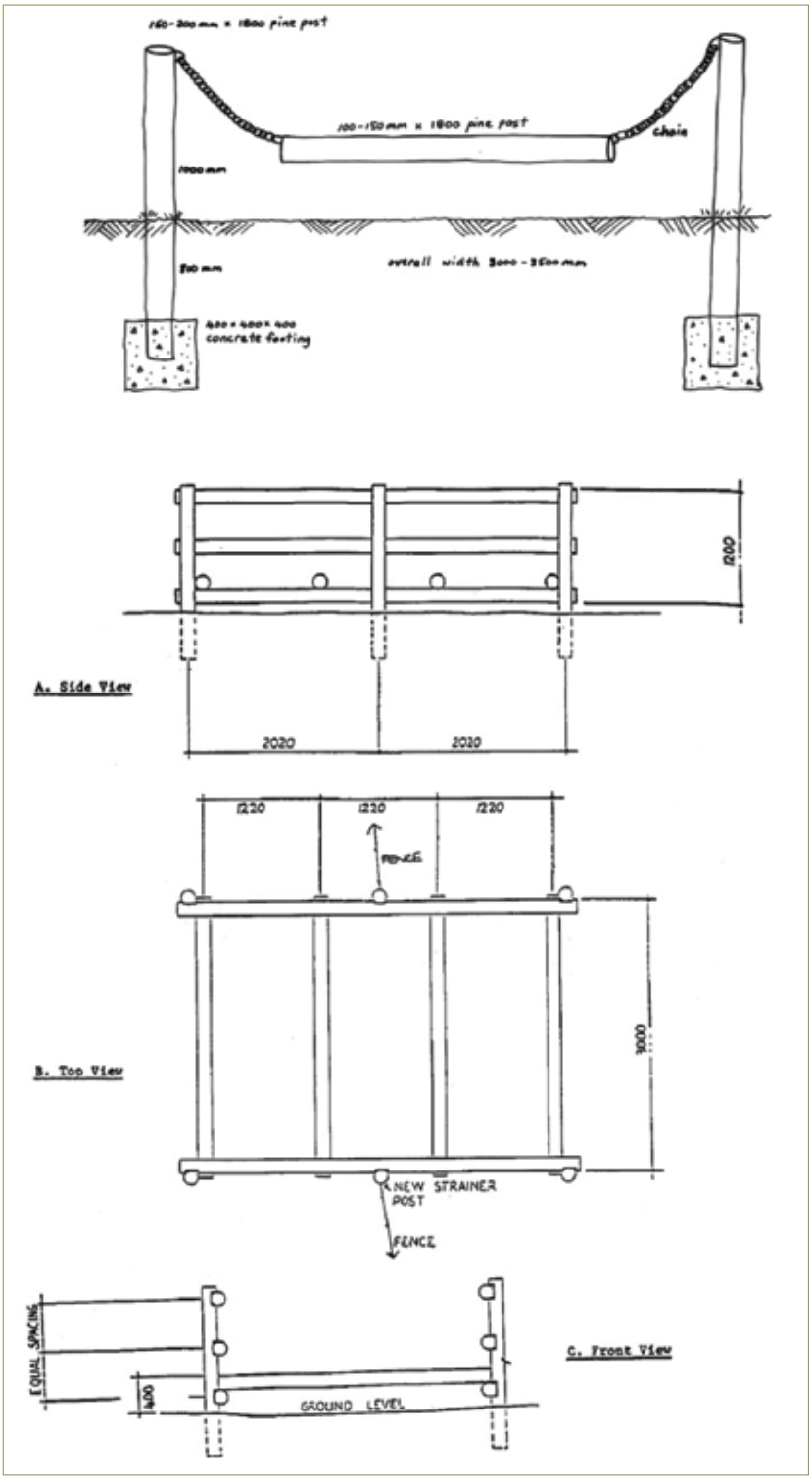
Drawing 8 – Minor road crossing



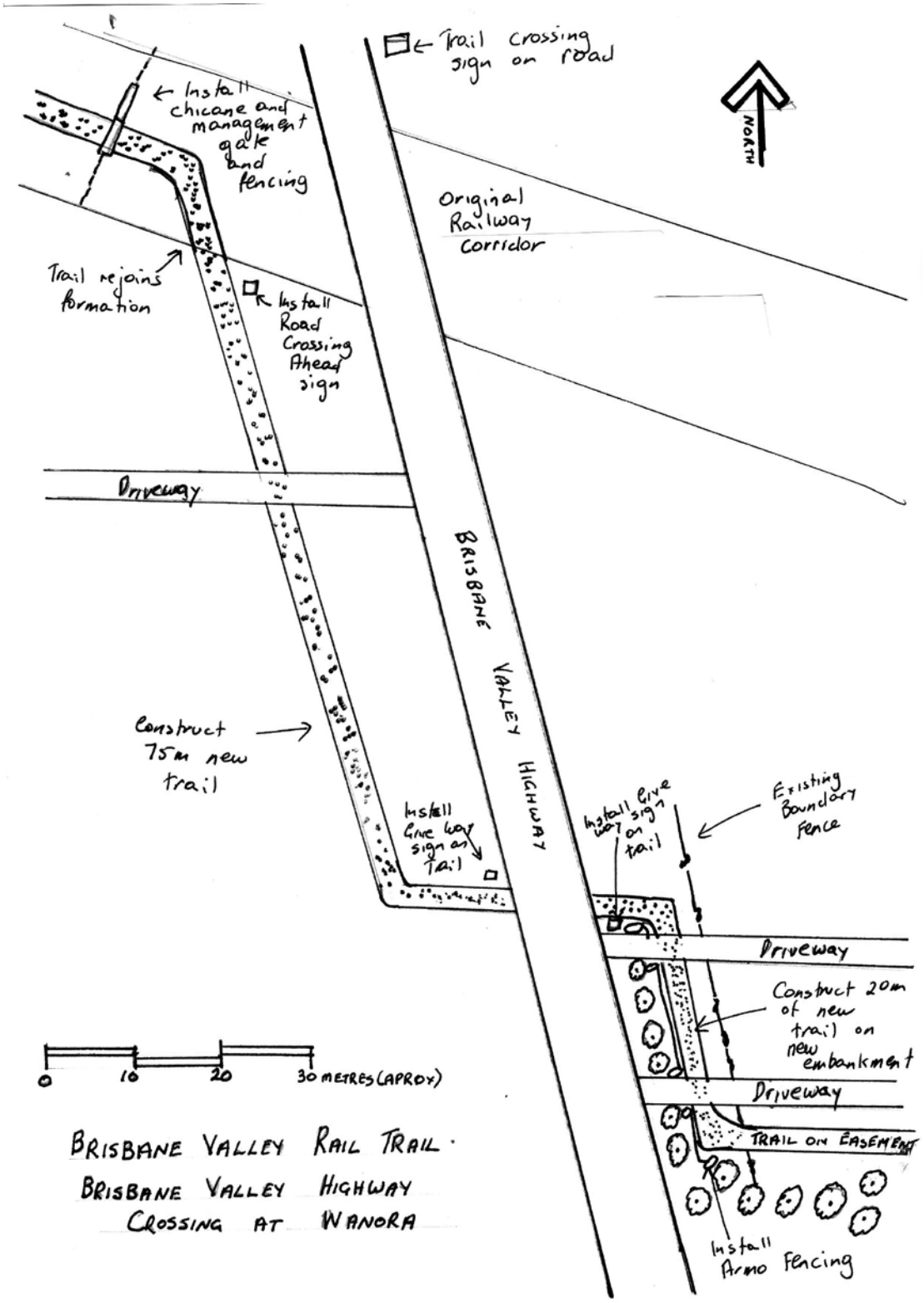


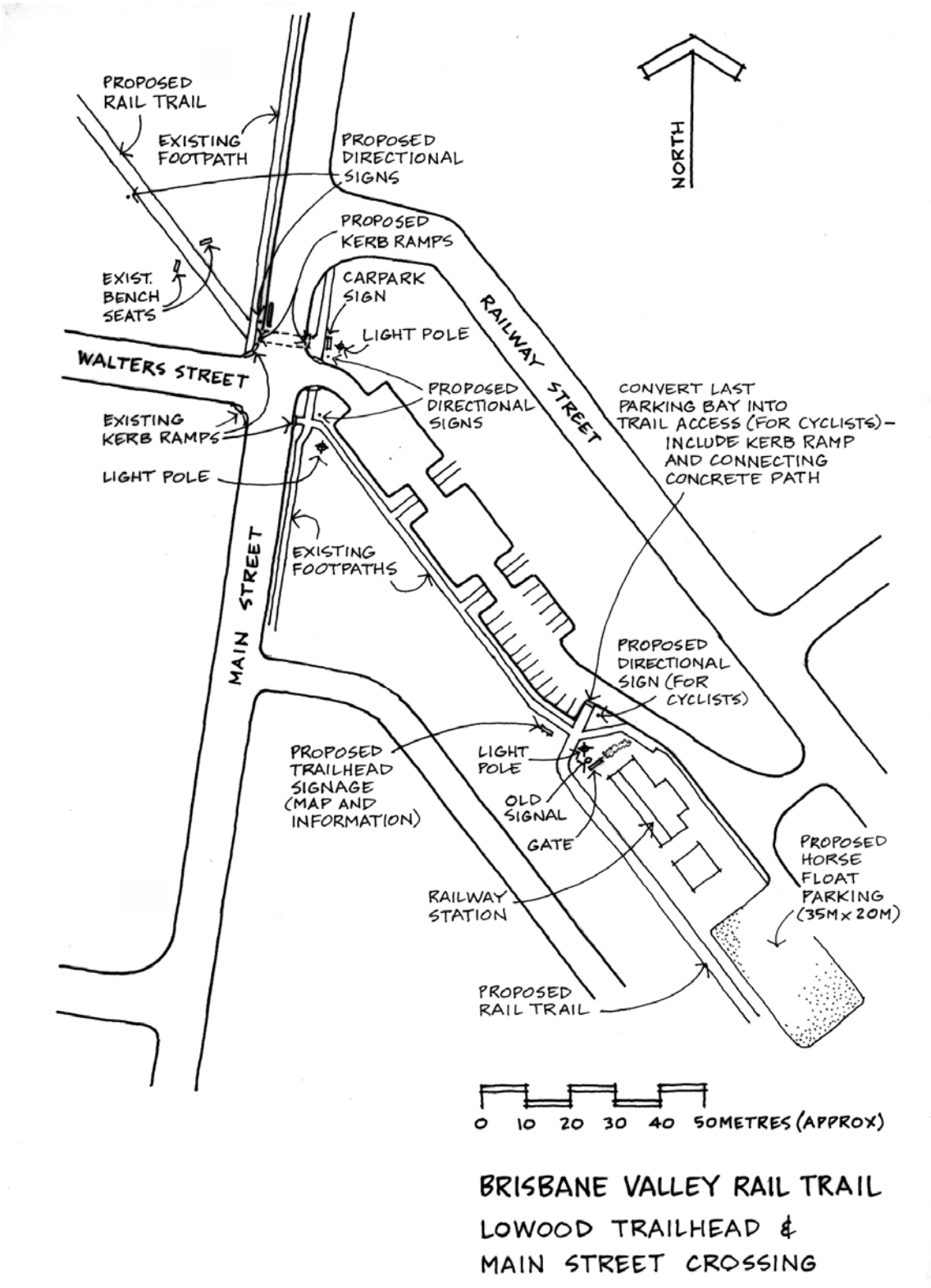
Drawing 9 – Plan view gate and chicane

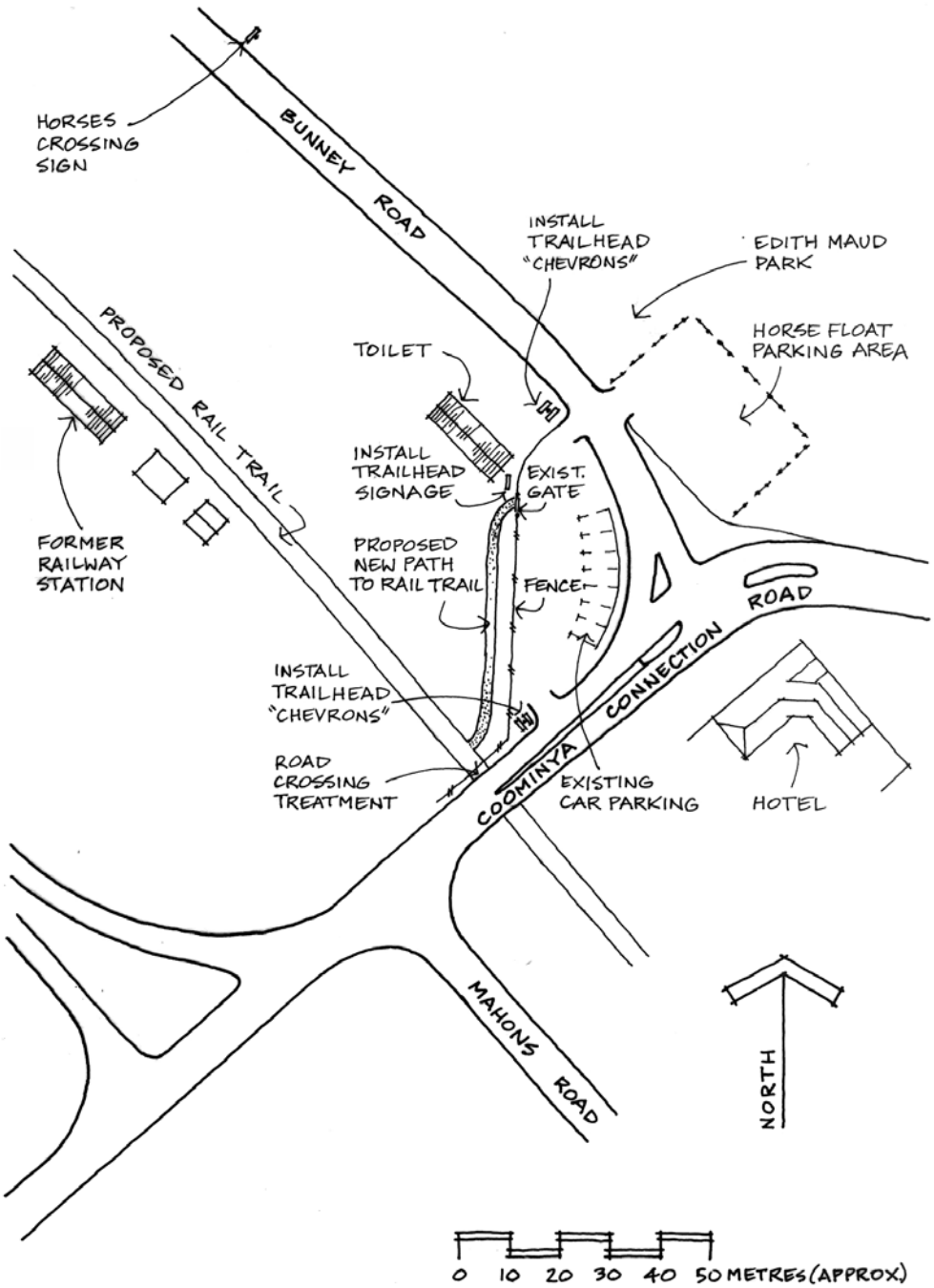
Drawing 10 – 'Cavalette' gates



Appendix 4.
Trail-head and road crossing designs



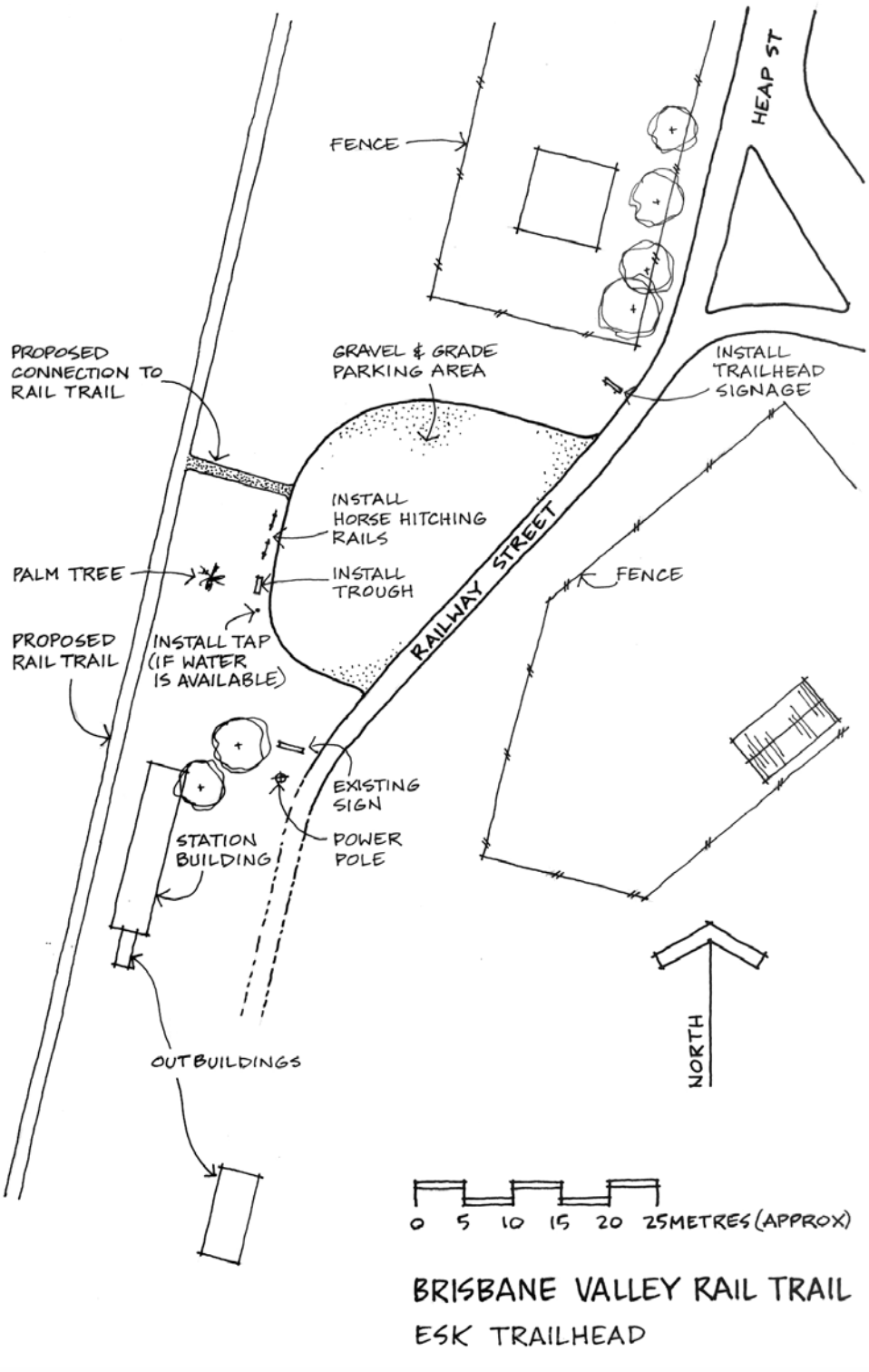

PROPOSED RAIL TRAIL
EXISTING FOOTPATH
PROPOSED DIRECTIONAL SIGNS
NORTH
PROPOSED KERB RAMPS
EXIST. BENCH SEATS
CARPARK SIGN
LIGHT POLE
RAILWAY STREET
WALTERS STREET
PROPOSED DIRECTIONAL SIGNS
CONVERT LAST PARKING BAY INTO TRAIL ACCESS (FOR CYCLISTS) – INCLUDE KERB RAMP AND CONNECTING CONCRETE PATH
EXISTING KERB RAMPS
LIGHT POLE
MAIN STREET
EXISTING FOOTPATHS
PROPOSED DIRECTIONAL SIGN (FOR CYCLISTS)
PROPOSED TRAILHEAD SIGNAGE (MAP AND INFORMATION)
LIGHT POLE
OLD SIGNAL
GATE
PROPOSED HORSE FLOAT PARKING (35M x 20M)
RAILWAY STATION
PROPOSED RAIL TRAIL
0 10 20 30 40 50METRES (APPROX)
BRISBANE VALLEY RAIL TRAIL
LOWOOD TRAILHEAD &
MAIN STREET CROSSING

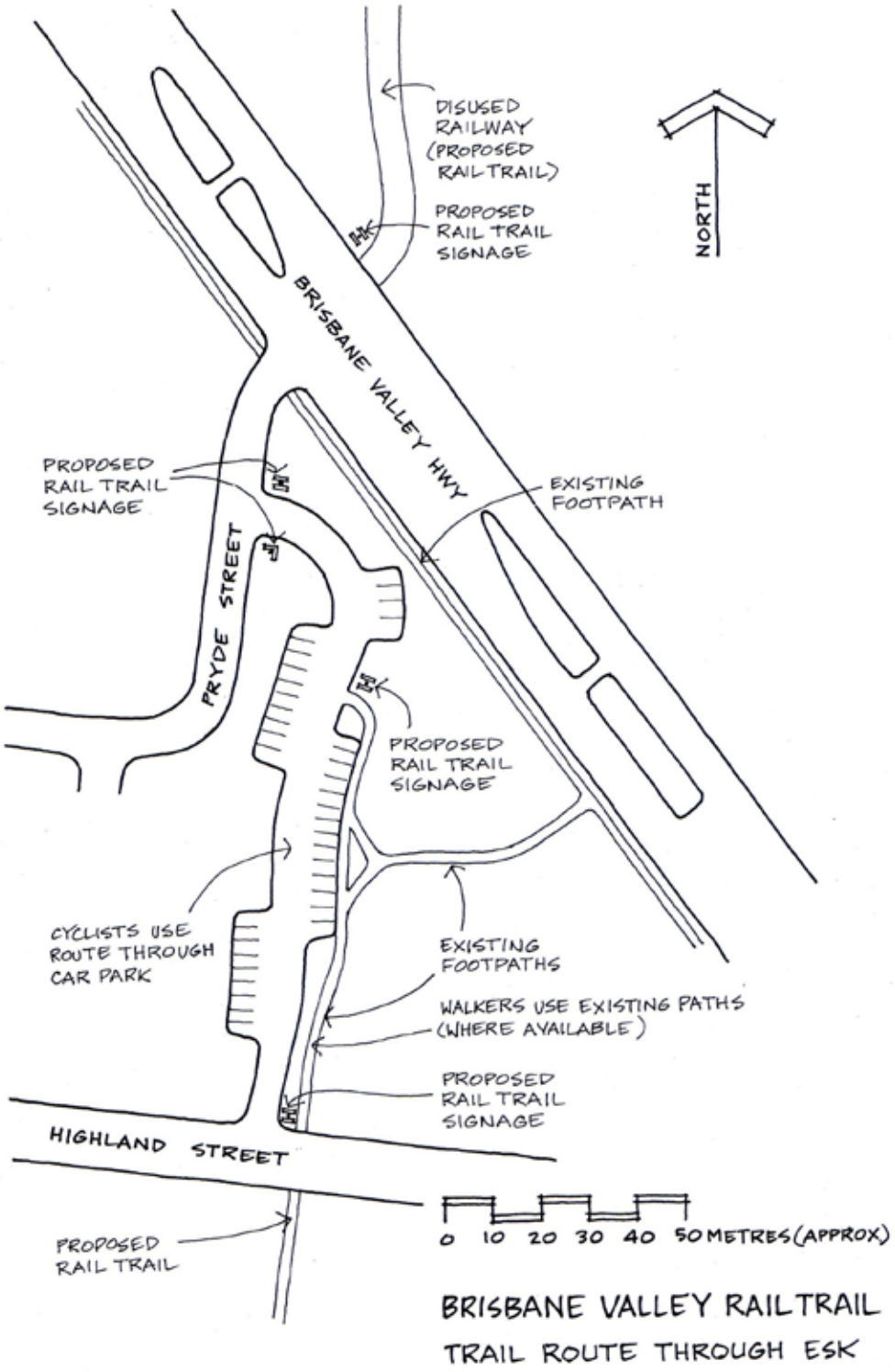


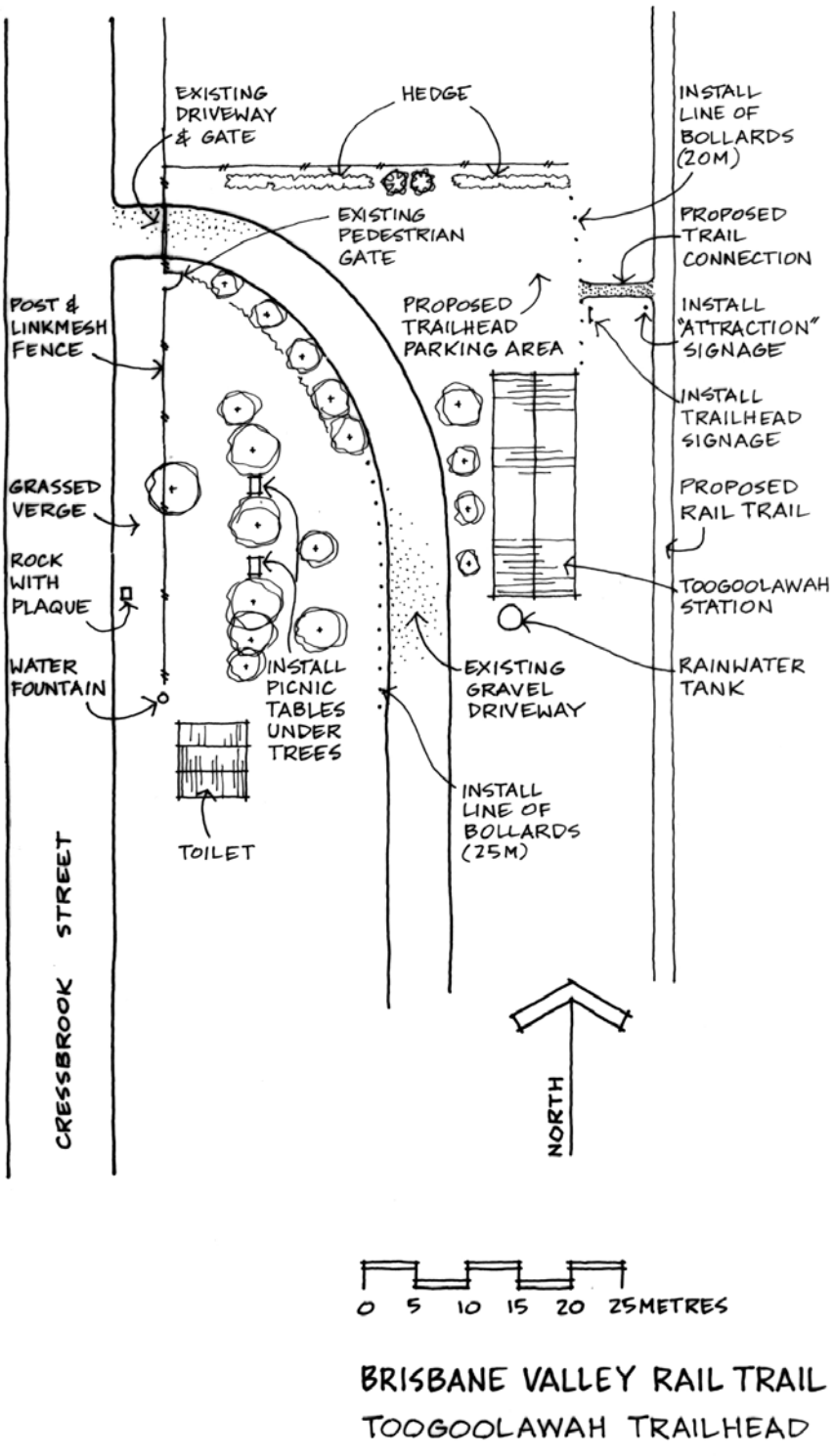
BRISBANE VALLEY RAIL TRAIL

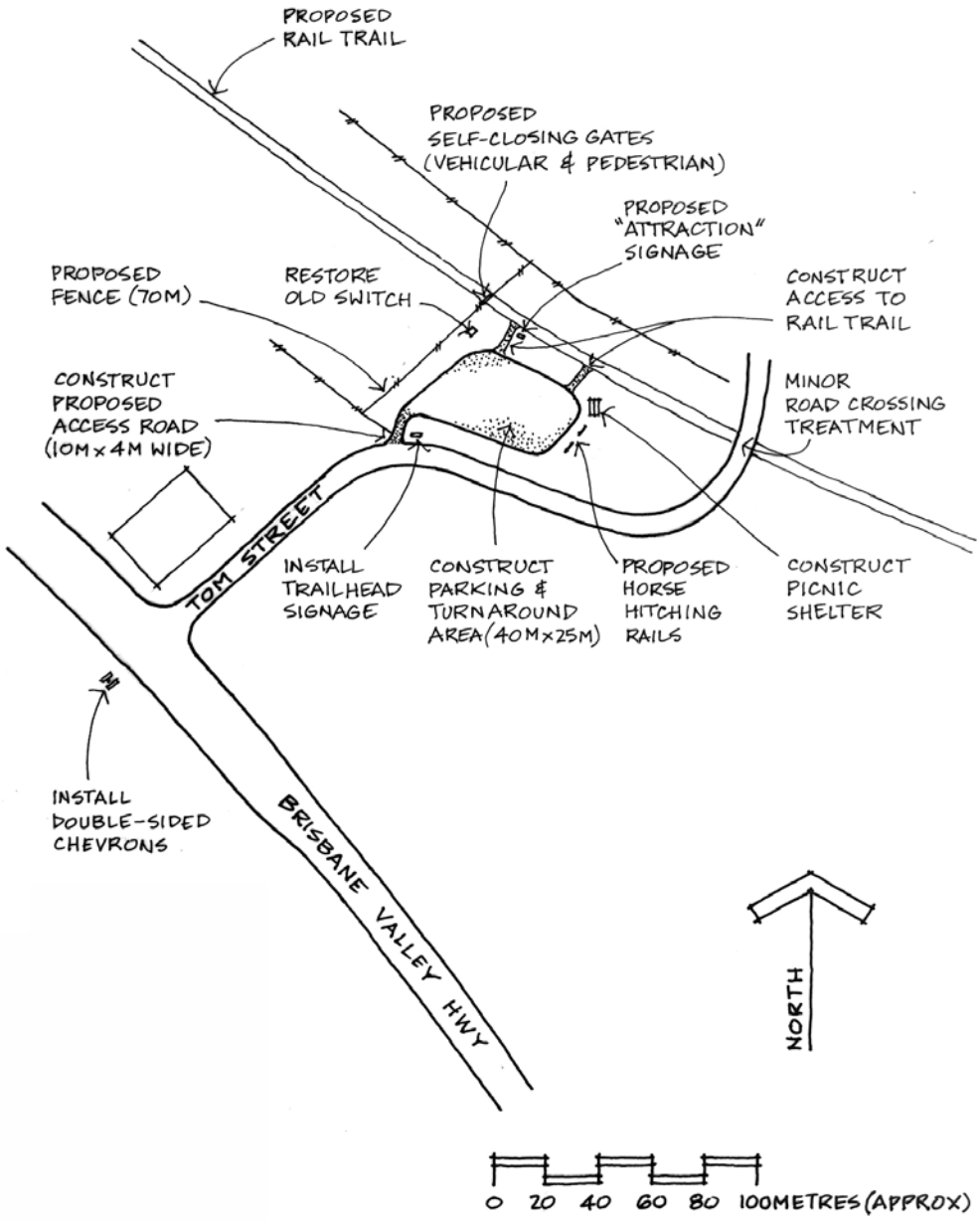
COOMINYA TRAILHEAD

Appendix 4. Trail-head and road crossing designs



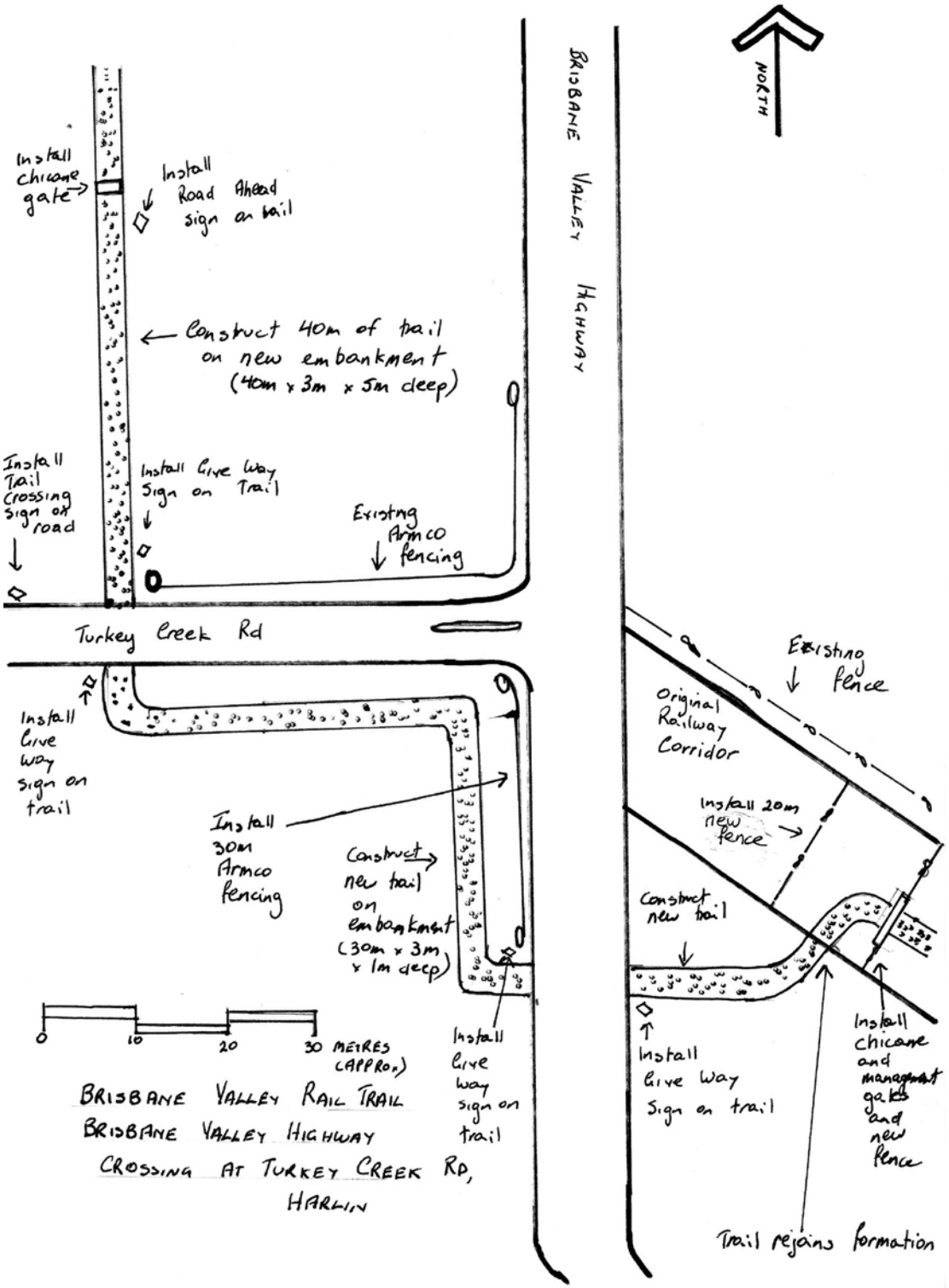

DISUSED RAILWAY (PROPOSED RAIL TRAIL)
PROPOSED RAIL TRAIL SIGNAGE
NORTH
BRISBANE VALLEY HWY
PROPOSED RAIL TRAIL SIGNAGE
EXISTING FOOTPATH
PRYDE STREET
PROPOSED RAIL TRAIL SIGNAGE
CYCLISTS USE ROUTE THROUGH CAR PARK
EXISTING FOOTPATHS
WALKERS USE EXISTING PATHS (WHERE AVAILABLE)
PROPOSED RAIL TRAIL SIGNAGE
HIGHLAND STREET
PROPOSED RAIL TRAIL
0 10 20 30 40 50 METRES (APPROX)
BRISBANE VALLEY RAIL TRAIL
TRAIL ROUTE THROUGH ESK

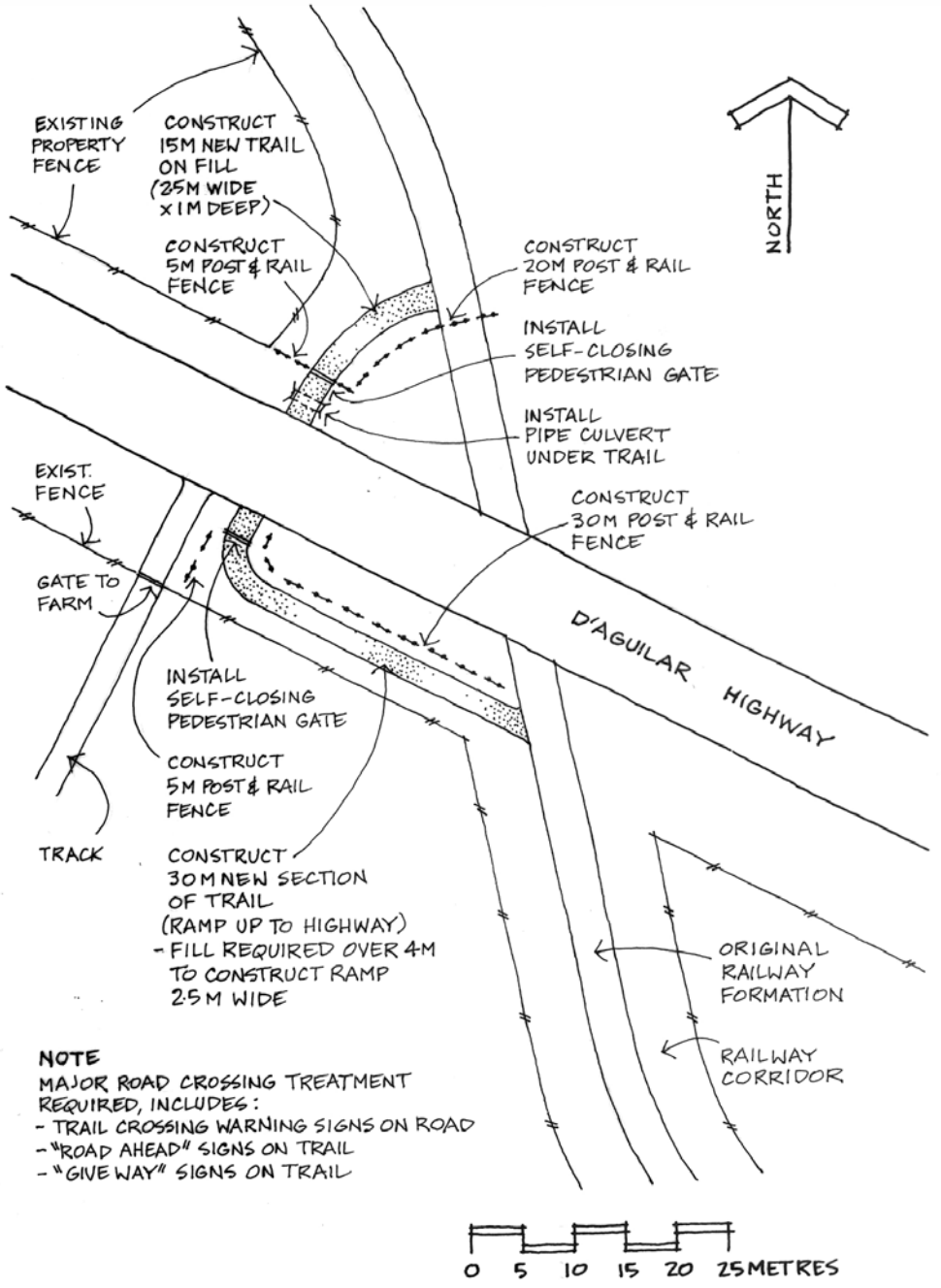

EXISTING DRIVEWAY & GATE
HEDGE
INSTALL LINE OF BOLLARDS (20M)
EXISTING PEDESTRIAN GATE
PROPOSED TRAIL CONNECTION
PROPOSED TRAILHEAD PARKING AREA
INSTALL "ATTRACTION" SIGNAGE
POST & LINKMESH FENCE
INSTALL TRAILHEAD SIGNAGE
GRASSED VERGE
PROPOSED RAIL TRAIL
ROCK WITH PLAQUE
TOOGOOLAWAH STATION
WATER FOUNTAIN
INSTALL PICNIC TABLES UNDER TREES
EXISTING GRAVEL DRIVEWAY
RAINWATER TANK
INSTALL LINE OF BOLLARDS (25M)
TOILET
CRESSBROOK STREET
NORTH
0 5 10 15 20 25METRES
BRISBANE VALLEY RAIL TRAIL
TOOGOOLAWAH TRAILHEAD



BRISBANE VALLEY RAIL TRAIL

HARLIN TRAILHEAD

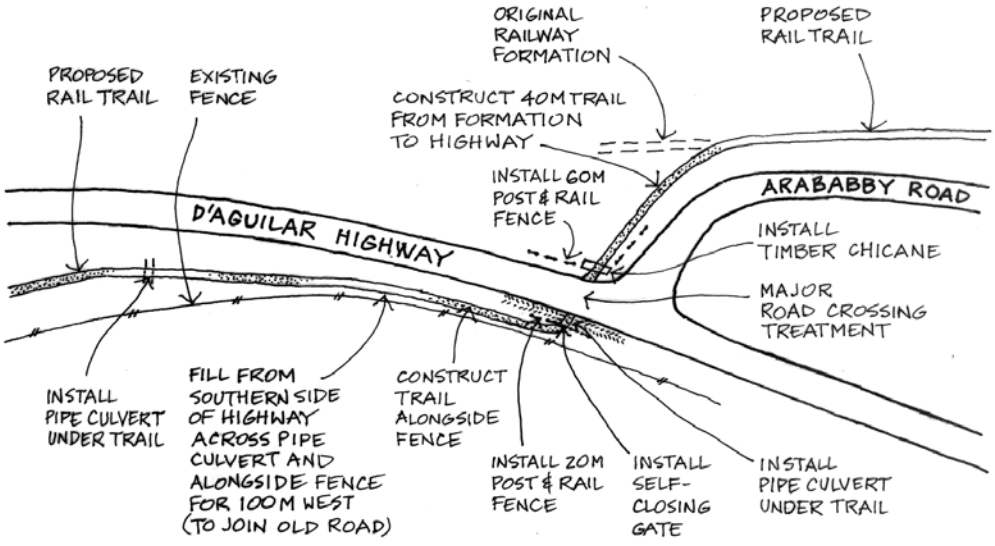

NORTH
BRISBANE VALLEY HIGHWAY
Install chicane gate
Install Road Ahead sign on trail
Construct 40m of trail on new embankment (40m x 3m x 5m deep)
Install Trail Crossing Sign on road
Install Give Way Sign on Trail
Existing Armco fencing
Turkey Creek Rd
Install Give way sign on trail
Install 30m Armco fencing
Construct new trail on embankment (30m x 3m x 1m deep)
Install Give way sign on trail
0 10 20 30 METRES (APPROX)
BRISBANE VALLEY RAIL TRAIL
BRISBANE VALLEY HIGHWAY
CROSSING AT TURKEY CREEK RD, HARLIN
Existing fence
Original Railway Corridor
Install 20m new fence
Construct new trail
Install Give way Sign on trail
Install chicane and management gates and new fence
Trail rejoins formation

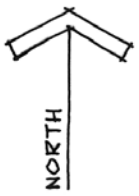


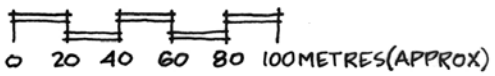
BRISBANE VALLEY RAIL TRAIL

D'AGUILAR HWY CROSSING

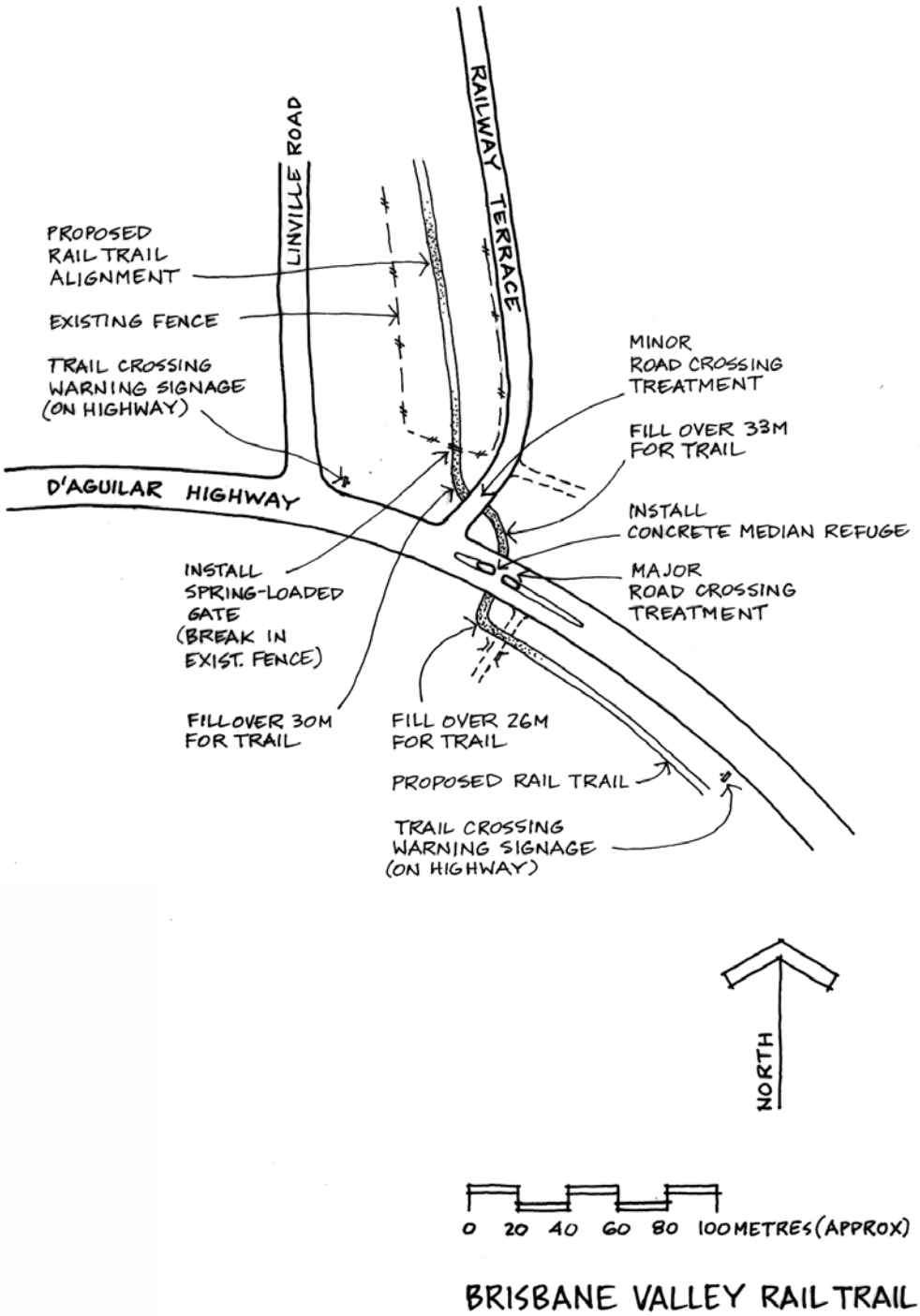
(WEST OF BRISBANE VALLEY HWY)





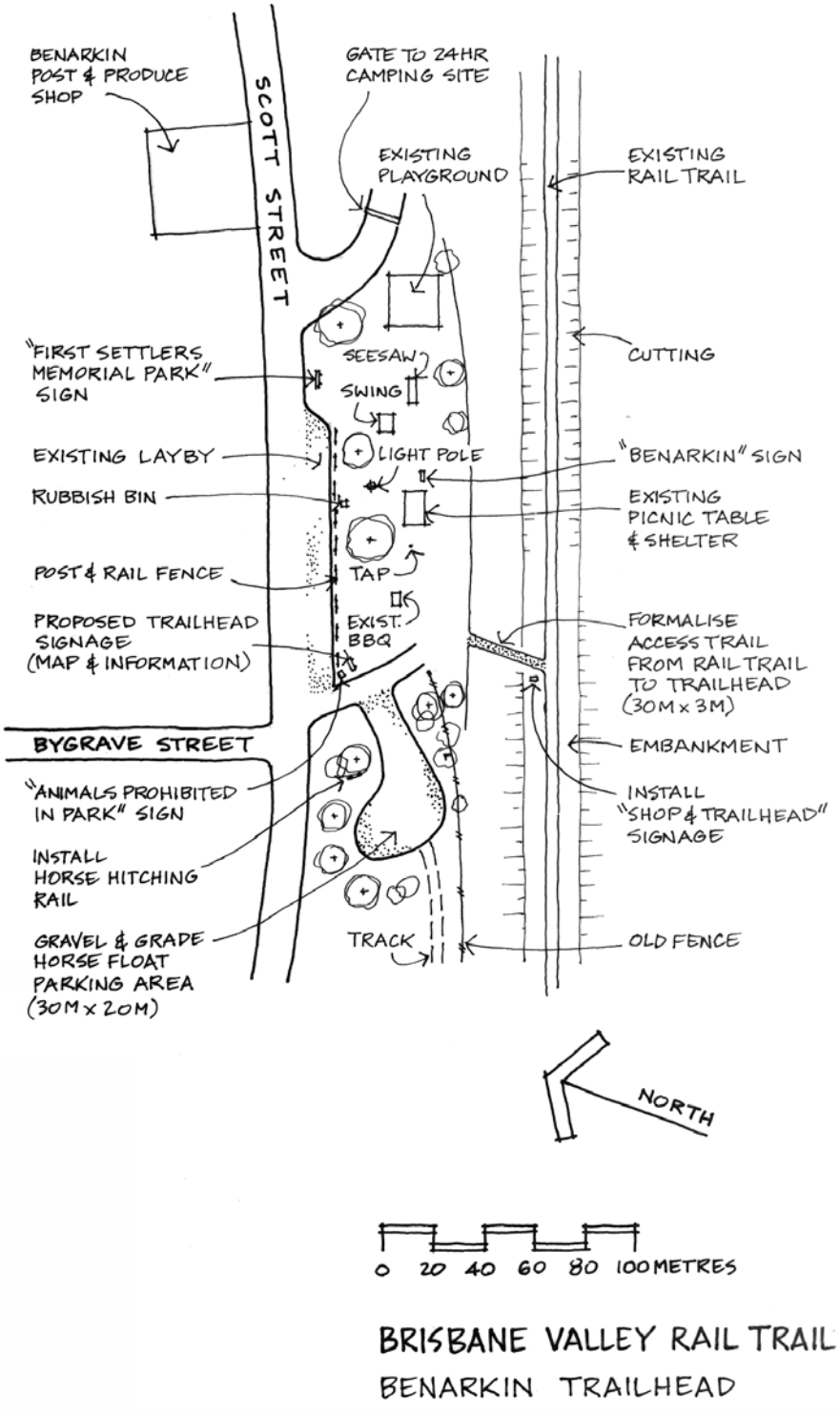


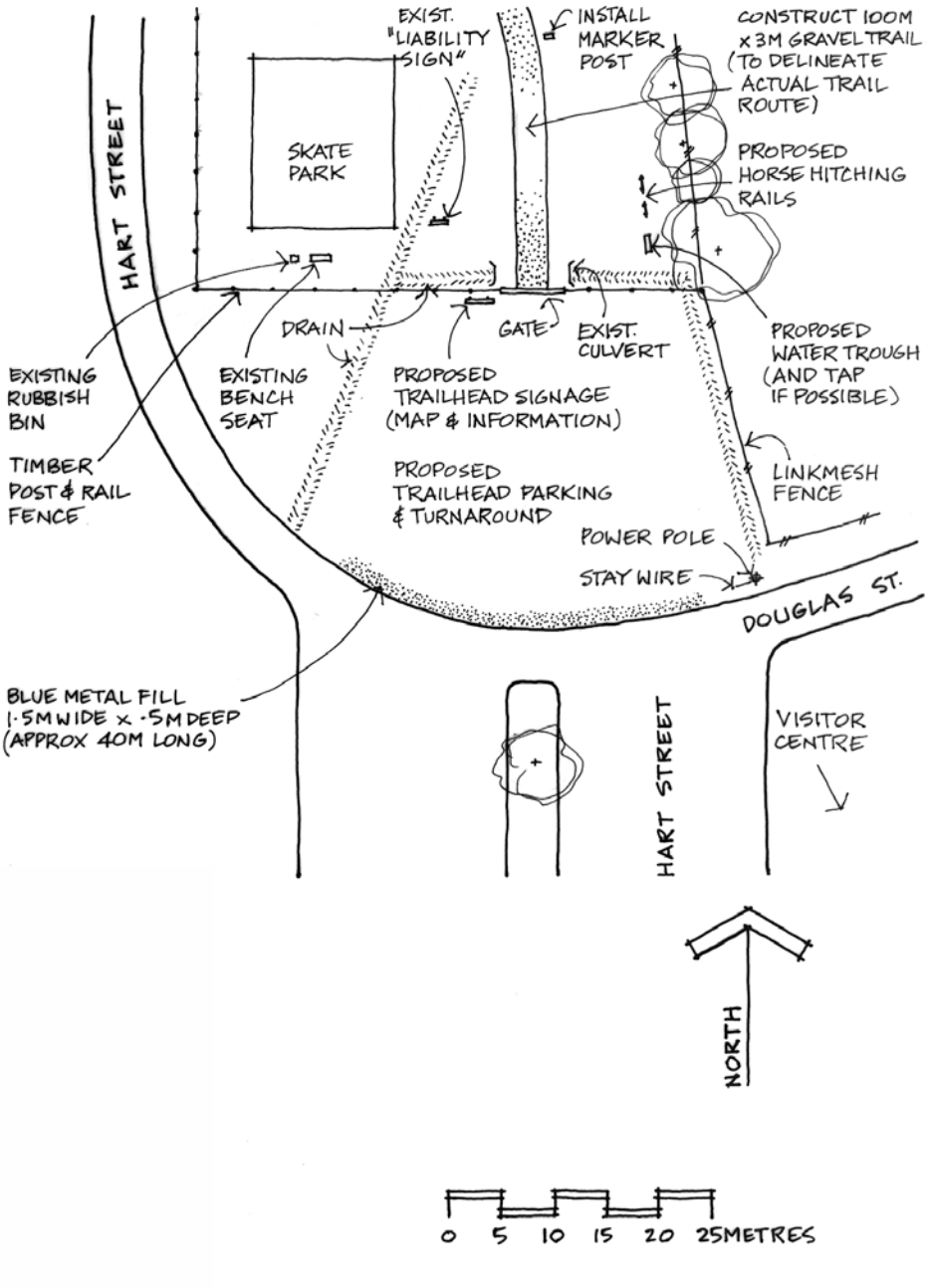
BRISBANE VALLEY RAIL TRAIL
D'AGUILAR HWY CROSSING
(EAST OF MOORE)



BRISBANE VALLEY RAIL TRAIL

D'AGUILAR HWY CROSSING AT MOORE


BENARKIN POST & PRODUCE SHOP
SCOTT STREET
GATE TO 24HR CAMPING SITE
EXISTING PLAYGROUND
EXISTING RAIL TRAIL
CUTTING
"FIRST SETTLERS MEMORIAL PARK" SIGN
SEESAW
SWING
EXISTING LAYBY
LIGHT POLE
"BENARKIN" SIGN
RUBBISH BIN
EXISTING PICNIC TABLE & SHELTER
POST & RAIL FENCE
TAP
PROPOSED TRAILHEAD SIGNAGE (MAP & INFORMATION)
EXIST. BBQ
FORMALISE ACCESS TRAIL FROM RAIL TRAIL TO TRAILHEAD (30M x 3M)
BYGRAVE STREET
EMBANKMENT
"ANIMALS PROHIBITED IN PARK" SIGN
INSTALL "SHOP & TRAILHEAD" SIGNAGE
INSTALL HORSE HITCHING RAIL
GRAVEL & GRADE HORSE FLOAT PARKING AREA (30M x 20M)
TRACK
OLD FENCE
NORTH
0 20 40 60 80 100 METRES
BRISBANE VALLEY RAIL TRAIL
BENARKIN TRAILHEAD



BRISBANE VALLEY RAIL TRAIL

BLACKBUTT TRAILHEAD

Appendix 5.
Interpretive signage (methodology for story selection)

METHODOLOGY FOR DETERMINING STORIES FOR INCLUSION ON THE BRISBANE VALLEY RAIL TRAIL

Following research on the range of stories available, a matrix was developed to include proposed location, content and illustration of all the signs that satisfied the six conditions for effective signage outlined by Ballantyne, Hughes and Moscado (2002). An example of the analysis of one sign developed for Linville and titled "To see the Sea" is described below. The developed sign is included in the plan.

Sign no	Title	Location	Content	Photos	Issues/themes
21a	To See the Sea	Linville	The decision to extend the Brisbane Valley line to Blackbutt was taken on the government yacht S.S. Lucinda in January 1907. When the rail line reached Linville, the Member for Stanley (H.P. Somerset M.L.A.) suggested a family outing as a celebration instead of the usual formal dinner. Many of the children in the district had never seen the sea. He arranged that they would spend the day on S.S. Lucinda. The excursion was not cheap, costing five shillings and six pence for a return ticket. The train left Linville station early on 22 November 1910 and started its return journey from Pinkenba at dusk. This was the only opening of any station on the Brisbane Valley Line where the children were the primary focus of the occasion.	SS Lucinda Opening Linville Railway Station	Railway History celebration of achievement Family Excursion Children (home & hearth) Politics (living legend, unique)

A single 9 x 3 matrix has been developed incorporating both the 'local legends' on the horizontal axis and the context in which they have earned their fame on the vertical axis (see below).

Characters (Local Legends)

	Iconic	Unique	Representative
Context			
Early Land Usage **1. Exploration**			
2. Pioneers/Natural Resources			
Settlement **3. Hearth & Home**			
Separation & State development **4. Road/Rail**			
5. Education			
6. Business/Industry			
7. State/Local Governance			
Federation & Modern times **8. National stage**			
9. International stage			

Using the previous example of a sign entitled "To See the Sea", it is clear that this story describes a unique, family oriented response by a politician and the community to the celebration of railway development. It would therefore earn a tick in the cells unique/rail; unique/state government and perhaps also representative/hearth & home. Given the multiple listing on what appear to be important issues for the development of the Brisbane Valley, the content of this sign could be considered for public display.

There are obvious difficulties in using this nine-point developmental context list as a strict sequence. As a penal colony of Britain we began as an international issue and the on-going waves of immigration to Australia have created stories long before its population achieved Federation. Land use issues are now international issues and Australia is again pioneering new land use strategies.

Technology has redefined all nine categories including the definition of hearth & home. At best this list is useful in identifying discrete features of the development of the Brisbane Valley.

This matrix can just as comfortably incorporate new initiatives, and it is in this role that it will be most useful as a guide to the development of future signage on the rail trail. The Recycled Water Pipeline is currently unique for the categories of Natural Resources, Hearth & Home, Business/Industry and State Government. Stories about the pipeline that also satisfy the conditions of effective signage (Ballantyne, Hughes & Moscardo, 2002) are already sufficiently significant to be considered for placement on the Brisbane Valley Rail Trail.

This matrix can be used to determine both the significance of signage content and the distribution of different kinds of signage along the trail. This is also a useful indicator of repetition in signage.

As an example of this usage, most of the developed signs have been classified in terms of the 9 x 3 matrix and are listed below.

Characters (Local Legends)

	Iconic	**Unique**	**Representative**
Context			
Early Land Usage **1. Exploration**	1 All the King's Men 2 Bellbird Carillon	1 When Cotton was King	
2. Pioneers/Natural Resources	1 Bunya Feasting 2 Colinton Hut 3 When Cotton was King	1 When Cotton was King	1 Good Oil on Wood 2 Divine Intervention 3 What's in a Name
Settlement **3. Hearth & Home**	1 St Andrews Church 2 Cattle King	1 A Moveable Feast 2 Ghost Town 3 Mine Host	1 Only In The Country 2 Toogoolawah Quickstep
Separation & State development **4. Road/Rail**	1 Stanley's Bridge 2 Milk Train Bridge	1 Yimbun tunnel 2 And a Star to Steer her By 3 The Master 4 Harlin CBD	1 Runaway Train 2 Serpentine Railway 3 On the Blackbutt Range 4 To the Fallen
5. Education		1 School of the (Open) Air	1 They Did It Their Way
6. Business/Industry	1 Stonehouse Hotel 2 3d a Brick	1 One for the Road 2 Mine Host	1 Proceed with Caution 2. Harlin CBD 3 Bail Up
7. State/Local Governance	1 Crime Scene	1 To See the Sea	1 Serpentine Railway 2 What's in a Name
Federation and Modern times **8. National stage**	1 Our Boys 2 Unsung Hero	1 14th Light Horse	1 End of the Line 2 Coming Home
9. International stage	1 Grand Slam 2 Moore to Kokoda		

It is immediately apparent that there are no signs in relation to unique or representative action on the international stage. There are no signs about iconic figures in Education in the Brisbane Valley and stories about those who accompanied iconic explorers are also missing. Education icons may be hard to find, but the other stories are here and need only be commissioned now that their absence has been identified.

Future additions to interpretive stock

This matrix appears to be a useful tool in assessing the significance and distribution of sign content.

From this it is an easy step to incorporate the above information into a pro forma (see below) that might be used administratively to determine the inclusion or exclusion of proposed signage for the Brisbane Valley Rail Trail (see below). This would be made available on the relevant website to individuals or groups who are petitioning for rail trail signage. The questions are simple and usually require a Yes/No answer. The demands of this form are unlikely to exclude any literate participants from engaging fully with the development of interpretive signage on the Brisbane Valley Rail Trail. Their responses provide immediate information to those charged with responsibility for signage about both the proposed new signage and how it might fit with the existing suite of signs. It also provides an arbitrary yardstick drawn from previous research against which to measure public petitions justly and without subjective bias.

In cases where the petition for signage is recommended, the data from the application form can be transferred electronically to a complete signage matrix monitor where repetition and empty cells can be identified and flagged for further action.

Where the 'Other" response is chosen for item 6 (Sign Significance B), it is worth considering whether this flags a relevant new theme suitable for incorporation into future interpretive rail trail signage.

FORM/PROCESS: Request for proposed signage on Brisbane Valley Rail Trail

SIGN CONTENT

Provide content for proposed signage (not more than 150 words)

SIGN ILLUSTRATION

Provide or describe appropriate illustration.

Does illustration/photography accompany this request?	Yes	No
Please tick your answer		
Does a consent form for its use accompany this request?	Yes	No

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SIGN SIGNIFICANCE (A)

Does the content or illustration for this sign refer to people, activities, events or natural features of the environment that are ICONIC?	Yes	No

(If something is an Australian icon, at least its name is recognised by most of the Australian community. Some examples are the Melbourne Cup, Uluru, Anzac Day and Don Bradman.)

Does the content or illustration for this sign refer to people, activities, events or natural features of the environment that are UNIQUE in or to the Brisbane Valley?	Yes	No
Does the content or illustration for this sign refer to people, activities, events or natural features of the environment that are truly representative of people, activities, events or natural features of the Brisbane Valley?	Yes	No

SIGN SIGNIFICANCE (B)

From which of the one or more following contexts or settings is your story drawn? (please tick)

Exploration of Brisbane Valley	Roads & Rail	State & local governance
Pioneer Land Use & Natural Resources	Business & Industry	National issues
Settlement, home & social activity	Education	International issues

Other .....

LOCATION

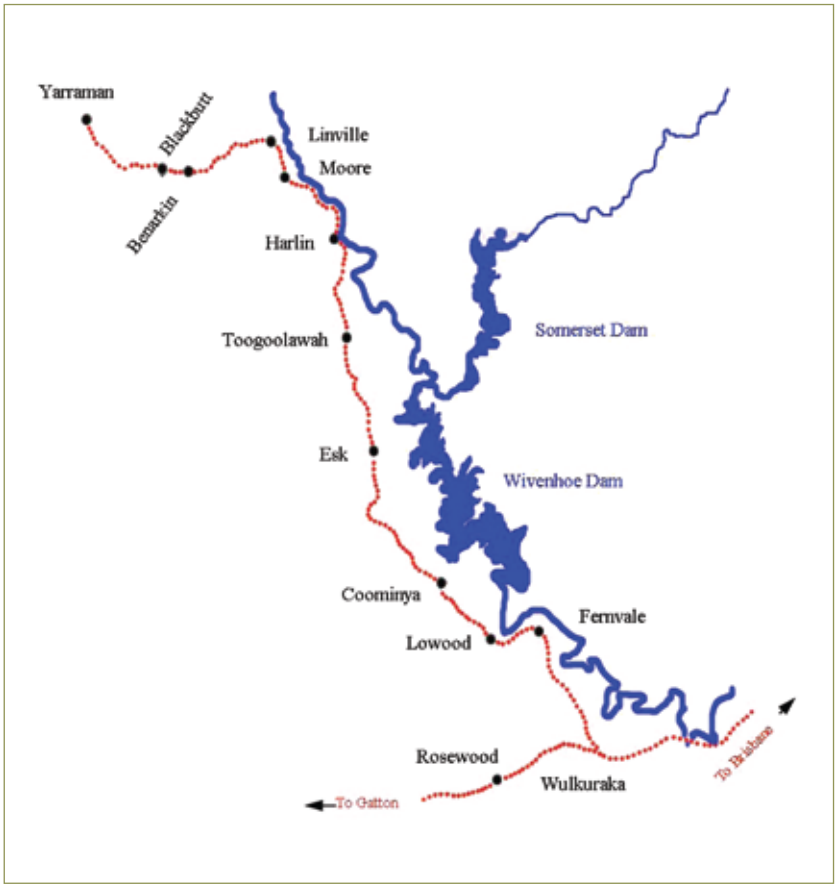
Where would you put this sign on the Brisbane Valley Rail Trail for it to be most effective?

Assessment - For Office Use Only

Is the proposed signage **relevant** to proposed users of the rail trail?	Yes/No	
Is this sign sufficiently **novel** for inclusion?	Yes/No	
Is the content sufficiently **structured** for signage?	Yes/No	
Does this sign reinforce **themes** described elsewhere on the trail?	Yes/No	
Is the sign **language respectful** of the story characters and proposed users of the rail trail?	Yes/No	
Is this sign designed to **engage the audience** in any way	Yes/No	

	Costing	**Comments**
This signage is recommended for immediate installation on the rail trail.		
This signage is recommended for later installation on the rail trail.		
This signage is returned to its author for further information.		
This signage is not recommended for the rail trail.		

Appendix 6.
Original stops and stations of the Brisbane Valley Rail Line



Brisbane Valley Rail Line
From Walkuraka to Yarraman
1882 - 1913

Recommended text and photos for interpretative signs (from south to north)

Title	Location	Content	Pictures	Theme
Brisbane Valley Junction	Wulkuraka	The first station for the Brisbane Valley Rail Line was known simply as the Brisbane Valley Junction and this term was not replaced routinely by Wulkuraka until about 1910 when the Brisbane Valley Line was nearing completion. Before Federation, it took Judith McConnel five hours to travel from Esk to Ipswich, starting at 8 a.m. The train was always a goods train with only one passenger coach divided into three compartments. Only one of these had a 'convenience' and was always occupied by mothers and babies. There was a short stop at Fernvale where passengers rushed to the toilets that were some distance away. She remembers the strong smell of pigs from the front trucks.	1. Opening Ipswich line 1865 2. Railway workers 1865	History of Rail Newspaper reporting Family use of rail Personal reminiscences
Wulkuraka and the Brisbane Valley Rail Trail	Wulkuraka	Fifty years later the old steam engines had been replaced by speedy rail motors and even diesel motors were tested on the line to Yarraman. There are still the remains of longer and lower level platforms at Wulkuraka designed for the 1500V DC electrification that was supposed to terminate at Wulkuraka. Wulkuraka's new role is the origin of the Brisbane Valley Rail Trail; a recreational trail built on the old Brisbane Valley Line and developed by the Queensland Government from 2007 – 2012 at an estimated cost of $3.6m.	1. Locomotive B15 2. Railmotor 55 3. Cyclists at Linville 2006	Modern history of rail line Recreation facility

The Serpentine Railway	Brassall	Many individuals stamped their impression on the Brisbane Valley line. One of the first was Works Minister Macrossan who was determined to build the line cheaply. One way of doing this was to avoid the cost of cuttings and bridges by taking the rail line around obstacles like hills and gullies. It earned the rail line the title of "The Serpentine Railway". Derailments were not uncommon. In 1911 an F wagon and five cattle trucks left the line near here killing 50 bullocks. There was not enough traffic on this line to warrant realigning it to take heavier locomotives. It remained for many years a preferred route for the railway buffs taking excursion rides on old steam engines.	1. John Macrossan 2. Snake 3. Steam Train	Development of rail line Excursion steam trains
All the King's Men	Pine Mountain	The story of Pine Mountain reads like the original history of Queensland. The famous explorers Oxley and Cunningham discovered the hoop pine that gave the mountain its name in September 1824 and Andrew Petrie found coal there in 1837. The Hancock brothers farmed here in 1856 but discovered that their pit sawn timber was more profitable. Later Thomas Hancock established a sawmill at Ipswich. Logs from Pine Mountain were floated down the Brisbane River on high tide. They took three days to reach the junction of the Bremer and the Brisbane Rivers and then five days up the Bremer River to Hancock's sawmill. Thirty three licensed timber cutters successfully petitioned for a school at Pine Mountain in 1862 and the following	1. John Oxley 2. Andrew Petrie 3. Allan Cunningham 4. Ad. For Hancock sawmillers	Land exploration Timber history Transportation

		year a Crown Land Ranger caught and fined another six who were working without a license. There were still seventeen lumberers recorded in Pine Mountain in the 1871 census.		
When Cotton was King	Pine Mountain	By 1868 half the district of Pine Mountain was under cotton. But labourers were scarce so in 1863 Robert Towns had imported the first sixty seven indentured South Sea Islanders to work in his cotton at Cleveland. By 1867 advertisements appeared in Brisbane offering to import South Sea natives for cotton and sugar plantations for £7 a man. Pine Mountain cotton was grown by these 'Kanakas' until the crops failed in 1880. Some traders kidnapping unwilling workers by deceit and cruelty was called 'blackbirding' and continued until the Pacific Island Labourers Act banned it in 1901. By 1904 all indentured labourers were returned to their island homes. Luckily not all the workers did return home and their descendents have become some of Australia's most notable footballers.	1. Robert Towns 2. Indentured Labourers 3. Australian footballer	History of cotton Indentured South Sea Island labour Sporting excellence
And a Star to Steer Her By	Borallon	The site of the Borallon Railway Station was not a happy one in 1884 for the families who wanted a siding near the road to Glamorgan Vale instead. It was described, somewhat unkindly, as being "in the wilderness". In 1961, however, Borallon took its place in railway history as one of the first stations in Queensland to have a trailable facing points lock system installed at the 17 chain crossing loop built there in 1939.	1. Bark hut	1. History of Rail usage 2. Railway history

		The Up and Down Distant signals were replaced by reflectorised beacons with trailable points. The system was converted in 1964 from left to the standard right hand running.		
Proceed with Caution (a sample panel has been prepared for this sign)	Wanora	Wanora railway station was mentioned in the report of an unusual accident in 1913. An itinerant photographer died when the wagonette he was using as his darkroom blew up near the station. Business had been brisk and it was known that he carried gunpowder for fishing. The Queensland Times reported ghoulishly that the wagonette and body were found in fragments.	1. Old family photograph	Family Work practice Newspaper report
Trains of the Brisbane Valley Line (a sample panel has been prepared for this sign)	Fairney View	These trains ran between Ipswich and Esk in December 1924.	1. Loco B13 2. Loco A14 3. Loco B15 4. Loco PB15	Railway history
A Rose by any other Name	Fernvale	Major Edmund Lockyer came to England Creek near Fernvale in 1825 to discover a tribe of white men with bows and arrows that John Gray had reported seeing there. No one was found and Lockyer named what is now called Fernvale "Gray's Mistake". Fifty years later Cribb & Foote erected a cotton gin here and they called the settlement "Stinking Gully". The following year another store was built and it was reported that Cribb & Foote's store was now called Fernvale and the other Harrisborough. Two years later the Harrisborough store and cotton	1. Edmund Lockyer 2. A rose 3. Fernvale Railway station	Exploration Cotton School history Railway naming rights

		shed were converted into a provisional school that retained the name. When the railway arrived in 1886 the station bore the name "Fernvale".		
Bail Up	Fernvale	Fernvale's early history reads like the Wild West. In 1874 the first school teacher attended school conscientiously for three weeks without a single student until they had finished picking the cotton crop. Eight months later he had 70 students from German families who spoke no English and no school committee. In 1880 the bushranger Campbell terrorised four women while their husbands were away. The police response time from Ipswich via Jacob Banff's Fernvale Hotel did not qualify as "hot pursuit". By 1890 larrikin gangs rampaged through Fernvale, stealing bottles from the local hotel and chains from bullock harnesses. They undid the throat straps of horses waiting to take churchgoers home and threw stones through church windows. This youthful exuberance was channelled into foot racing, football and cricket. When Cribb and Foote built "the best store building in West Moreton outside of Ipswich" at Fernvale, the bushranging days were over forever.	1. Bushranger 2. Ad. for Cribb & Foote	School history German immigrants Cotton Bushranger Law enforcement Larrikins Commerce
Upper Brisbane	Vernor		Full page from Queenslander 1910	Newspaper report 1910
Depression Rates	Lowood	There was a land slip here at Vernor in 1890 and major flooding in 1893 that required a deviation of the rail line and structural support in cuttings near the		Depression/unemployment Flooding 1893 Maintenance of rail line

		line. During the depression of 1890 many men were unemployed and the need to re-open the railway was urgent. Consequently the Department of Railways made an attractive offer of three pence a brick to sundowners or swagmen who would erect this wall quickly to protect the railway line from further land slips. At that time, farming land was selling for 2 shillings and 6 pence or thirty pence an acre.		
Here Be bunyips	Lowood	Lowood was the terminus of the Brisbane Valley Line in 1884 but newspapers reported that there was "little attraction at Lowood" and the celebrations to open the line were held at Fernvale. By 1892 Lowood had a company of 70 men of 1st Moreton Regiment that was so good that the Lowood correspondent to the Queensland Times reported that "Fernvale is thoroughly outstripped". Lowood's *coup de grace* came in 1907 when three Lowood larrikins offered £200 to anyone who could kill the Lowood bunyip that was allegedly taking calves. The 'bunyip' was a model worked by pulleys on wires over the Brisbane River by three larrikin residents and the 'kill' was later displayed as an attraction for passengers at the Lowood Railway Station.	Bunyip stamp	Town life Larrikins
H.C. Stanley's Bridge	Lockyer Creek bridge	This bridge was built in 1885/6 and until 1932 it had the longest lattice girder span of its type in Queensland It is also one of the state's oldest existing metal truss bridges. Its designer was H.C. Stanley, who served	1. H.C. Stanley 2. Inspecting the Albert Bridge	Railway history Personal history (engineer) Heritage listing

		the Queensland Department of Railways from 1863 to 1901. He was Chief Engineer from 1872. Stanley designed six heritage listed rail bridges: this one over Lockyer Creek at Clarendon; the Alexandra Rail Bridge at Rockhampton; the Angellala Bridge at Roma; the Burdekin River Bridge at Macrossan; the Mary River Bridge at Miva as well as the Albert Rail Bridge at Indooroopilly.		
They Did It Their Way (a sample panel has been prepared for this sign)	Clarendon	The Clarendon railway station was originally called Tarampa but its name was formally changed in 1886. Not everyone appreciated the change. In 1890 there were two selector families here (Watson & Patrick) with four school aged children. The other twenty three pupils were children of railway workers. A school inspector approved the establishment of a school. The entire cost of school buildings, out buildings, furniture and water tank was met by the school committee (that included Messrs Watson & Patrick) and the school opened in 1891. The Department of Public Instruction suggested the name of Clarendon for the school they had built. The Committee insisted on Lockyer instead and stood its ground. In 1912 there was a note on the school file that no further action would be taken regarding applications for a change of name.	1. Old school books	Name change (railway & ed. Dept) School history
14th Light Horse	Coominya	In 1929 the 14th Light Horse Regiment under the command of Lieutenant Colonel W. Patrick, held its annual camp in the old Soldier Settlement, one mile from Coominya. Lt. Colonel Patrick had served in Palestine in WWI where	1. 14th Light Horse uniform 2. Camel Corp	Personal history (army) Soldier settlement Army history

		the 14th Light Horse was formed in June 1918. Its soldiers came from Australian members of the Imperial Camel Corps that was disbanded after fighting in Egypt and Sinai. The 14th Light Horse was disbanded in 1943 but the unit became a regular army Regiment again in 1981 and was renamed 2nd/14th Light Horse (QMI). The skill of the 14th Light Horse is still on display amongst the horsemen and women (and the cameleers) of the Brisbane Valley.		
Coming Home	Mt. Hallen	The Mt. Hallen railway station served a Soldier Settlement here after World War I in the 'inferior', sandy soil original selectors had used as a reason to relocate the railway line. Returned service men were offered bank loans up to £1700 at 5 per cent interest to buy land under the Discharged Soldiers' Settlement Act for approved rural pursuits. The burden of developing viable farms after the privations of war was too much for nearly forty per cent of the soldier settlers in Queensland. Many walked off their land. Jack Reid thought he knew why. Let the patrioteers remember the cheers They gave to the boys when they went. They prated of "dooty", collected the booty, And got six per cent when they lent! Jack Reid 1924	1. WWI soldier with woman	Soldier settlement Personal reminiscence

A Moveable Feast	Esk	Esk (called Gallinani originally) was built around Sandy Creek to serve the West Moreton and Eskdale Copper Mines and the teamsters travelling north. Before the disastrous floods in 1893 most of the town was built on the south side of the creek. In 1893 the Queensland Times predicted, "the buildings on the bank will fall into the creek if there is another flood". There was more flooding in 1898 followed by drought in 1902 By 1903 the "Esk Record" newspaper reported that premises were being removed to the Western side of the creek on Ipswich Street. In 1907 the Central Hotel was pulled down Ipswich Street by two bullock wagons driven by Adam Dunlop and James Barbour to its present location. It is now called the Club Hotel.	1. 1890 map of Esk 2. Moving the Club Hotel	Town development Commerce (copper) Flooding Building relocation Bullock wagons
Mine Host	Esk	Edward (Ned) McDonald bought 200 acres of land on both sides of Sandy Creek for £65. He built the Royal Hotel at the teamsters' camp site on the south side in 1876.He was its popular publican until his death. The township of Esk developed about the hotel. When Esk was surveyed Ned McDonald owned two-thirds of the land within the survey boundaries. Ned contracted to deliver mail by packhorse to Nanango in 1878. When the Esk Railway station opened in 1886 he delivered the mail to Nanango by coach. Passengers were welcome at the Royal Hotel. Ned was a man of substance when he died in 1899. The executor of his will owned Cressbrook Station and a witness to his	1. Mail Coach 2. Residence of Ned McDonald	Personal history Township development Mail Hotel

		burial was a Government Surveyor. Mary and Richard Streets, Esk, named for two of his children, recall his service to Esk. **Please raise your glasses to a pioneer**		
Crime Scene	Esk (Gallinani)	Captain Patrick Logan was the notoriously cruel Commandant of Moreton Bay from 1826 until his death in 1830. He was murdered in the Mt. Beppo district within walking distance of Toogoolawah. He was exploring the headwaters of the upper Brisbane River when he died. Both local aboriginal tribesmen and the convicts of his party have been blamed for his death. No one was prosecuted. The convict Francis Macnamara celebrated Logan's unhappy fate in the folk song, "The Convicts Lament on the Passing of Captain Logan". It is sung today as "Moreton Bay"	1. Cpt. Patrick Logan 2. Mt Beppo map 3. Sheet music for "Moreton Bay"	Exploration Death (indigenous?) Folksong
Ghost Town	Ottaba	The township of Ottaba now lies beneath the Brisbane Valley Highway. It was a self-contained community with its own school, hotel, store, butcher and railway station. When the Bond family lived in the railway house it had a prize winning garden and its children comprised most of the school pupils. Farmers from Mt. Beppo loaded produce here and the hotel contributed to local folklore. Several insured buildings burned during the Depression and Toogoolawah station was more convenient for loading farm produce. These photos capture the self reliance of rural living before WWII.	1. Hotel 2. Train 3. Station house 4. Butcher & Store	Town development Railway family Rural self reliance

St Andrews in McConnel Park	Toogoolawah	The Nestles Anglo-Swiss Condensed Milk Factory in Toogoolawah was the biggest factory of its kind in Australia until 1929 and while it operated here the district prospered. During that time the beautiful shingle roofed St. Andrews Anglican Church, designed by the well known ecclesiastical architect Robin Dods, was built (1912). Behind the church is McConnel Park, designed by a railway worker, Henry Bond, on land donated by J.H. McConnel who sold the factory to Nestles. Like the church, the park is heritage listed and still used for cricket, football, tennis and sports meetings. In one corner stands the second oldest war memorial outside a cemetery in Queensland. The oldest war memorial is located on the main D'Aguilar Highway at Colinton, 20km further up the line.	1. Dods' plans of St Andrews 1911 2. St Andrews 2006	Industry Heritage listing War Memorial Commerce (dairy)
Runaway Train (a sample panel has been prepared for this sign)	Toogoolawah Station	Esk Station was the terminus of the Brisbane Valley Rail Line from 1886 to 1904 and was the only station with Refreshment Rooms on the line. Here *bona fide* travellers were served food and drink at all hours. One evening a Toogoolawah publican drinking at Esk bribed the train driver and fireman with a bottle of rum to let him drive the train home. Sadly they had left the guard and guard's van behind and the train was intercepted by police at Toogoolawah. The publican disembarked and the driver returned to Esk for his guard. The driver & fireman were fined 20 shillings for this escapade. They also claimed to have been paid 25 shillings in overtime. Their	1. Steam train at Toogoolawah 2. Blue Jacket rum label	Larrikins Railway work practices Law enforcement

		night's profit was 5 shillings each and a bottle of rum.		
The Master (a sample panel has been prepared for this sign)	Toogoolawah Station	George Launder (1871-1959) was Toogoolawah's first station master and a railway legend. He was a Foundation Member or Patron of most of the associations that developed the town. He was Station Master for 33 years and continued as Secretary of the School Committee and Country Correspondent for the national newspapers for 48 years. He also found time to be a Shire Councillor, Secretary of the district's War Committee and a fine rifle shot. In the 1930 Depression one of his lad porters transferred to Brisbane when every one presented to work each day but only a few were chosen. When it became known that George Launder had been his mentor, he worked much more regularly than his unluckier colleagues.	1. George Launder 2. Cairn in town in memory of G. L with Toogoolawah station master 2004	Railway history Legendary staff Depression
Toogoolawah Quickstep	Toogoolawah	Quick footwork was necessary for dancers at the Toogoolawah Race Ball in 1947, and not all of it was confined to the dance floor. They were scattered on their way to the Ball by two young drovers riding their horses 'furiously' up and down the footpath in protest at being barred from the Club Hotel. Police commandeered local trucks for a high speed chase through town. One of the riders fell off and threatened pursuers with a gun until he could remount. The locals were not best pleased and the police opened fire. The culprits were captured on the edge of town. They were each fined £5 for	1. Balloons 2. Club Hotel memorabilia 3. Dance card	Family/Social life Larrikins Law enforcement

		their evening's entertainment. The Quickstep may well have been the first dance filled on most dance cards that evening.		
End of the Line	Yimbun	Moorabool Station was a 'swampy", unpopular terminus of the Brisbane Valley line in 1904. Its name changes to Kannangur and then Yimbun did not help, forcing a local land owner to the expense of ordering new embossed stationery each time. There was a strike camp here in 1908. The day labourers employed to extend the line to Blackbutt refused to work and many left, delaying the start of this section of the line for some months. A significant police presence was called to keep order. The Moorabool Hotel, built here in 1904, was pleased to serve the workmen & police alike. When Linville station opened as a terminus Yimbun lost much of its business and its hotel as well. The Moorabool Hotel, Kannangur was relocated by bullock wagon to become the Club Hotel, Linville in 1911. During WWII the area around Yimbun station was used as an army camp for N.S.W. soldiers recuperating from service in the Middle East. The local undertaker reported an Army Hospital here as well, and three servicemen were buried in the Toogoolawah Cemetery in September 1942. At least two other servicemen returned to marry local lasses after the war.	1. Station remains 2004 2. Yimbun station 1964 3. Cartoon of Hitler	Name changes Work practices Law enforcement Army Burials

The Milk Train Bridge	The Milk Train bridge, Yimbun	This 35 hp Napier locomotive RM26 had been converted to operate for use on the Amiens branch in 1920 but it was not a success there. So it was relocated to the Linville-Toogoolawah line to deliver milk to the Nestles & Anglo-Swiss Condensed Milk Factory in 1921 with the milk churns carried in two trailers behind. One day it broke down on a small bridge between the Yimbun tunnel and the Yimbun station. A goods train that followed ran into it and knocked the trailer off the line. This railway bridge was known as the Milk Train Bridge after that.	1. Napier RM26 2. Milk delivery by horse & cart	Railway History Railway accident Commerce (diary)
Tunnel Vision	Yimbun tunnel	The Yimbun Tunnel is the only rail tunnel built on the Brisbane Valley Line. It was built on a flood plain between Kannangur and Harlin Stations in 1910 by day labourers stationed at Harlin. It is made of Union Cement and the marks of the wooden boxing used in construction can still be seen inside. After flooding at Lowood in 1893 newspapers reported that "the intention is to ultimately put a tunnel through the mountain." That did not happen and flood damage continued. There was serious flooding here in 1955 and 1974 without damage. The Yimbun tunnel has been the hidden treasure of the Brisbane Valley Rail Line for 97 years.	1. Yimbun tunnel 2007 2. Railway description of tunnel	Railway development Flooding
Harlin CBD	Harlin	Charles Soden owned the Harlin Hotel and store in 1905. He was born at Pine Mountain and worked with the indentured South Sea Islanders in the cotton fields. He later moved to Mt. Beppo where his father had a farm.	1. Rail Bridge over Maronghi Creek at Harlin	Personal history German immigrants Railway history Heritage listed bridge

		His neighbours were mostly German immigrants. By 1910 Harlin was the site of the main railway construction camp for the Brisbane Valley Line with a busy railway station, a school, a store and a hall. This steel railway bridge over Maronghi Creek at Harlin is the only one of its kind left on the Brisbane Valley Rail Line.		
Colinton Hut	Nurinda	The original Colinton property was selected by three Balfour brothers (John, Robert & Charles) and Irving, and registered in 1842. It was named after the Balfour's old home six miles from Edinburgh. In 1891 Saul Mendelsohn immortalised Colinton's position on the old stock route in a poem, "The Drover" published in the Boomerang. The words were sung to the music of "Spanish Ladies" and became a popular folksong. It is sung today as "Brisbane Ladies". *The first camp we make is called the Quart-pot, Caboolture and Kilcoy, then Colinton Hut; We pull up at Stonehouse, Bob William's paddock And early next morning we cross the Blackbutt.*	1. Colinton Hut 2. Sheet music "Brisbane Ladies"	Early settlement Stock Route Folk Song Scottish immigrants
Our Boys (a sample panel has been prepared for this sign)	Nurinda	Nurinda railway station served the town of Colinton built near the old Colinton homestead. The Standard Dairy Company processed local milk here from at least 1907 until 1921 when it was bought out by Nestles and closed. A Napier Rail Motor 26 was then used to carry milk from Linville to the Nestles Factory in Toogoolawah until 1923. The town slowly died. But what remains	1. Colinton Milk factory 2. Colinton War Memorial	Commerce (business practice) Railway history War memorial

		is Colinton's proudest boast. This was the first Honour Roll to soldiers who fought in World War I built outside a cemetery in Queensland. It was unveiled by the Member for Stanley, H.P. Somerset, in 1917 and still honours their service in a park alongside the Brisbane Valley Highway.		
Stonehouse	Moore	In 1880 Robert Williams obtained a license for his Stonehouse Hotel and built stables on the river flats to accommodate the new coaches that began delivering mail between Esk and Nanango. Fresh horses from the Stonehouse Hotel were needed before ascending the treacherous Blackbutt Range. By 1911 McCallum's mail coaches to Nanango left from the rail terminus at Linville, bypassing the Stonehouse and its role in the postal services of the Brisbane Valley was over. This complex of several stone buildings is now heritage listed and located on the Brisbane Valley Highway beyond Moore. Stonehouse is privately owned and not open to the public.	1. Stonehouse (x 2) 2. Mail Coach at Stonehouse	Heritage listed building Mail service (coach) Hotel
Moore to Kokoda (a sample panel has been prepared for this sign)	Moore	Moore was a prosperous timber town and, when the railway arrived in 1910, it was served by two pubs, two sawmills, a school and the Whittington and Meyers store. Moore is remembered locally for its sawmills. But the most public face of Moore after WWII is the famous photo of George Charles (Dick) Whittington, grandson of the original Moore storekeeper, with his head and eyes swathed in bandages. He is being guided along the Kokoda	1. Patterson Sawmill 1902 2. Whittington & Meyers store 3. George "Dick" Whittington & Fuzzy Wuzzy Angel	Timber history Town development Personal history Kokoda Trail

		trail by Raphael Oimbari, one of the much loved Fuzzy Wuzzy Angels.		
One for the Road (a sample panel has been prepared for this sign)	Linville	Drovers regularly brought very big mobs of cattle to the railway yards at Linville and trucking them was thirsty work. Afterwards the men indulged themselves with a meal at the Bluebell Café and drinks at the historic Club (now Linville) Hotel. This hotel was originally built at Moorabool (now Yimbun) in 1904 when it was the terminus of the rail line and McCallum's mail coaches picked up passengers here for Nanango. When the rail line reached Linville in 1910 the hotel was moved 16 miles to its present site by bullock wagon. There is no record of how long the hotel was 'on the road', but it had previously taken two bullock wagons all day to move the Club Hotel in Esk just half a mile along a town road. Local legend suggests that the establishment continued trading throughout the journey.	1. Line drawing Pioneer Hotel	Cattle Hotel Mail (coach) Building relocation
To See the Sea	Linville	The decision to extend the Brisbane Valley line to Blackbutt was taken on the government yacht S.S. Lucinda in January 1907. When the rail line reached Linville, the Member for Stanley (H.P. Somerset M.L.A.) suggested a family outing as a celebration instead of the usual formal dinner. Many of the children in the district had never seen the sea. He arranged that they would spend the day on S.S. Lucinda. The excursion was not cheap, costing five shillings and six pence for a return ticket. The train left	1. S.S. Lucinda 2. Opening of Linville Railway Station	Railway history Family excursion/children Politics

		Linville station early on 22 November 1910 and started its return journey from Pinkenba at dusk. This was the only opening of any station on the Brisbane Valley Line where the children were the primary focus of the occasion.		
On the Blackbutt Range (a sample panel has been prepared for this sign)	Blackbutt Range	[no text except title]	1. Family moving with the railway	Family life
To the Fallen	Blackbutt Range	There was a fatal accident on the Blackbutt Extension of the line on 25 February 1911 when a ballast train brought down the staging where three immigrants, Thomas Love, James Macdonald from Ireland and Matteus Ambrosini from Italy were working. Thomas Love died instantly and James Macdonald was taken to Toogoolawah for surgery to amputate his leg. He did not survive. Matteus Ambrosini recovered and lived in Queensland until his death in 1960. Oral history suggests that the ballast 'grave' above the cutting holds the body of Thomas Love. Records show that he is buried in the Benarkin cemetery on the Blackbutt Range. They are remembered here.	1. Ballast 'grave' of Thomas Love	Railway development Burial Medicine Irish immigrants
Bellbird Carillon	Blackbutt Range	Bellbirds (*Manoria melanophrys*) inhabited the Benarkin forests long before the rail line was built. They are a very territorial, small to medium olive green honey eater with a golden wash on their back and belly. These birds have a black stripe in front of their eyes and a bare patch of orange skin behind		Flora /Fauna Railway work conditions

		them as well as a black "moustache". Bellbirds have three calls: the bell (that you can hear now), the scolding 'jack' and a churring alarm signal. Their calls were so loud that the fettlers working on the rail line all day had to stuff rags into their ears to block out the sound.		
The Good Oil on Wood (a sample panel has been prepared for this sign)	Blackbutt Range	Blackbutt was a lovely timber to use in building. It was soft in comparison with other hardwoods. Crows Ash made an excellent dance floor but it was highly flammable. Leopard wood had a spotted bark with a very close grain. It is a good turning wood but borers loved it. Cudgerie or Silver Ash was a softwood that cut white and dried red. It was used for coffins & beehives. It was also susceptible to borers. Tallow wood had an acid that barnacles avoided and oil that resisted white ants. It was used for stumps and wharf pylons. Black wattle was used for making boomerangs and for wood turning. Its leaves were used to feed cattle in the drought years	1. Axeman	Timber usage Personal memories
Bunya Feasting	Blackbutt Range	The Bunya Pine (Araucaria bidwilli) was known as bonyi-bonyi to the indigenous people of Queensland. (1843). About every three years, between January and March, Aboriginal families gathered for tribal ceremonies, hunting, feasting, and corroborees. The bunya feasts were traditionally held in two main areas in South-East Queensland: the Bunya Mountains and the Blackall Ranges.	1. Watermark	Indigenous issues Continuity

		Dark people gather, beside the dark water ***Send messages near and afar*** ***They stream up the valleys and into the mountains*** ***All drawn by the same guiding star.*** ***When forests surrender the fruit of the season*** ***Bonyi – bonyi the hosts hold in care*** ***The Kabi and Wakka whose God-given bounty*** ***Was granted for others to share*** George Groves 2007		
Araucaria bidwilli 2/3	Blackbutt Range	[no text except title]	1. Bunya Pine	Indigenous issues Timber
School of the (Open) Air	Benarkin	School for railway children beyond Linville was a tent at MacNamara's Camp. A school inspector reported that "some of the children .. needed an experienced hand to bring them under subjection" so in 1910 the Department of Public Instruction established a tent school. The school moved with the workmen to become 'The Well Holes Tent School'. Then it was patched again to become the Benarkin Provisional School. By 1913 it was just an abandoned eyesore beside the new Benarkin State School with two verandahs and a large water tank. Perished and torn, the tent was finally sold for 30 shillings.	1. Tent school	Railway history Education history/work practice Children

What's In a Name (a sample panel has been prepared for this sign)	Benarkin	In 1910 the proposed station names for the Blackbutt extension came from the indigenous Kabi dialect and related to the timber on the Blackbutt Range. Derier Derier (White cedar tree) for Harlin Wung-ugh (Stringy bark tree) for Colinton already renamed Nurinda Manyee for Mooretown Wun-num (Moreton Bay Chestnut) for Linville Mingo Mingo (Hole in a rock) for Well Holes Benarquin (Blackbutt tree) for Blackbutt The English names were chosen instead. But there were further difficulties with Blackbutt. The terminus of the Blackbutt extension was actually built at Well Holes but the Department of Railways called it Blackbutt anyway. The township of Blackbutt was 2 ½ miles away. After heated debate Parliament decreed that "the terminus of Kannangur-Blackbutt line will be known as Benarkin". What was that again?	1. Watermark engraved tree	Timber Railway development Name changes
Only in the Country	Benarkin	Many dances were held in the tin shed that was the Benarkin Railway Goods Shed. These dances were popular social gatherings for the community. On one occasion a loud explosion startled the crowd before the dancers realized that the commotion came from the train line. A train had been shunting along the Goods Shed railway line and passed over detonators put on the line as a warning signal to the drivers. As the	1. Benarkin Railway Station	Social activity Railway practice

		first wheel of the train passed over the detonator, it exploded with a very loud bang. The dancers made up for lost time by dancing the night away.		
Unsung Hero (a sample panel has been prepared for this sign)	Blackbutt	"I only wish all my people - the Aboriginal people - were given opportunities like mine." The electorate of Blair in the Ipswich/Brisbane Valley area was created in 1998 and was named in recognition of Harold Blair's contribution to Australia. Harold Blair (1924-76) was a noted Australian tenor and Aboriginal advocate. He was born at the Cherbourg Aboriginal Mission in Queensland. Encouraged by Marjorie Lawrence he studied at the Conservatorium of Music in Melbourne, and in the United States. In 1949 he married a fellow singing student at the Conservatorium and had two children. He gained international renown but more critical acclaim in Australia. On his return he taught at the Melbourne Conservatorium of Music from 1956. He was 51 when he died.	1. Harold Blair x 2 2. Sheet music Maranoa Lullaby	Indigenous excellence Music/Culture Political activity
Grand Slam	Blackbutt	Kevin Allery was a local sportsman and his proudest boast was that he had played tennis with Roy Emerson and beaten him. Clearly Emerson benefited from the practice. He went on to claim twenty eight Grand Slam tennis titles, beating such legends as Rod Laver, Fred Stolle, Arthur Ashe and Bjorn Borg. He remains the only male player to win singles and doubles titles in all four Grand Slam events. Not bad for a	1. Roy Emerson	Rural origins & sporting excellence Youth

		farm boy who grew up outside Blackbutt. The only part of this larrikin story that Kevin left out was that Roy Emerson was he still a teenager on the farm when the adult Kevin Allery beat him.		
Divine Intervention	Blackbutt	During the depression all of the properties held by the Queensland Pastoral Company were put up for sale. The only one that sold was "Nukinenda" where there had been a gold rush previously. The stock were driven to Taromeo. Three thousand head in the mob approached Blackbutt via Hart St. A young Tom Hart aged about 10 at the time was in church when the minister noticed a few head of the lead cattle straying over the Kevin Allery Bridge at Blackbutt towards Yarraman. The minister told Tom to get out there and turn the strays back. Tom leaped at the chance to do God's work on a Sunday and the mob was driven safely down the stock route to Taromeo.	1. Taromeo station	Religious observance Land usage Depression Youth

Appendix 8.
Trail maintenance checklists

First checklist is for the Moore—Linville section of the Brisbane Valley Rail Trail with items in place at January 2008 or that will reasonably be included. Second checklist is a sample from the Kep Track Trail Management Plan, Western Australia.

MAINTENANCE CHECKLIST

The checklist which follows has been designed to be copied before each regular inspection, filled out and filed for future reference. It assumes the inspection will commence at Moore and proceed in a northerly direction to Linville. *This is an essential component of the maintenance program.*

BRISBANE VALLEY RAIL TRAIL (Moore to Linville) - MAINTENANCE CHECKLIST

Inspection Date (circle a year and tick one box):

Jan 2009/10 ☐ Feb 2009/10 ☐ Mar. 2008/9/10 ☐ Apr 2008/9/10 ☐

May 2008/9/10 ☐ Jun 2008/9/10 ☐ Jul 2008/9/10 ☐ Aug 2008/9/10 ☐

Sep 2008/9/10 ☐ Oct 2008/9/10 ☐ Nov. 2008/9/10 ☐ Dec 2008/9/10 ☐

Actual Date: _____

Person undertaking inspection: _____ **Signature:**

LOCATION	ACTION REQUIRED	TICK IF OKAY	ACTION TAKEN (if any)
Trailhead: Stanley Gates Park	• Check directional markers • Check totems and signage • Check promotional signage • Check interpretive sign		
Dry Creek	• Check bridge • Check directional markers on either side of bridge		
Outside Moore school	• Check directional markers • Check road warning signs		
Moore Pony Club	• Check horse yards		
Station Road	• Check directional markers • Check condition of new trail in road reserve		
Opposite 138 Moore Linville Road	• Check condition of new trail in road reserve • Check condition of bench seats		
Where trail rejoins railway formation	• Check gate • Check fencing • Check drainage measures to the north		

Side trail to cemetery	• Check gate • Check directional markers • Check attraction signage • Check road warning signs • Check bench seat and hitching rail		
Creek crossing – Boundary Creek	• Check warning signage • Check condition of approach and crossing		
Interpretive panel - "One for the road"	• Check interpretive sign • Check bench seat and hitching rail		
Creek crossing – Greenhide Creek	• Check warning signage • Check condition of approach and crossing • Check gate		
Moore-Linville Road crossing (south)	• Check road warning signs • Check gates both sides • Check bench seat		
Moore-Linville Road crossing (north)	• Check road warning signs • Check gates both sides (and gate 150 m south)		
Trailhead: Linville Station	• Check directional markers • Check totems and signage • Check promotional signage • Check interpretive sign • Check trailhead furniture • Check horse yards		
Any additional work required?			
Hazard Inspection	Whole trail - annually		
Annual budget allocation	Discuss with staff		

MAINTENANCE CHECKLIST

The checklist which follows has been designed to be copied before each regular inspection, filled out and filed for future reference. It assumes the inspection will commence at Mt Helena and proceed in an easterly direction towards Wooroloo. *This is an essential component of the maintenance program.*

KEP TRACK (Mt Helena to Wooroloo) - MAINTENANCE CHECKLIST

Inspection Date (circle a year and tick one box):

Jan 2005/6/7 ☐ Feb 2005/6/7 ☐ Mar. 2005/6/7 ☐ Apr 2005/6/7 ☐

May 2005/6/7 ☐ Jun 2005/6/7 ☐ Jul 2005/6/7 ☐ Aug 2004/5/6 ☐

Sep 2004/5/6 ☐ Oct 2004/5/6 ☐ Nov. 2004/5/6 ☐ Dec 2004/5/6 ☐

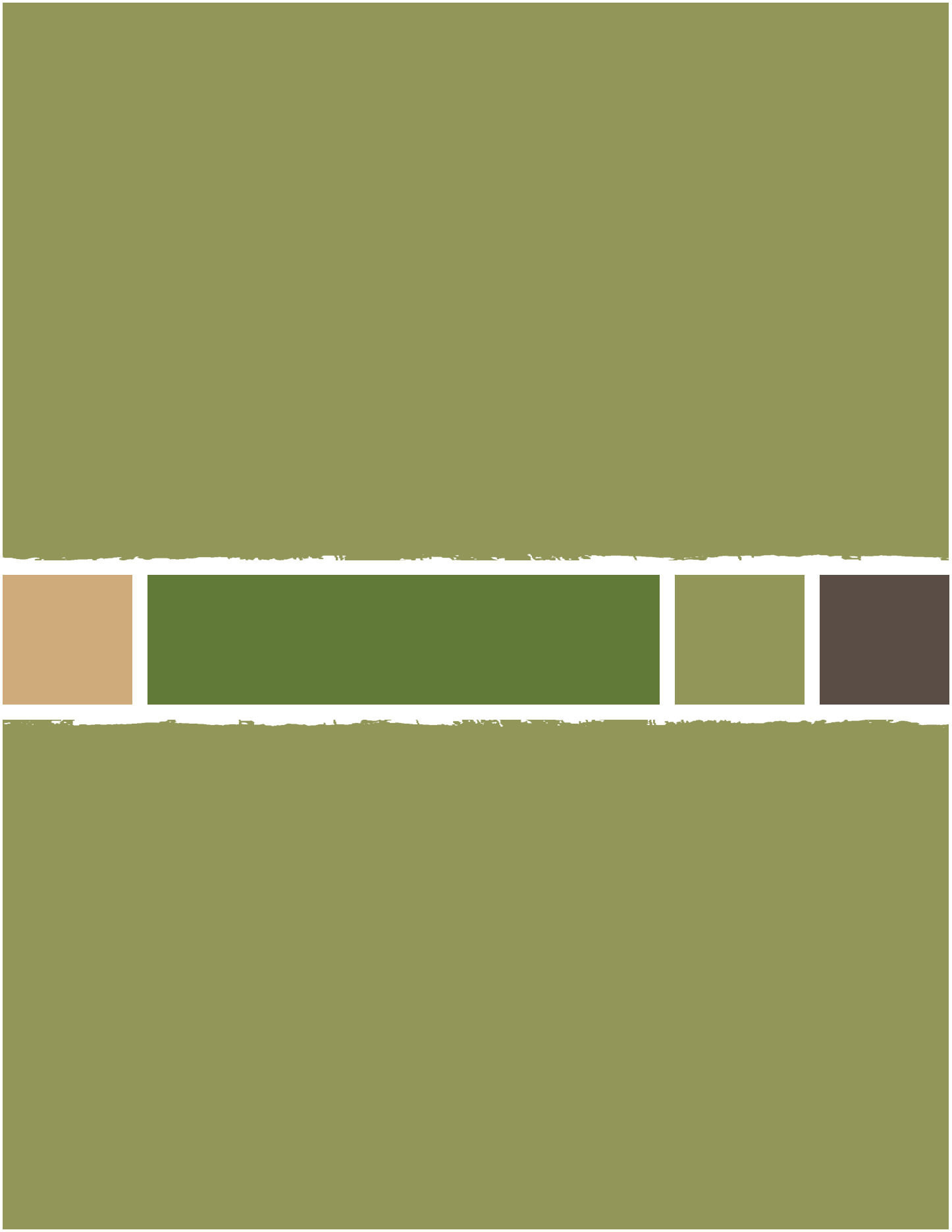
Actual Date: _____

Person undertaking inspection: _____ **Signature:** _____

LOCATION	ACTION REQUIRED	TICK IF OKAY	ACTION TAKEN (if any)
Sawyers Road Crossing in Mt Helena	• Check gate west side • Check directional markers • Check totems and signage • Check promotional signage		
Johnston Street (Mt Helena)	• Check gate west side • Check directional markers • Check totems and signage		
Lion St crossing	• Check gates both sides • Check interpretive sign (north west corner) • Check directional markers • Check totems and signage • Check promotional signage		
Exit from Eastern Hills High School (crossing)	• Check gate east side • Check directional markers • Check totems and signage • Check interpretive sign (opposite Sime Rd)		

Thomas / Elliot road crossing	• Check gates both sides • Check directional markers • Check totems and signage • Check promotional signage • Check interpretive sign (opposite booster station)		
Chidlow Reserve	• Check interpretive signs (at turnoff to Lake Leschenaultia; opposite standpipe; opposite stone building; at old interpretive shelter) • Check condition of new trail through reserve		
Old Northam Rd (Chidlow)	• Check gate east side • Check directional markers • Check totems and signage • Check promotional signage • Check culvert west side • Check ramps • Check interpretive sign (mid point between Old Northam Rd and Ash Rd)		
Ash Rd crossing	• Check gates both sides • Check directional markers • Check totems and signage • Check promotional signage		
Doconing Rd crossing	• Check gates both sides • Check directional markers • Check totems and signage • Check promotional signage • Check interpretive sign (150 metres east of crossing)		
Old Northam Rd crossing	• Check gates both sides • Check directional markers • Check totems and signage • Check promotional signage		

	• Check culverts (both sides) • Check interpretive sign (south west corner)		
Entrance to horse trials paddocks	• Check gates • Check directional markers • Check totems and signage • Check road warning signs		
Government Rd crossing	• Check gates both sides • Check directional markers • Check totems and signage • Check new 40 metre section of trail at road crossing		
Government Road to Green St	• Check interpretive sign (where pipeline crosses trail) • Check interpretive sign (opposite Jason St)		
Green Street	• Check gates both sides • Check directional markers • Check totems and signage		
Any additional work required?			
Hazard Inspection	Whole trail - annually		
Annual budget allocation	Discuss with staff		



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