ANNEXURE 'A'

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1. INTRODUCTION

1.1. Setting The Scene

The Tasmanian Government has identified an opportunity to improve tourism access to the Tarkine area through the development of a sealed 131 km tourist road connecting Myalla Road with the Arthur River township. The Tarkine Road will further connect a number of tourism sites via a series of access roads, which add a further 8.9 km in road length.

The Tarkine Road Project (the Project), which was was allocated $23M in the 2008-09 State Budget for planning and construction, originated from a proposal by Forestry Tasmania (FT) to create a tourist loop road. Construction of the project was handed to the Department of Infrastructure Energy and Resources (DIER) in February this year.

The Project seeks to develop the tourist potential of the North West region through creating a self-drive experience for visitors and facilitates the subsequent development of commercial tourist ventures. On this basis, $2.5M of the $23M budget has been set aside for the construction of tourism infrastructure.

The Project is unique with most of the required infrastructure already in place in the form of existing roads and tracks.

Studies commissioned by the Department of Economic Development[1] have indicated that the Project is likely to yield significant economic benefits for the region.

The Tarkine is roughly 4,800km^2 in area, bounded by the Southern Ocean to the West, the Arthur River to the north, the Pieman River to the south, and the Murchison Highway to the east.

The term Tarkine was coined during a conservation campaign in the late 1980's, and was based on the Tarkinener people (Tarkinaraa) who were the original inhabitants of the area. From the late 1990s the area came under increasing national and international attention, which has influenced the region's identity and "brand".

The Tarkine contains temperate rain forest, eucalypt forest, a number of wild rivers, mountains, cave systems and extensive coastal heathlands as well as large coastal sand dune areas extending several kilometres inland. In addition a large number of Aboriginal cultural and archaeological values have been identified in the region.

Parts of the Tarkine are relatively undisturbed, but large tracts do have a history of forestry and mining activities – supported by roads, bridges, slurry pipelines and electricity transmission assets.

In the forward to his book titled "A Peopled Frontier, The European Heritage of the Tarkine Area"[2], Nic Haygarth states the following:

> "The use of the term 'wilderness' is common. It is widely reported, for example, as Tasmania's largest tract of wilderness rainforest. The Wilderness Society goes one step further and describes it as Australia's only wilderness rainforest.
>
> Yet these assessments are fundamentally flawed in the sense that they ignore the human history of the Tarkine. They are a modern, urban-based perception of the Tarkine landscape that chooses to disregard thousands of years of Aboriginal occupation and over 150 years of European activity. The Tarkine is not virginal, it is not untouched, neither is it fragile. It is, in fact, a resilient place which displays its wild beauty after thousands of years of human use. It is more a cultural landscape than it is a wilderness."

In addition to sensitive environmental and cultural issues, the project is strongly identified with FT, which elicits feelings both positive and negative on the part of stakeholders. These issues amongst others, provide challenges for those completing road, however, DIER is committed to making this an icon project, by applying its full capabilities, skill and experience to the task.

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1 Warren Report (2008) EDMA, Moore Consulting & SCA Marketing

2 Haygarth. N., "A Peopled Frontier, The European History of the Tarkine Area", Circular Head Council, 2008

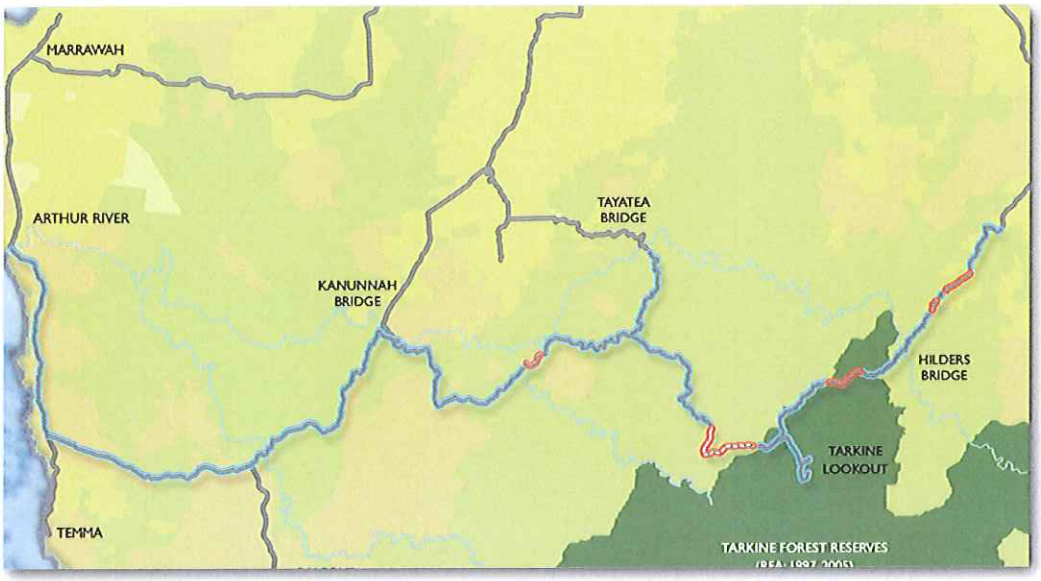

Figure 1. Tarkine Road route

Figure 2, Example of existing road network

1.2. Outcomes

The outcomes sought from the Project are:

1.2.1. Accessibility

In addition to FT, the existing road network has been used by local people recreationally for a many years. Unfortunately to use the current road network on a recreational basis requires a working knowledge of the road system and vehicles capable of handling challenging terrain.

The Tarkine Road will, for the first time, provide safe tourist and recreational access to the Tarkine Region for all Tasmanians and visitors. The Project will provide access to wilderness experiences including rain forests, wild rivers, coastal heath and eucalypt forest for visitors free of charge.

1.2.2. Tourism Development Potential

The Project will create an impetus for the development of the tourism industry in the region by leveraging the Tarkine brand.

The Project presents the opportunity to put the North West on the map. It fits with visitor preferences to explore destinations which have varied experiences in close proximity and will tend to hold them in the region for a number of days. The end result will be an increase in the number of tourism facilities and experiences in the Tarkine Region, resulting in a tourism icon.

1.2.3. Environmental Responsibility

DIER will construct the Project to standards in full compliance with regulatory requirements, ensuring minimal environmental impact and protection of the local flora, fauna and heritage values.

The construction location has had a long history of mining, commercial forestry and recreational activities, and this project provides the opportunity for DIER's stewardship in delivering ongoing the environmental safeguards fundamental to the road. The Project will include a number of on-going environmental monitoring programs, management regimes and mitigation actions as part of its design, development and operation to ensure the highest practicable environmental outcomes.

1.2.4. Open communication

As part of DIER's commitment to making this an icon project all communication with key stakeholders and the broader public will be open, transparent and thorough.

1.3. Project Features

The Tarkine Road is located in the Circular Head and Waratah-Wynyard municipal areas.

The Project involves the development of visitor infrastructure which will be associated with a number of tourism sites, which include access roads (approximately 8.9 km), car parks, toilets, footbridges and other miscellaneous works.

The tourism sites being developed and/or upgraded include Phantom Valley, Tarkine Lookout/Falls, Lake Chisholm, Julius River and Kanunnah Bridge. Lake Chisholm, Julius River, and Kanunnah Bridge are existing areas undergoing upgrading, while Phantom Valley and Tarkine Lookout sites are new development locations.

1.3.1. Phantom Valley

The Phantom Valley area has been identified[3] as having potential for tourism development – a concept strongly supported by Burnie City Council, which is positioning the city as "the gateway to the Tarkine". Phantom Valley is easily accessible from Burnie, being a comfortable hour's drive via Wynyard and Meunna.

The Tarkine Tourism Development Strategy recommended the development of the Phantom Valley as one of four entry points to the Tarkine and Burnie City Council consider that it offers the best means of realising the tourism potential of the Tarkine for the city, due to its proximity to Burnie.

DIER has provided Burnie City Council $100,000 to facilitate the development of an Area Development Plan, draft Planning Scheme Amendment and Information Memorandum for the development of the Phantom Valley area in the Tarkine.

3 Tarkine Tourism Development Strategy, Cradle Coast Authority October 2008

As such Phantom Valley is an example of the types of visitor attractors that can be developed along the Tarkine Road.

1.3.2. Tarkine Lookout and Tarkine Falls

A short spur road and car park will be constructed to provide access to the Tarkine Lookout and Tarkine Falls. A short section of the current walking track to the Tarkine Falls will be upgraded as part of the project.

Figure 3. View from Tarkine Lookout

Figure 4. Tarkine Falls

2. THE EXISTING SITUATION

The route of the proposed Tarkine Road skirts the northern boundaries of the Tarkine, which is made up of a series of dedicated Formal Reserves and Multiple Use State Forest between the Arthur and Pieman Rivers.

All State Forest in this region has been assessed under the Tasmanian Regional Forest Agreement (1997). The majority of the Tarkine Road passes through registered Multiple Use Forest, which has a 40-year history of management for wood production, recreation and conservation.

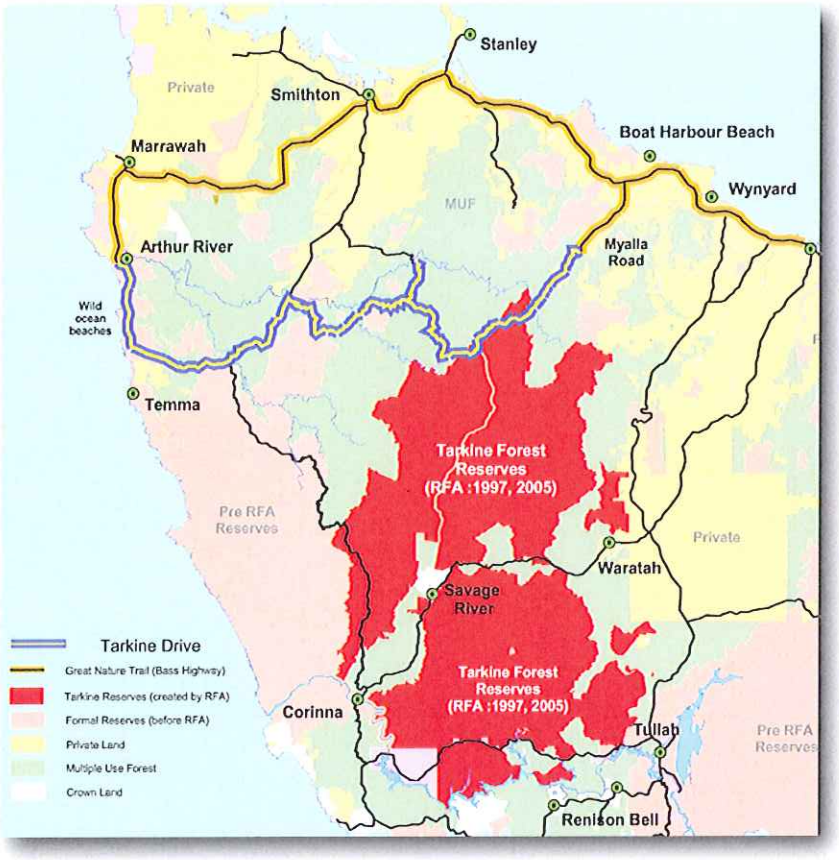

Figure 5. Reserves within the Tarkine

2.1. The Existing Roads

Roughly 90% of the Tarkine Road will be built on existing FT roads and tracks, some sealed, most not. Whilst most of the current roads are of a high standard for forestry use, some are accessible only by 4WD vehicles.

The current road network has been designed and is predominantly used to service forestry operations. Unfortunately these existing tracks do not provide an appropriate level of visitor access to tourist locations, despite them being regularly used by locals for recreational purposes.

The total road asset (inclusive of tourism site access roads) is currently managed by the following entities:

- FT – 104.9km;
- Waratah-Wynyard Council - 5.3km;
- Circular Head Council - 14.1km; and
- DIER - 15.6km.

It is expected that most of Tarkine Road will be load limited to 15 tonnes or less and no forestry heavy vehicles will be permitted east of Tayatea Bridge (specifically sections 2 to 16).

Most native forest in the area is managed for sawlog production with projected harvests being 30-50 years into the future. FT has committed to ensure forestry operations on non load limited roads will be scheduled to minimise the interaction between tourist traffic and commercial forestry operations.

2.1.1. Traffic Operation

The roads which will become the Tarkine Road are managed by four road authorities. Traffic counts have been commissioned at strategic locations on the proposed route to validate current assumptions and estimate current usage. Further traffic counts are programmed for summer and winter 2010 which will provide data on the seasonal variation of the traffic.

2.1.2. Road Crashes

DIER crash data only includes crashes which occur on the public network, so there is no reliable crash history on the majority of the roads which will be incorporated in Tarkine Road. However, FT has advised that there are currently very few reported crashes within the area.

To increase safety, a number of specific road design features will be used to ensure that the vehicle priorities are clear and sight distances are appropriate to both the type of vehicle using the particular part of the road, and the anticipated travel speeds.

2.2. Land Management

The Crown Solicitor's Office has identified a legislative impediment to DIER carrying out the Project on the FT controlled portions of the proposed site, in that the Minister for Infrastructure (through DIER) does not currently have any legislative ability to construct roads on State Forest.

To overcome this and enable DIER to obtain sufficient legal control to undertake the Project, it is proposed to change the status of the parts of the State Forest that are relevant to the Project.

This will be done by a combination of:

a. making the existing forest roads public under s.27 of the *Forestry Act 1920*; and
b. revoking the State Forest status of the land by way of the process under s.15 of the *Forestry Act 1920*.

DIER is proposing to make the existing forestry roads, public, with FT's consent, before the end of the year. DIER will then seek to revoke the status of the State Forest land for all new sections of road, which will require the approval of both Houses of Parliament.

Contracts for construction will be awarded, once all land management issues have been resolved.

There is considerable benefit assuming control over the road. It ensures a consistent maintenance program over the entire length of the road, the safeguarding of the environmental assets of the area and enhances the capacity for cross-government stewardship and promotion of the area to maximise its future potential.

3. PROJECT JUSTIFICATION

3.1. Regional Economy and Tourism

As part of the North West's regional development strategy, the Cradle Coast Authority and Tourism Tasmania established 'The Great Nature Trail' as a way to enhance the attractiveness of the journey to a potential cluster centred on Stanley, Smithton and Dismal Swamp.

The Stanley Tourism Precinct Study recently identified that the cluster has a number of serious issues in terms of branding:

- a lack of experience-rich products,
- poor conversion of day visits to overnight stays,
- exposure to downtrends in key market segments,
- a heavy reliance on Stanley as the main drawcard.

Key findings of the research identified the opportunity to develop experiences based around the cluster's potential strengths in wildlife, wilderness walks, coastal islands, food and beverage. The Tarkine Wilderness Experience was identified as a key development opportunity for the region.

According to Tourism Visitor Survey (TVS) data, in the past four years there has been an 11% drop in visitor numbers on the Great Nature Trail (GNT). There is also a clear reduction in visitation rates with distance westwards from Burnie. Both facts indicate the GNT has become less competitive due to a lack of attractions and the need to 'back-track' to Burnie to connect with other established touring routes such as the Wilderness touring route to the West Coast.

Considerable recent independent research and expert advice supports the view that the Tarkine offers Tasmania the opportunity to recapture its pre-eminent position in nature-based tourism in the national market:

- The Tarkine has been identified (Stanley Precinct Tourism Study 2006) as a potential opportunity upon which to anchor the future of tourism in the North West Region.
- Independent tourism marketing research, commissioned by FT and DED, suggests the proposed North West Road may well be the "most significant tourism development available to the State after the introduction of the Sprits of Tasmania" (EMDA, Moore Consulting & SCA Marketing, 2008)
- FT and DED commissioned economic studies and demand analysis demonstrate the benefits to the North West when the full loop road is built:
  - Significant increase in nature based tourism sector in Tasmania; increase greater than 215,000 visitor number and greater than $70M in new spending per annum
  - Most visitors will stay extra nights to enjoy the forest, wilderness and coastal attractions
  - Other regions will also benefit from the new tourist icon – "The Tarkine"
  - During construction it will create 100 jobs and has potential of generating 570 new jobs in tourist operations by 2017
  - Most of the direct spending benefit will occur in the North West communities between Devonport and Arthur River, all of which will provide accommodation, services and employees required at attractions in and around the Tarkine.
  - The result of the latest economic analysis by Dr Bruce Felmingham[4] was overwhelmingly in favour of completing the full loop road proposition that forms this proposed project.
- The Transport and Tourism Section of the Southern Regional Background Report (DIER, 2006) summarises the key road transport and visitor needs for self drive tourism in Tasmania (85% of visitors). The three key needs are identified as being:
  - Opportunities to stop and enjoy/observe the environment;
  - A non-threatening travelling environment, particularly on unfamiliar roads (ie. a sealed, speed controlled road); and
  - The opportunity to travel in a circuit, avoiding the need to cover the same route twice.

4 Felmingham B. and Wadsley A. December 2008 Tarkine Tourism Options – Tourism Assessment Executive Update.

It is estimated the Tarkine Road will provide access to currently inaccessible leatherwood apiary sites due to bridge collapses (approximately 500 hives) and an additional 5 new sites (another new 500 hives). The total of 1000 hives would produce at least 50 tonnes and up to 130 tonnes of leatherwood honey. Based on a wholesale value of $4.50/kg the direct income benefit of Tarkine Road access for apiarists is on average about $400,000 per year.

3.2. Cost/Benefit

A Social Cost Benefit Analysis of the Tarkine Road was undertaken by Bruce Felmingham and Alex Wadsley in April 2008. The scope was to examine the welfare effects of providing tourism access to the Tarkine Forests with the following specifics to be addressed:

- The impact of the proposal on the tourism industry
- The impact on regional unemployment
- The effect in terms of broadening the scope (diversity of activities) in this segment of the Tasmanian tourism market
- The general environmental impact of the proposal

The benefit/ investment ratio of the Most Likely scenario is 1.93, indicating that for $1 of public investment; there is a net increase in welfare to the community of $1.93.

This is comprised of the following benefits:

- Utility derived from spending & experience
- Increased regional incomes

The quantifiable costs include:

- Road building and maintenance
- Attractor facilities construction
- Cost of goods sold

Potential costs associated with increased fire risk, risk of environmental degradation, carbon emissions and pollution and the opportunity cost of not logging could not be quantified. However the view of the authors was that these are insufficient to alter the outcome of the analysis.

3.3. Safety Benefits

The current usage of most of the road is for forest harvesting operations and the road configuration has evolved to meet this demand. Aspects of the current road network, particularly signage and intersection configuration, are not appropriate for the anticipated increase in traffic volumes, especially where light and heavy vehicles interact. A benefit of the Project will be the installation of road signage, traffic calming devices where appropriate and improved road surfaces. These measures will greatly improve safety.

Much of the road, specifically sections 2 to 16 on the eastern side, will be load limited to ensure there is no interaction between log truck and light vehicles. On the western side, the road will be designed to provide safety benefits where that interaction does occur, such as the provision of 6m sealed pavements.

3.4. Facilitation of Future Development

The Project is a logical extension and major enhancement of the Great Nature Trail, on the Bass Highway west of Devonport.

DIER has been working very closely with Tourism Tasmania, FT and other key stakeholders for establishing how the tourism development component of the project should be implemented.

Construction of the Tarkine Road will facilitate future development in the North West through:

- Opening up the area to organised tours
- Providing access to new eco-adventure sites
- Providing access to previously inaccessible areas with high tourist value
- Creating a loop road or series of loop roads to encourage visitors to spend more time in the North West

- Promoting existing attractions
- Allowing visitors with hire cars to access areas previously off limits due to insurance restrictions or perceived issues on unsealed roads
- Developing and improving tourist facilities within the State Forest.

Potentially significant attractors, such as the Tarkine Lookout and Phantom Valley are now accessible as part of the project to create 'iconic' Tarkine experiences

4. PROJECT DESCRIPTION

The key elements of the Project are as follows:

- The upgrade of existing gravel roads and tracks that are currently managed by the Circular Head Council, Waratah-Wynyard Council, DIER and FT.
- The 131km tourist road, has the following components and approximate lengths:
  - Existing sealed road requiring no work: 19.7 km
  - Sealing existing roads: 65.3 km
  - Widening of current road and construct sealed pavement: 30.7 km
  - Deviation of existing road for aesthetic, engineering and other reasons : 9.9km
  - Construction of a new link road to join the existing gravel road sections: 5.4 km
- Vehicular Bridges: Three new single-lane bridges which involve the relocation of one bridge to the preferred alignment and the re-construction of two bridges destroyed by floods
- Pedestrian Bridges: two new pedestrian bridges: one across the Arthur River at Phantom Valley to allow visitors the claim to have "walked the Tarkine"; the second to replace an existing pedestrian bridge at Julius River Reserve due to safety concerns
- Development and/or upgrading of a number of tourism sites including access roads, car-parks, toilets, footbridges and other miscellaneous works.
- The temporary upgrade of some sections to facilitate construction access.

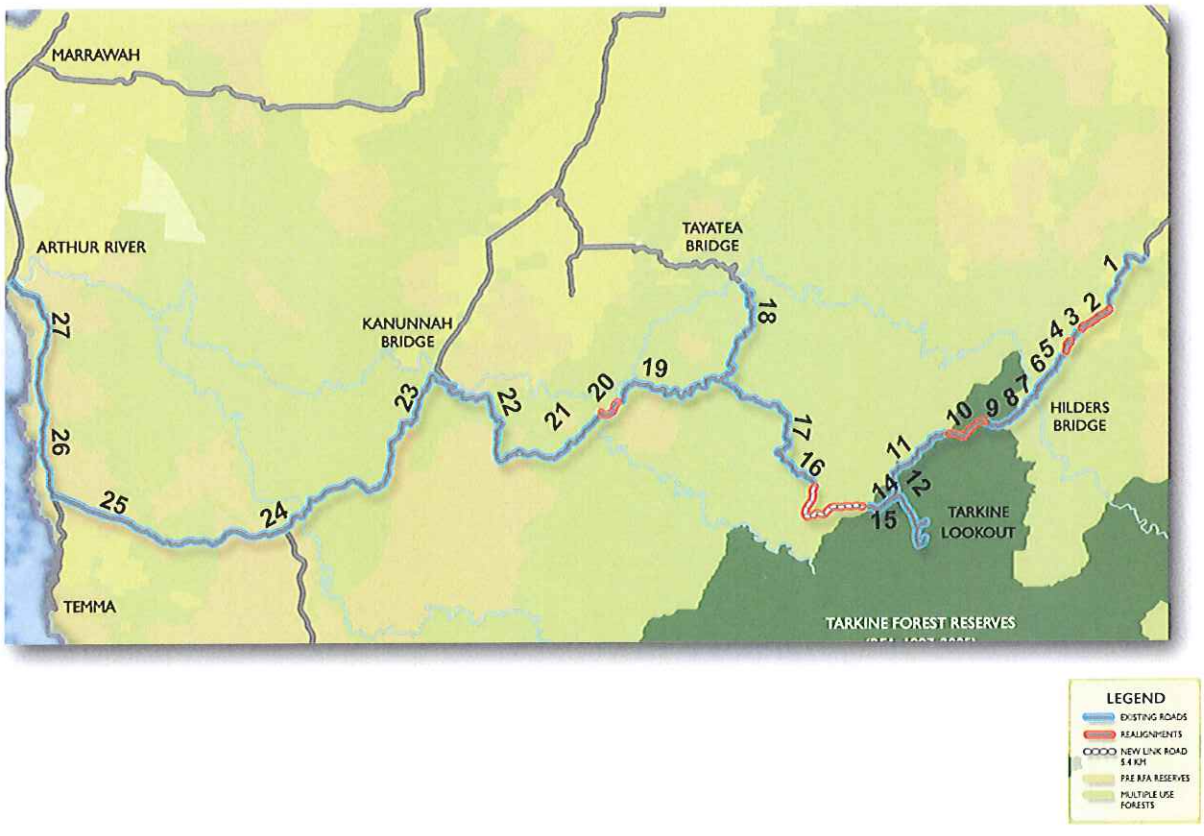

Figure 6. The Tarkine Road sections

The approximate area of new roads, widening and tourist facilities is 45 ha. To put this in context:

- The Tarkine Area (as nominated for National Heritage Listing) 445,000ha

- Existing Mining Lease Areas 12,000 ha
- Existing Exploration License Area 300,000 ha
- Multiple Use Forests 124,000 ha
- Approximate area of production State Forests 75,000 ha

The area of native vegetation clearance required for the Project (including tourist facilities such as car parks) is 40 ha, compared with an area of almost 700 ha of additional Informal Reserves that will be established as a result of the development of the road.

4.1. Road Widths

Sections 2 to 16 inclusive, and the access roads to the tourist facilities at Phantom Valley, Tarkine Falls and Lookout, and Lake Chisholm have the following features:

- 5.5 metre wide formation
- 4 metre central seal
- 2 x 0.75 metre unsealed shoulders

This formation has been adopted as the anticipated traffic volumes are low. Travel speeds will be kept low through the use of narrow, curved road alignments, making this configuration possible. The adoption of the 5.5 metre formation allows opposing vehicles to safely pass each other.

In recognition of the sensitive road environment on sections 27, 26, 25 and part of 24, the road will have a 4 metre, central seal, specifically designed to mitigate the incidence of roadkill, with the overall formation varying between 5.5 and 7.0 metres, depending on the existing conditions. Overtaking opportunities will be provided where appropriate.

On section 1 and 17 to part of 24 inclusive, it is expected that there will be a mixture of existing log and commercial traffic, in addition to tourist traffic. It is proposed the road will have a 6 metre sealed surface and 2 x 0.5 metre shoulders to cater for the mix of traffic.

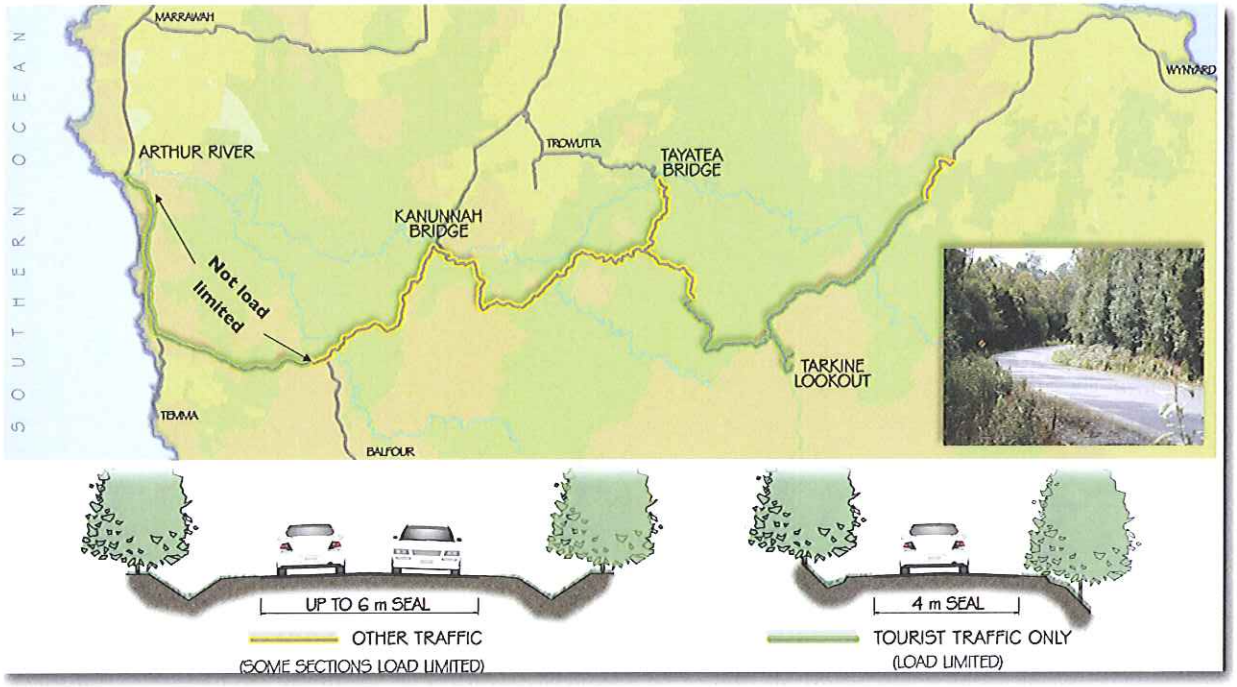

Figure 7.Proposed road profiles

4.2. Alignment

The road is designed to have travel speeds of between 40 and 50km/hr on sections 2 to 16 inclusive, plus the access roads to tourism facilities at; Phantom Valley, Tarkine Lookout and Lake Chisholm.

Low travel speeds give road users sufficient time to avoid animals, and any other obstacles. This lower speed road environment will has the advantage of limiting the clearing of vegetation for sight lines and hazard removal.

On sections 27, 26, 25 and part of 24, travel speed calming measures will be implemented to lower travel speeds.

Much of the balance of the route, particularly west of Kanunnah Bridge is quite straight and higher travel speeds are generally possible.

4.3. Public Utilities

The project is situated in a remote and undeveloped location. Consequently there are very few utilities present.

There is some private infrastructure in specific locations such as, an iron ore slurry pipeline, and water catchment gauging stations. Appropriate measures will be taken so as not to cause interference to this infrastructure.

The owners of the infrastructure have been consulted throughout the development of the design and the required modifications have been designed to minimise interruptions to users of the utilities during construction.

4.4. Bridges

The Tarkine Road will cross the Arthur, Lyons and Rapid Rivers, all of which have significant variation of flow throughout the year. The bridges will be designed to remain open for river flows up to and including one in 20 year flood events, consistent with DIER standards. For rarer floods the bridges will be closed to all traffic.

Given the proposed future use of the Tarkine Road (for tourism traffic) – this level of service is considered appropriate. Although not passable at less frequent floods, the bridges will be designed to withstand the loadings imposed by floods up to a one in 2000 year recurrence interval, again consistent with DIER standards.

Figure 8. Current situation of Tayateah Bridge

4.5. Travel Times

Like many roads in Tasmania, driving the Tarkine Road will take longer to travel than first appears, as much of it will lend itself to slow speeds. So to travel the entire Tarkine Road from Wynyard through Smithton and back to Wynyard will take over six hours. It is likely visitors will stay in the region for more than one day.

The Tarkine Road is a loop, but also contains two inner loops, so there are various options for drivers to take.

The major loop goes from the Myalla Road turnoff on the Bass Highway, through Phantom Valley, west towards Temma, north past Arthur River, north east to Smithton and back to Myalla Road.

The western loop, which will take roughly three hours, forty minutes, is from Smithton along the South Arthur Forest Drive, over Kanunnah Bridge, towards Temma and back to Smithton.

The eastern loop, which will take roughly three hours forty five minutes, will be from Smithton via the rebuilt Tayatea Bridge, east to the Tarkine Lookout and Tarkine Falls, then through Phantom Valley to Myalla Road and the Bass Highway.

To gain an understanding of the distances and rough travel times for the Tarkine Road and from various towns and locations in the region, DIER has put together the map below.

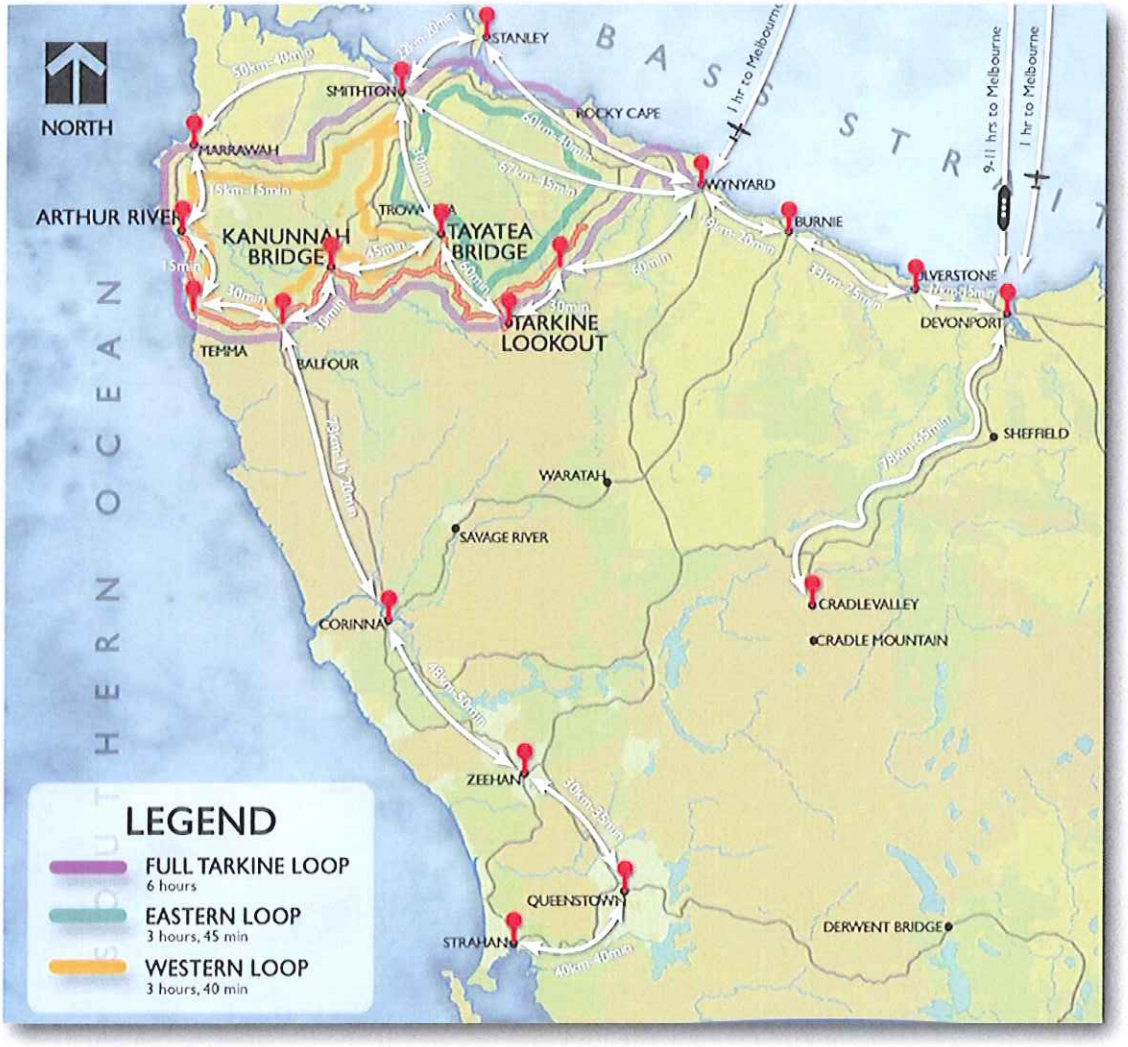

Figure 9. Travel times on the Tarkine Road

5. EARLY CONTRACTOR INVOLVEMENT (ECI)

The high benchmarks set in delivering on the four key outcomes combined with the recognised inherent complexities of this project warrant a more innovation approach to its procurement and contracting. As such it is proposed to utilise an ECI contract for procurement of the construction of the project. The exemption request to undertake an ECI is currently with the Department of Treasury and Finance for its approval and DIER expects to know the outcome by mid-November.

5.1. Overview of ECI Model

ECI is an innovative hybrid style of contract that involves two discrete stages:

> Phase 1 – Similar to a project alliance in that not all project details are defined, and the construction contractor, once engaged, works with the client and its designers to plan, design, document and price the project, appropriately apportioning risks as they are identified. As in a project alliance, this stage is undertaken on a full "open book" basis. The key deliverable of Phase 1 is the Phase 2 offer, comprising a risk-adjusted price for the completion of the project. The client reviews the Phase 2 offer to ensure it represents best value-for-money for the project in question.
>
> Phase 2 – Similar to a Design and Construct contract, but subject to the client first accepting the Phase 2 offer described above. If the client accepts the Phase 2 offer, the contractor is required to complete the detailed design and construction documentation and complete the construction. If the client does not accept the offer, it can terminate the agreement and look for another party to complete the work in Phase 2 through a tender process.

While ECI contracts are a relatively recent innovation, they are now the most popular contractual delivery mechanism in the Highways Agency of the United Kingdom, which has been using this style of contracting since 2001.

Locally, the ECI model is gaining acceptance across Australia as infrastructure authorities grapple with the best way to manage the procurement and delivery of major projects within the roads sector. It has been used in South Australia and Western Australia, and has become most popular at the Queensland Department of Main Roads, which, since November 2005, has utilised the model on approximately 10 contracts.

The rationale for ECI use on the Tarkine Road Project is outlined below:

1. Previous documented experience of ECI contracting in other jurisdictions has demonstrated the suitability of this type of model for managing high-profile projects such as this as the parties work through any project issues collaboratively, and the contractual arrangements are inherently flexible, which means that adjustments can be made at short notice to accommodate any scope changes that might arise.
2. ECI contracting is most appropriate for projects which require a high degree of input from the client. As DIER has extensive experience and expertise in delivering complex projects, it is highly desirable for DIER to work collaboratively with the contractor, particular in the early stages of planning and design, to ensure the Project is undertaken in line with contemporary engineering methodologies and practices.
3. The budget for the Project ($23M) is very tight given the project timeframes, the number and nature of the required approvals and the overall complexity of the works. To date, only limited design work has been undertaken, which means there is a need for significant additional design before the works can be constructed. One major advantage of the ECI model is that it would enable the design aspects of the Project to be carried out collaboratively, which means that the parties would work together to find innovative, cost-effective design solutions that meet "best-for-project" criteria.

   The ECI Process also provides the opportunity to improve the design outcomes, subject to environmental approvals, such as improving the steep grades in the case of the alignment in the vicinity of Rapid River. In addition to determine the preferred source of construction materials.
4. As a high profile project, it is important that the Project works commence as soon as reasonably possible in order to provide greater certainty to the community and to local industry. Use of an ECI model would enable the Project to be tendered early, before the design is complete, which would be of great assistance to DIER in meeting the Project timeframes.
5. Use of an ECI model would enable DIER to work collaboratively with the contractor in developing a Staging Plan that best supports the Project delivery requirements, keeping the traffic moving and minimising community and other road user disruption.

6. Given its location, the Project faces significant environmental and, to a lesser extent, heritage issues. One major environmental issue involves protection of the local Tasmanian Devil population. The ECI model will enable DIER to work collaboratively with the contractor to put specific design measures in place to mitigate potential road kill and to avoid the spread of the devil facial tumour disease. A host of measures are being investigated specifically to reduce the incidence of road-kill and spread of devil facial tumour disease. Close DIER involvement in the early stages of the Project will ensure that these measures are appropriately implemented and regularly monitored to ensure their effectiveness.
7. Additionally, the complex approvals processes – particularly those required by the Commonwealth Department of the Environment, Water, Heritage and the Arts - will require significant lead time before construction can commence. Use of an ECI process would enable DIER to award initial contracts and further develop the project to a point where it is confident that the proposed price and other deliverables associated with the Design and Construct Phase are appropriate whilst concurrently progressing the required approvals.

On this basis the ECI model, provides the greatest flexibility to deliver the expected outcomes set for the project.

6. EXISTING ENVIRONMENT

DIER has commenced an extensive series of surveys and monitoring programs commensurate with the values expected to be present, stakeholder expectations and to inform the development of a range of management plans and other actions to fulfill the key outcome of Environmental Responsibility.

All initial background surveys have been completed to a level that allows a characterisation of the project area. There is sufficient information to progress key approval agency consultation (which has commenced) and to refer the project to the Commonwealth Department of The Environment, Water, Heritage and the Arts, pursuant to the Environment Protection and Biodiversity Conservation Act 1999.

The following background surveys have been undertaken for the project to date:

- DPIPWE Geoconservation database search[5]
- A Vegetation Survey and Fauna Habitat Assessment[6]
- An Aboriginal Cultural Heritage Assessment[7]
- An Historic Heritage Assessment[8]

In addition to the typical Botanical Survey and Fauna Habitat Assessment, some further more specific investigations are underway.

North West Tasmania is considered to support relatively high densities of devils that are not infected by the Devil Facial Tumour Disease (DFTD). As a result additional studies are being implemented to investigate the potential impacts on vertebrate carnivores. The aims of the studies are to assess the current rate of roadkill and investigate the possible impacts of the project on the potential spread of DFTD.

6.1. Road kill

This study will consider the current rate of road kill in the area and will review previous studies on the relationship between traffic and road kill elsewhere in Tasmania. A number of scenarios will be investigated to determine the potential scale of the impact from road kill.

6.2. Devil Facial Tumour Disease (DFTD)

To investigate the possible impacts of the project on the potential spread of DFTD, there will be an assessment of whether the construction of the road:

- Is likely to increase the rate and distance of movement of devils;
- Will facilitate the migration of animals from areas of infection to areas currently free of the disease
- Is likely to significantly change existing (if any) natural barriers to devil movement in North West Tasmania.

In addition, the following additional investigations are planned, or currently underway:

- Water quality monitoring program will commence in November 2009. Ongoing surface water monitoring will occur on a routine basis before, during and after the construction phase.
- Roadkill monitoring: the proposed program will run for approximately 12 months
- Spring orchid and annuals survey: this spring orchid flowering period survey is currently being undertaken
- Rainforest lichen survey: currently planned for late 2009 /early 2010
- Epacris curtisiae northwest heath areas survey: this survey is currently being undertaken

5 DPIPWE Geoconservation Database; accessed 4th August 2009.

6 Northbarker Ecosystem Services 2009. Tarkine Drive North West Tasmania Vegetation Survey and Fauna Habitat Assessment.

7 CHMA 2009. Tarkine Road Study Aboriginal Cultural Heritage Assessment.

8 Austral Tasmania 2009. Tarkine Drive Historic Heritage Assessment.

- General surveys of new sections and other impact sites not previously accessed: these surveys are currently being organised
- A supplementary wedge-tailed eagle survey: this survey can only be undertaken outside the breeding season (February to July inclusive). This study will be used to truth-proof desk-top research and previous field studies undertaken by FT.

The investigations and monitoring being undertaken for the Project (particularly in relation to road kill) will add a significant body of work to the corpus of knowledge in these areas. It is expected the data collected will provide a lasting resource for the Government and more widely to the scientific community well beyond the completion of this project.

6.3. Geoconservation

Sites of geoconservation significance, which are widely distributed in the area, include:

- Three sites of world significance (including the paleobotany site mentioned later in this document)
- Four sites of Australian significance
- Eight sites of Tasmanian significance
- Ten sites of regional significance
- One site of local and one site of unknown significance

These sites are scattered predominantly adjacent to the project area. Due to the sensitive nature of the sites it is not appropriate to publish their location; however the Project Team is in continuing discussions with the Geoconservation specialist in DPIPWE to ensure each site is protected appropriately.

6.4. Flora

6.4.1. Vegetation

The study area supports twenty five native plant communities attributable to TASVEG mapping units, of which the following four communities (three forest communities and one non forest community) are considered to be of high conservation significance:

- *Eucalyptus viminalis – Eucalyptus globulus* coastal forest and woodland **DVC**: Rare and Vulnerable; Inadequately reserved
- *Eucalyptus brookeriana* wet forest **WBR**: Vulnerable; Inadequately reserved
- *Melaleuca ericifolia* swamp forest **NME**: Rare and Endangered; Inadequately reserved
- Freshwater aquatic sedgeland and rushland **ASF**

6.4.2. Threatened Species

The following flora species, listed on both the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and the *Threatened Species Protection Act 1995* (TSPA) have previously been recorded from the area:

- *Caladenia dienema* windswept spider orchid
- *Corunastylis brachystachya* shortspike midge-orchid
- *Diuris lanceolata* large golden moths
- *Prasophyllum favonium* western leek-orchid
- *Pterostylis cucullata* subsp. *cucullata* leafy greenhood
- *Pterostylis rubenachii* Arthur River greenhood

The following flora species listed on the *Threatened Species Protection Act 1995* (TSPA) have previously been recorded from the area:

- *Caladenia pusilla* tiny fingers
- *Carex gunniana* mountain sedge
- *Cullen microcephalum* dusky scurfpea

- *Cyrtostylis robusta* large gnat orchid
- *Diuris palustris* swamp doubletail
- *Epacris curtisiae* northwest heath
- *Lotus australis* Australian trefoil
- *Phyllangium divergens* wiry mitrewort
- *Pterostylis lustra* small sickle greenhood
- *Spyridium vexilliferum* var. *vexilliferum* helicopter bush
- *Stylidium perpusillum* tiny triggerplant

The following threatened (TSPA) rainforest lichens are associated with the trunks of mature myrtle beech (*Nothofagus cunninghamii*) and other rainforest trees:

- *Bunodophron notatum*
- *Calycidium polycarpum*
- *Erioderma sorediatum*
- *Hypotrachyna laevigata*
- *Menegazzia minuta*
- *Roccellinastrum neglectum*

6.4.3. Introduced Plants

Three Declared Weeds, as listed on the Tasmanian *Weed Management Act 1999*, were recorded from the study area:

- Blackberry (*Rubus fruticosus* agg.)
- Gorse (*Ulex europaeus*)
- Spanish heath (*Erica lusitanica sp.*)

The following species may occur, but were not recorded in the current survey:

- Willows (*Salix spp.*): have some probability of occurring, particularly in the eastern end that has been cleared for farming
- Bridal creeper (*Asparagus asparagoides*): would have the potential to establish in much of the scrub and forest habitats

Other environmental weeds recorded include foxglove (Sumac Road verge) and numerous herbaceous weed species in native vegetation on the coastal section (sections 26 & 27), particularly where cattle graze.

6.4.3.1. Phytophthora cinnamomi

Symptomatic signs of *Phytophthora cinnamomi* were observed in the area during current surveys.

Susceptibility to infection is considered to be:

- High in the heathland and moorland environments
- Low in the eucalypt and rainforest environments

6.4.3.2. Myrtle Wilt

Symptoms of myrtle wilt (*Chalaris australis*) were observed in the rainforest in section 15 and at the edge of plantation development adjacent to section 4.

Chalaris australis is a naturally occurring fungus that causes a disease in older myrtle beech (*Nothofagus cunninghamii*) regeneration (40 – 60 years) and mature myrtle. It results in the death of the trees.

6.4.3.3. Paleobotany

A fossil site of world significance, close to the middle of section 15, contains early Oligocene macrofossils. This site represents a key phase in the major transition from a conifer-dominated Gondwanan flora to the modern sclerophyll-dominated flora. This site is not within the area of proposed road works.

6.5. Fauna

6.5.1. Fauna Habitat

The proposed road crosses a range of fauna habitats, including rainforest, eucalypt forest, buttongrass moorland, coastal heathland, shrublands and woodland. Aquatic habitats in the area range from major rivers to localised ephemeral wetlands.

6.6. Threatened Species

The following threatened fauna species, listed on one or both of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and the Tasmanian *Threatened Species Protection Act 1995* (TSPA), have previously been recorded from within 5km of the existing alignment and the proposed link road:

- Tasmanian devil *Sarcophilus harrissii*
- Spotted-tailed quoll *dasyurus maculatus* subsp. *maculatus*
- Eastern-barred bandicoot *Perameles gunnii*
- Wedge-tailed eagle *Aquila audax* subsp. *fleayi*
- Swift parrot *Lathamus discolor*
- Orange-bellied parrot *Neophema chrysogaster*
- White-bellied sea-eagle *Haliaeetus leucogaster*
- Grey goshawk *Accipiter novaehollandiae*
- Masked owl *Tyto novaehollandiae castanops*
- Azure kingfisher *Ceyx azureus*
- Striped marsh frog *Limnodynastes peroni*
- Green and gold frog *Litoria raniformis*
- Australian grayling *Prototroctes marina*
- Giant freshwater crayfish *Astacopsis gouldi*
- Keeled snail *Tasmaphena lamproides*
- Marrawah skipper *Oreiplanus munionga* ssp. *larana*

6.6.1.1. Devil Facial Tumour Disease

The devil facial tumour disease (DFTD) is the single most significant cause of mortality and consequent threat to the conservation of the Tasmanian devil. The retention of naturally occurring disease free populations is a key factor in ensuring the long term survival of the species in the wild. Any activity that may increase the risk of accelerating the spread of DFTD into areas currently disease free may be considered as having a significant impact on the species.

The North West population of Tasmanian devils is currently disease free. The disease 'front' is, however, estimated to be moving at a rate of 7 km per year, although it has moved at a much faster rate on at least one occasion.

Construction of the proposed road, and in particular construction of new bridges across the Arthur River, may increase the mobility of devils (i.e. increase their ability to range from north of the Arthur River to south of the river) and hence increase the spread of the disease into areas that are currently disease free. However, anecdotal evidence suggests there are a number of existing fords and crossing points already across the Arthur River downstream of the proposed bridge. If this proves to be the case then the addition of extra bridge is not expected to make an appreciable difference in the mobility of devils. This is currently being investigated and it is expected to be confirmed by the time of the Standing Committee hearing.

6.6.1.2. Roadkill

There is a relationship between traffic volume, speed and wildlife mortality. A study, by Shaw *et al* (undated), of the relationship of roadkill to environmental, road design and construction factors has shown that visibility, roadside barriers and escape routes are the most important predictors of the possibility of finding a wildlife roadkill on a stretch of road in Tasmania.

Because the proposed road will change the volume, character, timing and speed of traffic through the area, so specific measures will be undertaken to mitigate against the incidence of roadkill.

6.6.1.3. Feral Animals

Rabbits have been recorded from sections 26 and 27; elsewhere along the route habitat suitability is low. Although no domestic cat sightings were made during the current surveys, knowledge of the area and the distribution of feral cats in Tasmania would suggest that they are present.

6.7. Aboriginal Cultural Heritage

An Aboriginal Cultural Heritage Assessment of the area is currently being undertaken. Field assessment of sections 1–6 and 19-27 has been completed. Preliminary details[9] have identified the following:

- An extensive porcelanite Aboriginal stone quarry complex
- An extensive area of Potential Archaeological Sensitivity (PAS)

The stone quarry complex, which is located within section 25, is comprised of three sites:

- TASI 2555: consisting of a number of mounds, shallow depressions and major flaking stations
- TASI 2557: comprising several mounds and pits of earth within which flakes and cores made of spongolite were embedded
- TASI 2836: an outcrop of spongolite nodules that are scattered across the soil surface, with evidence of flaking on numerous nodules

These sites are assessed as being of high archaeological and social significance. These sites will not be impacted by the proposed works given this section will only require the existing road to be sealed. Prior to construction a set of detailed management strategies will be developed to ensure that any potential direct and indirect impacts are avoided or absolutely minimised.

The Potential Area of Archaeological Sensitivity (PAS), which is located in section 2, consists of:

- Numerous elevated and level terraced areas on the margins of Brandy Creek

No sites or artefacts were identified in this area because of poor visibility due to thick ground cover. However, based on the results of previous archaeological investigations in the region, deposits of artefacts may be present in this area. Therefore it is anticipated that sub-surface investigations will be undertaken in this area in order to determine the extent and nature of artefact deposits.

6.8. European Heritage

There are very few buildings of any description along much of the proposed road alignment. At the eastern end (sections 1 and 2) there are buildings associated with farming activity whilst on the western side (sections 26 and 27) there are a number of fishermen's shacks along the coastline. Other buildings include several old sawmills, remains of mining activities, and a number of smaller buildings such as huts associated with walking tracks.

There are no sites within or adjacent to the proposed alignment listed on the following:

- World, National or Commonwealth Heritage Lists
- Tasmanian Heritage Register
- *Circular Head Planning Scheme 1995*
- *Waratah-Wynyard Planning Scheme 2000*

The following features, within or in close proximity to the study area, are listed on the following registers:

- Register of the National Estate: Balfour Track
- Tasmanian Historic Places Inventory: Balfour Track; Dempsters Track; Newhaven Track; Lyons River Mill; Hilders Bridge Mill; Hebe River Mill; Dip River Hut; Blue Peak Gold Mine
- Forest Practices database: Balfour Track; Dempsters Track; Lyons River Mill; Hilders Bridge Mill

9 CHMA, 20-9-2009: Tarkine Road Study Aboriginal Cultural Heritage Assessment, Interim Progress Report.

6.9. Visual impact

Construction of roads and bridges has the potential to have a significant visual impact on the existing landscape, which in turn could diminish the quality of the tourist experience.

A viewshed analysis (figure 10) was conducted for the length of the Tarkine Road. Viewshed analysis identifies cells in a terrain model that can be seen from one or more observation points or lines. It allows the user to determine the areas of the surrounding landscape visible from a designated place. The analysis was done based on land contour data and assuming that no vegetation or other shielding objects were present – this is an extremely conservative approach given the majority of the route will be within heavily forested areas.

The owner of the Tarkine Lodge – Richard Summers – has raised concerns over the visual impact of the proposed road on his property. The viewshed modeling (without vegetation) indicates that the majority of the property will not be able to view the proposed road (figure 11).

The road alignment has been designed to be sympathetic with the adjoining environment, by minimising the instances of 'scarring' associated with excavated cuttings and clearing of forest beyond the road formation.

Disturbance at bridge construction sites will be kept to the minimum practicable level, consistent with the requirements necessary for safe bridge construction.

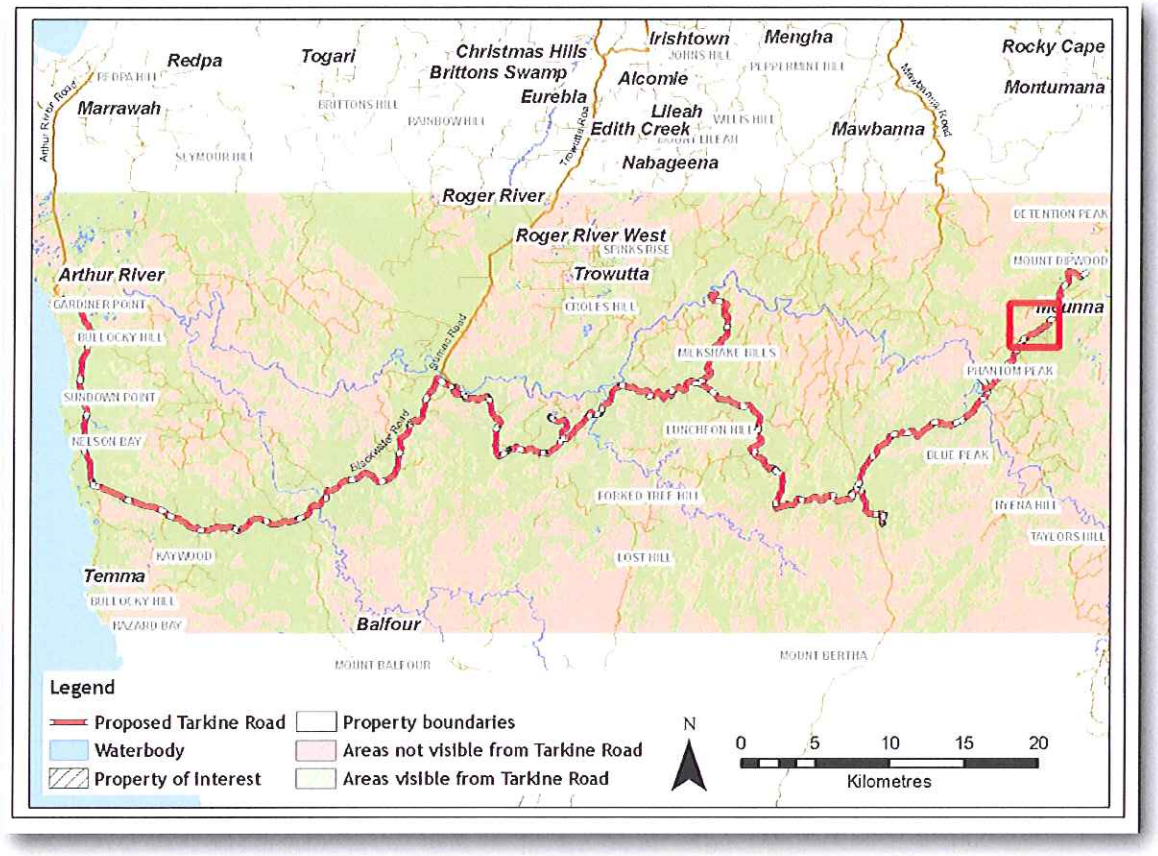

Figure 10. Viewshed Analysis Map

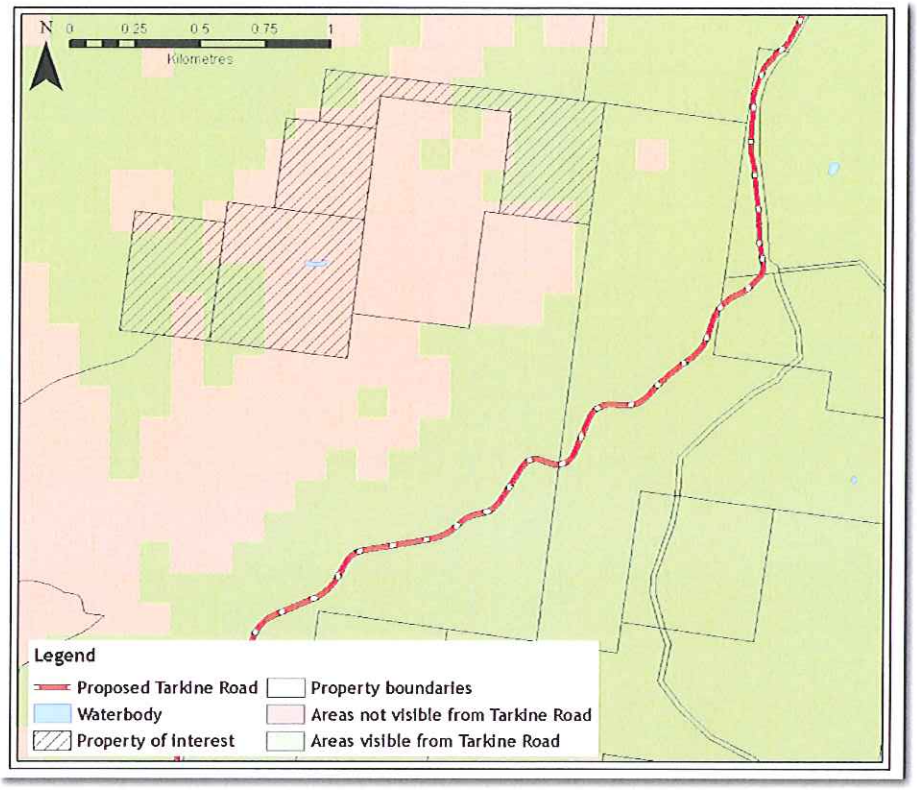

Figure 11. Viewshed Analysis Map in relation to Tarkine Lodge

6.10. Noise

A road traffic noise catchment[10] can be defined as land within 300 m of the proposed alignment; beyond this most noise models are not capable of producing reliable predictions. Road traffic noise is unlikely to be perceivable greater than 300 m away as road traffic noise decreases at a rate of 3 dB(A) per doubling of distance.

There are two rural residential properties within 300 m of the proposed road, both of these are adjacent to sections of existing road where the road will be widened and sealed. Gravel roads produce more noise than sealed roads[11] so the proposed works are not expected to create any noise nuisance.

The owner of the Tarkine Lodge – Richard Summers – has also raised concerns over the noise impact of the proposed road on his property. However, at its nearest point the road is 595 m from his boundary, and as such is not expected to create any noise nuisance.

In addition, Tarkine Trails, a small trail guiding company operating a multi-day walk in and around the region, expressed concern about road noise and diminished wilderness value of the route they currently use. DIER is working with Tarkine Trails to resolve any concerns.

6.11. National Heritage

"The Tarkine" has been nominated for National Heritage Listing. The Department of The Environment, Water, Heritage and the Arts (DEWHA) is assessing the nomination.

10 NSW RTA Environmental Management Manual

11 Department of Main Roads QLD, Road Traffic Noise Assessment

6.12. Wilderness

Some of the new sections of the road pass through areas identified as having wilderness values. There is considerable benefit in having an assessment of the wilderness values of the area and the relationship with the project.

This task will apply the rule sets for measuring wilderness developed for the Regional Forest Agreement (RFA) / the DEWHA National Wilderness Inventory approach. The RFA analysis was undertaken in 1996. The analysis will prepare a Wilderness Map of the region utilising the latest and most contemporary mapping layers of roads, transmission lines, logging coupes and other infrastructure.

The impact of the proposed Project to the wilderness mapping will be undertaken. In addition analysis of the future plan for Multiple Use Forest and Mining extraction will be taken into account to prepare a scenario of a future likely wilderness map. Comparison again can be made between that with or without the proposed Tarkine Road going ahead.

6.13. Climate Change Considerations

Projected changes in climate are being incorporated in the planning, design, specifications, construction, operation and ongoing maintenance of the project.

Climate change modelling is currently underway in the Climate Futures for Tasmania project being undertaken by the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project will provide high resolution, geographic specific projections of a range of climate variables and parameters for consideration in the project. Result outputs from the project have commenced and will continue through 2010. Where appropriate, the detailed information will be incorporated in design requirements and specifications as it becomes available.

Climate change parameters[12] being assessed for their impacts on the project, to ensure appropriate treatment within the design and construction processes include:-

- Temperature rises
  - Modeling projects rise of up to 3 degrees[13]
  - Changes in rainfall patterns including varied intensity and seasonal distributions which may impact on hydrological components, and soil moisture considerations impacting on slope stability
  - Changes in rainfall for the area are projected to vary in total annual volumes (between a 20% decrease and a 10% increase). However, larger seasonal variations are projected (between a 40% decrease over spring/ summer to a potential 40% increase over winter)[14]
  - Relative humidity, affecting soil moisture is projected to vary marginally between an up to 2% decrease to a 1% increase
  - Evapotranspiration, also affecting soil moisture, is projected to vary between a 2% decrease to a 16% increase
- Wind strengths are projected to vary
  - Annual changes of between a 10% decrease to a 15% increase with larger seasonal variations between an up to 15% decrease in summer to in excess of 15% increase over winter
  - Aggregated effects of projected changes in climate may include potential increases in fire danger risks. The fire management plans being prepared will incorporate assessment of these potential risks.
- Sea level rises projected due to climate change are not expected to impact on the project
  - Coastal mapping undertaken for the sections of road which traverse low lying coastal areas within 1000m of the current foreshore (segments immediately north of Couta Rocks) indicate that whilst the sandy foreshore in those sections is vulnerable to beach erosion, the dunal areas are backed by bedrock with lesser recession vulnerability[15].

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[12] Until the results of the Climate Futures for Tasmania project are finalised, the best currently available climate change projections are provided in the 2007 CSIRO and Bureau of Meteorology project. Climate Change in Australia. Technical Report and supplementary material. [CSIRO & BOM,2007]. Projections discussed are for a high emissions scenario with changes for a period averaged around 2070 compared to a base period of 1980 to 1999

[13] Projection for 2070 period, 50th percentile for the high emissions scenario. [CSIRO & BOM,2007].

[14] Projections are for 2070 period, high emissions scenario, 10th percentile and 90th percentile respectively. [CSIRO & BOM,2007].

[15] Sharples, 2006, Indicative Mapping of Tasmanian Coastal Vulnerability to Climate Change and Sea-Level Rise: Explanatory Report, 2nd Edition.

- The road sections within the lowest lying areas are considered sufficient elevation and distant from the current shore (>600m) to avoid direct exposure to projected wave action or other coastal inundation processes

The processes undertaken in the design and assessment have considered and will continue to assess greenhouse emissions and energy conservation.

The processes being undertaken will guide the final design to minimise, as best as practicable, the impacts of greenhouse emissions, and maximise the conservation of energy.

Through ongoing consultation with the Climate Change Office, greenhouse gas emissions during construction will be managed in line with existing and emerging State and Federal Government policy.

It should be noted that the preliminary design minimises the length of new road and maximises the upgrade of existing roads, which is an effective pointer to minimisation of total impact through the design phase.

7. ENVIRONMENTAL APPROVALS REQUIRED

Environmental approval for the proposal is required from:

- The Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA)
- The Tasmanian Department of Primary Industry, Parks, Water and the Environment (DPIPWE), Development Conservation and Assessment Branch (DCAB)
- The Aboriginal Heritage Tasmania section of DPIPWE

A comprehensive program of key approval agency consultation is underway. There has been close collaboration with staff from DEWHA, including two site visits, the most recent being the 1-2 November to discuss the EPBC referral and results from the first round of roadkill and traffic monitoring.

In addition officers from both Aboriginal Heritage Tasmania and DCAB have been consulted about key relevant aspects of the Project.

7.1. Flora Species

The works may involve direct impact as a result of destruction of flora species at particular localities, and may also have an indirect impact as a result of a reduction in the habitat of the species.

The extent of this potential impact cannot be clarified until after the targeted spring surveys, to be undertaken during the orchid flowering period, have been completed.

7.2. Fauna Species

Unmitigated increases in traffic volume and speed may increase roadkill, not only within the Tarkine Road but also within connecting roads.

Construction of a bridge across the Arthur River (Hilders Bridge) may increase the frequency of movement of Tasmanian devils and open up contact each side of the Arthur River, which could facilitate the spread of the Devil Facial Tumour Disease. However, there are examples of simple mitigation measures elsewhere in the state that could be used in this instance, and as outlined earlier within this document this may prove to less of an issue than previously thought.

7.3. EPBC Referral

The proposal has been referred to the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) on the 21st October because it may have a significant impact on a number of flora and fauna species listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

It is an appropriate approach to conduct only the initial assessments prior to lodging the referral to inform DEWHA of the issues and the likely triggers under the legislation.

The species (flora and fauna) outlined in the referral are those species that occur in the general vicinity of the proposed road that may be subject to some level of impact, however many require specific seasonal surveys to determine this with certainty - the approach taken is an extremely conservative one. In many instances the species listed may prove to be absent following further surveys or the impact to be extremely minor in nature.

Flora species potentially at risk are:

- *Caladenia dienema* windswept spider orchid: Critically Endangered
- *Corunastylis brachystachya* shortspike midge orchid: Endangered
- *Diuris lanceolata* large golden moths: Endangered
- *Prasophyllum favonium* western leek-orchid: Critically Endangered
- *Pterostylis cucullata* subsp. *cucullata* leafy greenhood: Vulnerable
- *Pterostylis rubenachii* Arthur River greenhood: Endangered

Fauna species potentially at risk are:

- Tasmanian devil *Sarcophilus harrissii*: Endangered

- Spotted-tailed quoll *Dasyurus maculatus* subsp. *maculatus*:Vulnerable
- Wedge-tailed eagle *Aquila audax* subsp. *fleayi*: Endangered

The purpose of the referral process is to determine whether or not a proposed action will need formal assessment and approval under the EPBC Act. If the Federal Minister decides that an action requires approval, then a detailed environmental assessment of the action must be carried out and submitted to the Federal Minister (and publicly advertised) for assessment. After considering the environmental assessment report, the Federal Minister decides whether to approve the action, and what conditions (if any) to impose.

Due to the nature of the project and its potential impacts, it may be subject to an intensive Public Environment Report (PER) or Environmental Impact Statement (EIS), however this cannot be confirmed until DEWHA makes a determination on the submission in late November. If a PER or EIS is required then a full decision is unlikely until August 2010.

It is important to initiate early involvement (through the referral) of DEWHA when undertaking further surveys and background monitoring - this will ensure the further investigations are of the highest standard and meet their expectations.

7.4. DCAB Referral

The proposal will be referred to the Development Conservation and Assessment Branch of DPIPWE because it may have an impact on some of the following flora and fauna species listed as threatened under the Tasmanian *Threatened Species Protection Act 1995* (TSPA).

Flora species potentially at risk are:

- *Caladenia dienema* windswept spider orchid: Endangered
- *Caladenia pusilla* tiny fingers: Rare
- *Carex gunniana* mountain sedge: Rare
- *Corunastylis brachystachya* shortspike midge orchid: Endangered
- *Cullen microcephalum* dusky scurfpea: Rare
- *Cyrtostylis robusta* large gnat orchid: Rare
- *Diuris lanceolata* large golden moths: Endangered
- *Diuris palustris* swamp doubletail: Endangered
- *Epacris curtisiae* northwest heath: Rare
- *Lotus australis* Australian trefoil: Rare
- *Phyllangium divergens* wiry mitrewort:Vulnerable
- *Prasophyllum favonium* western leek-orchid: Critically Endangered
- *Pterostylis lustra* small sickle greenhood: pending Rare
- *Pterostylis cucullata* subsp. *cucullata* leafy greenhood: Endangered
- *Pterostylis rubenachii* Arthur River greenhood: Endangered
- *Spyridium vexilliferum* var. *vexilliferum*: Rare
- *Stylidium perpusillum* tiny triggerplant: Rare

In addition, the following rainforest lichens are potentially at risk:

- *Bunodophron notatum*: Endangered
- *Calycidium polycarpum*: Rare
- *Erioderma sorediatum*: Endangered
- *Hypotrachyna laevigata*:Vulnerable
- *Menegazzia minuta*: Endangered
- *Roccellinastrum neglectum*: Endangered

Fauna species potentially at risk are:

- Tasmanian devil *Sarcophilus harrissii*: Endangered
- Spotted-tailed quoll *Dasyurus maculatus* subsp. *maculatus*: Rare
- Eastern barred bandicoot *Perameles gunnii*: Vulnerable
- Wedge-tailed eagle *Aquila audax* ssp. *fleayi*: Endangered
- Grey goshawk *Accipiter novaehollandiae*: Endangered
- Azure kingfisher *Ceyx azureus* ssp. *diemensis*: Endangered
- Giant freshwater lobster *Astacopsis gouldi*: Vulnerable
- Marrawah skipper *Oreisplanus munionga larana*: Endangered

A Permit to Take will be submitted early in 2010 following completion of the spring surveys.

7.5. Aboriginal Heritage Tasmania

The detailed site management measures and sub-surface investigation methodology will be developed in collaboration with Aboriginal Heritage Tasmania. Any investigations or impacts to Aboriginal relics will require a Permit, pursuant to the Aboriginal Relics Act 1973.

8. PLANNING APPROVAL

The Tasmanian Resource Management and Planning System (RMPS) was established to achieve sustainable outcomes from the use and development of the State's natural and physical resources.

This development will be considered against:

- *State Policies and Projects Act 1993*
- *Land Use Planning and Approvals Act 1993* (LUPAA)

8.1. Land Use Planning and Approvals Act 1993

Under LUPAA, Councils are required to administer the development and use of land within their municipal boundaries. The assessment of development and use is undertaken in accordance with the relevant planning scheme(s).

As the proposed development is located within the boundaries of the Waratah-Wynyard and Circular Head Municipalities, the proposed use and development within the respective municipalities will be assessed in accordance with the *Waratah-Wynyard Planning Scheme 2000* and the *Circular Head S.46 Planning Scheme No.1 1995 As Consolidated at the 2nd June 2003*.

DIER has been working closely with FT, Waratah-Wynyard and Circular Head Councils over the last few months to acquire a sound knowledge of the Project requirements and stakeholder issues.

8.1.1. Waratah-Wynyard Planning Scheme 2000

The eastern extent of the proposed Tarkine Road is within the Waratah-Wynyard Council municipal boundaries – governed by the Waratah-Wynyard Planning Scheme 2000.

The proposal will be in the Utilities Use Class, requiring a planning permit for areas requiring widening or realignment.

Some schedules will also apply, in particular Schedule 16 Wetlands & Waterways Schedule and Schedule 14 Road Assets Schedule. Applications for development must satisfy the requirements of these scheme provisions.

8.1.2. *Circular Head S.46 Planning Scheme No. 1 1995*

The proposed Tarkine Road is predominantly within the Circular Head Council municipal boundaries – governed by the Circular Head S.46 Planning Scheme No.1 1995.

The use or development will be defined as a Road. The link section, realignments and areas requiring widening will require a planning permit.

The Watercourse Protection Special Area will apply where the replacement of bridges is occurring.

8.1.3. Submission of Development Applications

It is anticipated that development applications for the road will be submitted to the Waratah-Wynyard Council and the Circular Head Council in December 2009.

8.2. State Policies and Projects Act 1993

8.2.1. State Coastal Policy

The purpose of the Tasmanian *State Coastal Policy 1996* is to implement the sustainable development objectives of the RMPS in Tasmania's coastal areas.

The policy is based on the following three core principles that address these objectives:

"Natural and cultural values of the coast shall be protected:

- The coast shall be used and developed in a sustainable manner; and
- Integrated management and protection of the coastal zone is a shared responsibility.

The Coastal Policy is applicable to all Tasmanian State waters and land (excepting Macquarie Island) within one kilometre inland of the high water mark. Parts of the proposed development is within one kilometre of the high-water mark.

The Coastal Policy is only applicable to part of the western section of the proposal, between the Arthur River and Couta Rocks, as parts of this section of the road are within one kilometre of the high-water mark.

8.2.2. State Policy on the Protection of Agricultural Land (PAL) 2007

The purpose of the PAL Policy is to "conserve and protect agricultural land so that it remains available for the sustainable development of agriculture, recognising the particular importance of prime agricultural land". The main objective of the PAL Policy is to ensure that the productive capacity of agricultural land is appropriately recognised and protected in the use and development of agricultural land.

The PAL Policy focuses on protecting prime agricultural land (land capability classes 1, 2 and 3) from conversion to non-agricultural uses or from being fettered from being used for agricultural activities.

Although land capability mapping has not been undertaken in the area of the proposed road by DPIPWE, an estimation of the likely land capability classes can be made, based on the known geology, land systems and land usage.

Only a small area in sections 1 and 2 could be classified as Class 1, 2 or 3 land. A land capability survey of this section is currently being undertaken. In the event that there is an impact on any Class 1, 2 or 3 land in this area, the development application (Waratah-Wynyard) will demonstrate the community benefit of the proposed works.

The majority of sections 3 to 25 would likely be mapped as Exclusion areas (State Forests, State Reserves and Conservation Areas) or Class 6 or 7 land. The land in sections 26 and 27 would likely be mapped as Class 5 or 6 land.

8.2.3. State Policy on Water Quality Management 1997

The purpose of the Water Quality Policy is to achieve the sustainable management of Tasmania's surface water and groundwater resources by protecting or enhancing their qualities while allowing for sustainable development in accordance with the objectives of the RMPS.

Pursuant to the Water Quality Policy, the proposed development must comply with the relevant objectives of sections 33 Urban Runoff and 35 Road Construction and Maintenance. The objectives of these sections are:

33.1: Regulatory authorities must require that erosion and storm water controls are specifically addressed at the design phase of proposals for new developments, and ensure that best practice environmental management is implemented at development sites.

35.1.1: Road construction and maintenance operations will be carried out in accordance with the guidelines or code of best practice developed pursuant to this Policy, or employ other measures consistent with best practice environmental management, to prevent erosion and the pollution of streams and waterways by runoff from sites of road construction and maintenance.

A baseline surface water monitoring program has been initiated to investigate water quality data and to ensure that any potential project impacts on waterways are monitored, controlled or managed appropriately.

The following management measures will be applied to ensure compliance with the Water Quality Policy:

- Construction areas will be clearly demarcated in contract documents so that disturbed areas are kept to a minimum and no unnecessary soil or vegetation disturbance occurs
- Where required, erosion and sediment control measures such as silt stop fencing, sediment traps and erosion control matting will be installed prior to the commencement of construction activities
- Overland drainage flow will be diverted away from disturbed areas and bare soil to outfalls with sediment traps to reduce the potential for erosion
- Rehabilitation and revegetation of disturbed areas will occur as soon as practicable on completion of construction to reduce the potential for ongoing soil erosion to occur
- Stockpiled materials will be managed to ensure that dust and potential runoff is minimised and does not enter watercourses

- Erosion control measures and sediment traps will be regularly monitored; sediment material will be collected and disposed of on site

Figure 12. Lake Chisholm

8.3. Forest Practices Act 1985

There is the potential that a Forest Practices Plan (FPP) may be required under the *Forest Practices Act 1985* where the clearing of forest is in excess of 1 hectare or 100 tonnes of timber. In areas of 'vulnerable land' these thresholds are reduced. Although public roads are exempt from this act, a Forest Practices Plan will be required for the new road (realignments and link) that is proposed within State Forest.

If required the Forest Practice Plan will be submitted following the completion of the spring surveys.

8.4. Reserve Activity Assessment

For sections of the road which are within conservation or other reserved areas, a Reserve Activity Assessment will be prepared and submitted to the Parks and Wildlife Service.

9. ENVIRONMENTAL SAFEGUARDS

9.1. Proposed Management Regime

The completion of the initial background ground surveys has provided a characterisation of the Project environmental values. Throughout the coming months a number of specific follow up surveys and monitoring programs will be completed to ensure all environmental values are recorded and afforded appropriate protection.

DIER is actively engaged with key approval authorities to ensure the best possible environmental outcomes. In addition to the specific construction controls outlined below a number of Management Plans will be developed to capture the key environmental values and govern the on-going stewardship of the Tarkine Road.

These plans will provide the platform for adaptively managing the road environment and also form the basis for key approval agency input into the management regime. Further it is expected that many of the plans will have a wider benefit through their application to other areas of DIER's activities.

In order to limit the potential impact on the environmental values identified in the area, the following processes and actions will be incorporated into the project:

9.1.1. Road Design:

The amount of land that will need to be acquired for completion of the works will be kept to the minimum practicable level required by good design. The need for clearance of vegetation and removal of visually prominent trees will be kept to the minimum practicable level consistent with good road design and safety.

9.1.2. Geoconservation:

Any sites of geoconservation significance that are located close to the proposed road alignment will be identified on all tender documents as exclusion zones. Exclusion zones will not be available for any activities associated with road construction, including storage of materials, site offices and vehicle parking.

9.1.3. Flora:

9.1.3.1. Threatened Species:

Road design will, as far as is practicable, avoid any threatened flora locations. A detailed Flora and Fauna Management Plan will be prepared to consider all threatened species discovered during the surveys and to prescribe measures to protect species and habitats.

The locations of all threatened species close to, but not impacted by, the proposed road will be:

- Clearly marked on tender plans as exclusion areas
- Identified in the field by a suitably qualified botanist
- Protected by environmental fencing for the duration of construction

9.1.3.2. Introduced Plants:

A weed management and spread prevention plan will be developed and implemented. All weed areas will be clearly identified and the requirements for treatment of the various Declared Weeds included in the tender documents. Control measures will be in accordance with the relevant statutory weed management plans

9.1.3.3. Root rot fungus (*Phytophthora cinnamomi*):

A plant pathogen prevention plan will be developed in order to:

- Prevent the spread of the pathogen from any existing infected areas
- Reduce the potential for the introduction of the pathogen from outside areas

9.1.3.4. Myrtle wilt (*Chalara australis*):

A plant pathogen prevention plan will be developed to minimise the risk of spread of the fungus

In any area where it becomes necessary to remove myrtles (*Nothofagus cunninghamii*) and/or associated trees, all felling will be away from the forested areas into open areas to reduce the potential for damage to the remaining myrtles

9.1.4. Fauna:

A detailed Flora and Fauna Management Plan will be prepared to consider all threatened species discovered during the surveys and to prescribe measures to protect species and habitats.

9.1.4.1. Wedge-tailed eagle:

If a nest is discovered during the breeding season (August to January inclusive) all work will cease immediately within 500m of the nest or within 1km if the works are in line of sight of the nest

The site will be inspected by the DPIPWE specialist and advice on appropriate further action sought

9.1.4.2. Chytrid Fungus:

An animal pathogen prevention plan will be developed in order to minimise the risk of introduction of this pathogen to the area

9.1.4.3. Tasmanian devil:

There are two main threats to the Tasmanian devil population of the area:

- Increased mortality due to increased road traffic
- Spread of the DFTD from affected areas to unaffected areas

Management measures are discussed in Roadkill and DFTD Spread respectively.

9.1.4.4. Roadkill:

A Carnivore Assessment Forum was held in late July. This forum consisted of scientists and professionals with recent and relevant expertise and experience in road kill, vertebrate carnivores and DFTD, a veterinarian, and State and Federal Government regulators.

Two of the key recommendations emerging from this forum were for the project team to gain an understanding of both the current incidence of road kill and traffic data prior to, during and following the detailed environmental assessment and construction of the route. This will provide some baseline information of current roadkill rates to compare against the future impacts. Any observable increases that reach a predetermined threshold, could be used to trigger adaptive management responses to minimise road kill.

The surveys will occur prior, during and following construction of the road. At this stage the design measures will be based on the October and January monitoring data, with further refinement (if necessary) following review of the April data set.

Accordingly the following work is underway:

Roadkill Monitoring

- The proposed route of the Tarkine Road between Sections 21-27. Sumac Spur 4 to Arthur River township – following Sumac Rd, Blackwater Rd, Rebecca Rd, Temma Rd, will be monitored once per week for 12 months beginning in October 2009
- The proposed route between Couta Rocks and Arthur River will be monitored daily
- Road kill monitoring will be done daily during the period that the traffic counters are installed in October 2009, January and April 2010

Headlight survey

- The aim of the headlight survey is to provide abundance data on animals to compare with the road kill observations
- Surveys will be undertaken on a daily basis over a period of three weeks at three different times during the year at the same time as the traffic counts

The location / study area for both the road kill monitoring and headlight survey encompasses the "busier" sections of the proposed route where existing impacts are likely to be measurable, e.g. from the Sumac Road (Section 21 of the proposed route) to Arthur River township (Section 27). There are also two reference sections where no modifications to traffic conditions are proposed. These are approximately

15km along Roger River Road from Roger River to Kanunnah Bridge and 15km south from Sumac Spur 4 along Sumac Road.

Traffic counts

- Most of the existing road is very lightly trafficked and has no reliable traffic data.
- There is a requirement to understand the existing traffic flows and speed to provide baseline data for a number of the assessments.
- Eight sites for traffic counts have been identified
- Because of the low and highly variable traffic flows the traffic counters will be in place for three weeks

Traffic counts commenced in October 2009, and are being repeated in January and April 2010 because of the seasonal nature of recreational use and variations in timber harvesting.

Design features

There are a number of roadkill mitigation design measures that will be implemented where appropriate across the Project. These measures are aimed at 3 key outcomes – slowing the traffic to give drivers a greater opportunity to avoid a collision with animals, improving visibility and providing escape routes off the road for animals. These actions should result in fewer interactions between vehicles and animals, improving road safety and reducing animal injury and mortality. Each of these measures will be implemented across the road in areas where the current data collection activities (environmental conditions, roadkill and headlight surveys) determine it is most appropriate. Appendix 7 details a number of the design treatments that will be utilised.

Road design features such as:

- Tourists will be encouraged to plan for the completion of driving in daylight hours
- Strict codes of conduct and education programs to manage construction impacts
- Using learnings from prior projects, such as the Arthur River Road
- Hotspots where high rates of roadkill are known or expected will be identified
- In areas where the design speed exceeds 80 km/hr verges will be cleared back sufficiently to allow for early driver/wildlife sighting
- Growth on grassy verges will be minimised to discourage grazing by herbivores
- Table drains will be constructed with profiles that allow animal crossing
- Escape routes will be provided in areas where the existing topography and/or road design features may normally make escape difficult
- All culverts in new road sections will be designed to meet minimum design standards to facilitate animal passage
- In places where the road travels through heavily forested areas the roadside will be landscaped to the road edge. The proximity of the vegetation to the travelled way gives drivers a closed in feeling which results in them slowing down. This will also give the animals roadside refuge
- The road width will be reduced to 4 metres in areas of high risk
- Implementing different road surface treatments, such as ripple strips and different seal types, to create additional noise to alert animals of oncoming traffic and also to slow drivers
- Use other appropriate traffic calming measures such as pinch points.

Further to this there will be an on-going monitoring program for roadkill, changes in local populations of key indicator species and traffic once the road is operation to measure the effectiveness of the mitigation measures. This will allow an adaptive management of the roadkill. The adaptive management regime will involve the use of data to develop options, which are implemented and monitored and management is modified from what is learned through a successive and continuous adaptation of activities to measured environmental variables

9.1.4.5. DFTD Spread:

- It is proposed to monitor devil movement across the new Hilders Bridge at the Arthur River

- If monitoring provides evidence of devils using the new bridge, it could be modified to prevent further crossings

9.1.4.6. Feral animals:

- No specific management measures are proposed at this stage

9.1.5. Aboriginal Cultural Heritage:

Quarry site locations, TASI sites 2555, 2557 and 2836:

- A detailed set of management strategies will be developed to ensure that any potential direct and indirect impacts are avoided

Potential Archaeological Sensitivity (PAS) site:

- It is anticipated that sub-surface investigations will be required to be undertaken in this area in order to determine the extent and nature of artefact deposits
- Site management measures required will be dependent on the outcome of these investigations

9.1.6. Historic Cultural Heritage

There are no sites within or adjacent to the proposed alignment listed on any of the statutory registers and there is unlikely to be any significant impact on any of the surveyed features.

Any sites of historic significance that are located close to the proposed road alignment will be identified on all tender documents as exclusion zones. Exclusion zones will not be available for any activities associated with road construction, including storage of materials, site offices and vehicle parking.

9.1.7. Fire management

FT's fire management plan for the region will be re-assessed to take into account the new road and its potential impacts.

10. SOCIAL IMPLICATIONS

10.1. Positive Social Implications

The project is predicted to have a positive effect upon tourism and economic development, and has the potential to deliver significant economic and social benefit to the broader north-west region, reinvigorating the north-west tourism industry[16].

The proposed Tarkine Road offers Tasmania the opportunity to recapture its pre-eminent position in nature based tourism in the national market. The EMDA Report notes it is considered to be the single most significant tourism development available to the State after the introduction of the Spirits of Tasmania.

The Moore Report (appendix 4) commissioned by FT, predicts that the road is estimated to generate visitor numbers in excess of 200,000 annually, annual tourist spending of almost $70M and create more than 1600 jobs.

10.2. Property Impacts

The road is generally within State Forest, Forest Reserves and the Arthur Pieman Conservation Area. The exception to this is Section 1 where the route uses part of Myalla Road. There are a number of privately owned properties which abut the road. The impact on these private properties will be limited to some frontage acquisition and modifications to accesses.

16 EMDA, Moore Consulting & SCA Marketing, 2009. Tarkine Road Options Tourism Assessment Community Forums.

11. COMMUNITY CONSULTATION

11.1. Accessibility

The rationale behind the development of the Tarkine Road is to provide equal access of the Tarkine region to the Tasmanian community and visitors alike.

Roughly over 90% of the Tarkine Road exists in the form of FT roads and tracks, some sealed, most not. Whilst most of the current roads are of a very high standard for forestry use, some are accessible only by 4WD vehicles.

Whilst driving the roads is easy, unfortunately most drivers are not happy driving on unsealed roads, and more importantly, there are issues and perceptions around issues concerning driving hire cars on unsealed roads. This has the effect of severely limiting the number of tourists willing to use the current road network in the Tarkine.

Because the current road network was predominantly designed to cater for forestry operations, the roads to key tourist locations do not give the level of access equity needed by visitors.

The table below outlines the access to key tourism locations (Table 1):

Visitor Location	Access Type	Access Condition	Current Visitor Facilities	Access Equity
Phantom Valley	4WD track	Very difficult	Nil	Nil
Tarkine Lookout	4WD track	Very difficult	Nil	Nil
Tarkine Falls	Walking track	On foot only	Nil	Nil
Lake Chisholm	Side road	Fair	Limited	Fair
Julius River	Carpark	Good	Good	Good
Sumac Lookout	Carpark	Good	Good	Good
Kannunah Bridge	Road	Dangerous	Nil	Nil
Couta Rocks	Road	Fair	Nil	Nil

The table above illustrates the type of access each location has. It must be noted that the track into Phantom Valley is only usable by large 4WD vehicles and experienced off-road drivers. Given the level of interest in Phantom Valley and the view it commands over Phantom Peak and the Tarkine Reserve, it will form a vital tourism asset. In fact, the level of interest in the site is growing informally and there is on-ground evidence in the form of litter and damage to the track that visitation is already increasing.

Given increased visitation, it is vital that increased parking and equal access visitor facilities is provided in addition to the access road being safe for 2WD vehicles and buses.

11.2. Phantom Valley Tourism Development Planning

Phantom Valley will form an ideal day-trip for cruise ship operators, with Burnie Council's strategy being to develop quality tourism projects around the locality and further along the Tarkine Road. In addition the council sees Phantom Valley as being the ideal first day of several days exploring the Tarkine and far north west for fly-drive tourists in particular.

The Burnie City Council approached the Government with a request for funding to develop an Area Development Plan and draft Scheme Amendment for Phantom Valley. DIER has allocated $100,000 to the initiative.

A key consideration of the Phantom Valley Development Plan will be to encourage the growth of tourism from the Burnie region, through to Marrawah. In particular the council is keen for Burnie to become the gateway to the Tarkine, with increased cruise ship traffic, and increased air traffic through the Wynyard Airport.

The council will project manage the completion of the development plan on behalf of a number of key stakeholders who will comprise a steering committee consisting of representatives of DIER, Tourism Tasmania, FT and the Cradle Coast Authority.

Figure 13. The Arthur River at Phantom Valley

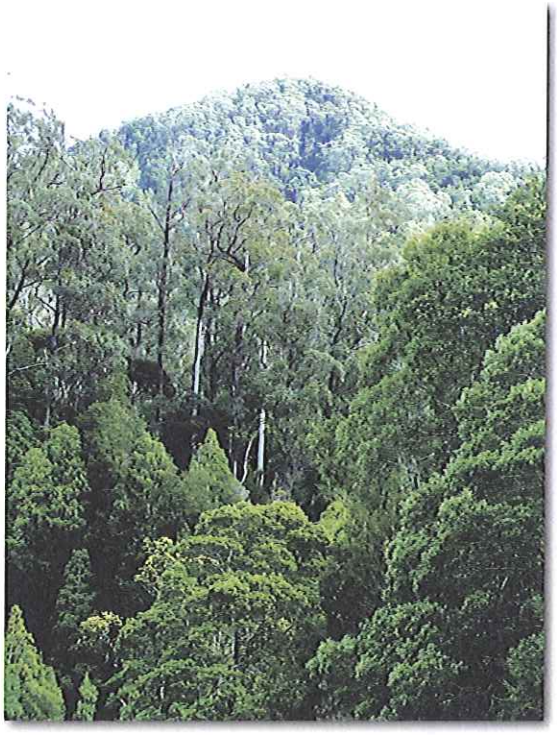

Figure 14. Phantom Peak

11.3. Views

The development of the Tarkine as a region has taken place amidst ongoing tension between the goals of conservation groups and traditional recreational and economic activities of many of the northwest and west coast community.

The campaign by conservation groups to have the region listed as a national park, and subsequently included in the National Heritage List (NHL) has largely been at odds with broad community sentiment in the region. In fact many people see such listing as a direct threat to traditional recreational activities, mining, forestry and agriculture.

The conservation movement points to the income generation potential of the Tarkine as a tourism asset once it is included in the NHL being greater than current economic activities in the region.

11.4. Tourism Industry

The Tourism Industry in the far northwest has struggled for many years to establish a critical mass of attractions and infrastructure to allow a coordinated marketing and sales approach. Many operators in the region see the Tarkine Road, and the east-west link section in particular, as the missing component to leverage the Tarkine as the focus and key marketing differentiator for the industry.

Several tourism businesses in the region have already leveraged the Tarkine brand, including Tarkine Trails, Tarkine Tasmania and Tall Timbers. They have developed thriving eco-tourism businesses giving visitors unique Tarkine experiences. Initially there was a view that improved access to the Tarkine, via the Tarkine Road would have a detrimental effect on them, however, discussions have proved positive with many problems overcome.

11.5. Stakeholder Engagement

The Tarkine Road project is a tourism enabling project that will provide the basis for the development of the industry in the far north west of Tasmania.

The Tarkine region recently has developed significant brand equity and the projections are that large numbers of tourists will be visiting the area in coming years. DIER has been given the task of constructing the Tarkine Road and its associated visitor facilities.

The Tarkine Road has a large number of stakeholders and DIER has designed a stakeholder engagement program to ensure they have the opportunity of communicating with the project team and understanding the project. In particular DIER is keen for interested parties to understand how the road is being designed and built, and how the environment will be protected during that process.

11.5.1. Stakeholder Engagement Activities

The stakeholder engagement activities for the Tarkine Road centre around talking to people about the aspects of the project they are interested in, or unclear about.

DIER is focused on briefing interested people either individually or in small group meetings. In addition DIER has commenced an email service for those interested in receiving a regular update.

11.5.2. Information sessions

In May 2009 DIER ran two information sessions on the northwest coast, one in Wynyard and another in Smithton. At both sessions the information was communicated via a presentation and presenters.

11.5.3. Briefings

The Circular Head Tourism Association members were briefed at a session in Stanley in early July. The overall sentiment in the meeting was one of support and a desire to see the project completed as soon as possible. However, there was one person who expressed a view that the eastern entrance to the Road should be changed from Myalla Road to Mawbanna Road.

The Smithton Progress Association, which represents businesses in the region, was also briefed, and again that forum expressed overwhelming support.

In early August, Departmental staff attended the North West Regional Tourism Forum in Strahan, operated by the Cradle Coast Authority. Over twenty tourism operators discussed the Tarkine Road Project with those in attendance, and more picked up information sheets.

The overwhelming response to the Tarkine Road Project was support, with only two people expressing a desire for the project to be changed.

In the days following the Tourism Forum, businesses in the Circular Head and Burnie regions were given information and short briefings. Again the overwhelming response from this snapshot of the business community in the region was positive.

In briefings, the Burnie City Council expressed support for the project and are actively involved in the master planning for Phantom Valley.

In similar briefings, the Devonport and Central Coast Councils also expressed support.

In late September, DIER staff members briefed Advance Burnie Committee and the project was given unanimous support.

11.6. Stakeholder Environment

During the briefings and information sessions, the following stakeholder concerns and misunderstandings were identified:

11.6.1. Misunderstandings:

- The Tarkine Road consists of 135km of new road cut into the rain forest
- FT proposed the project to enable log trucks to operate on a publicly funded sealed road
- Sealing the road has environmental impacts and will cause localised pollution

Stakeholder concerns are divided between those who are for the project and those against, the two lists are below:

11.6.2. Pro-project concerns

- Which visitor facilities will be built
- The whole road won't be built
- Tayatea Bridge won't be re-built
- Marketing of the Road's tourism potential
- Timing of the project, taking too long
- Branding of the Tarkine Road

11.6.3. Anti-project concerns

- The Tarkine Road has not been developed as part of a broad northwest Tasmanian tourism strategy
- The road will impact the fragile Tasmanian Devil community
- Project is politically motivated
- The project will create more roadkill
- Sealing will attract more people into the pristine Tarkine
- Existing tracks should be re-vegetated
- $23M could be better spent
- The Tarkine Road will open up more areas for mining
- Traffic management - large and small vehicles
- Bypasses existing roads that are unsuitable to logging operations, etc.
- The Grange Pipeline - opening up restricted area at threat to the pipeline
- EPBC act applies to the entire project
- Lack of Tourism Council support
- Insufficient funding
- Perceived lack of attention to environmental approvals process
- The Tarkine Road will negatively affect Tarkine Trails product and marketing

DIER has actively addressed the concerns raised by stakeholders, both in a design sense where possible and through communication materials and on-going briefings and discussions.

The table below outlines the stakeholder groups who have been engaged (Table 2):

Stakeholder group	Method	Month	Issues raised
Community	Information sessions	May	Project overview
Circular Head Council	Briefing	June	Project overview
Waratah-Wynyard Council	Briefing	May	Project overview
Circular Tourism Association	Briefing	June	Project overview and visitor facilities
Smithton Progress Association	Briefing	June	Project overview
Advocate Newspaper	Briefing	June	Project overview
West Coast Council	Briefing	June	Project overview
ABC Tasmania	Briefing	June	Project overview, Staging
Bernard Atkins	Briefing	June	Project overview
Key wildlife experts	Forum	July	Wildlife impact
NW Tourism operators	Tourism Forum	August	Visitor facilities, project overview
RACT	Briefing	August	Traffic management
Grange Resources	Briefing and meetings	August	Grange Resources Pipeline
Businesses from Smithton to Burnie	Visits and short briefings	August	Project overview
Advocate Newspaper	Visit Western section	August	Project overview
Burnie City Council	Briefing	August	Project overview
Central Coast Council	Briefing	August	Project overview
Devonport City Council	Briefing	August	Project overview
Cradle Coast Authority	Briefing	August	Project overview
Tarkine Lodge	Briefing	August	Project overview, impact on their business
Don Monk	Briefing	August	Project overview
Ross Britton	Briefing	September	Project overview, environmental impact
Mayor Hyland, Waratah-Wynyard Council	Briefing	September	Project overview, tourism facilities
Advance Burnie	Briefing	September	Project overview and visitor facilities
Blue Hills Honey	Briefing	September	Impact on their business
Tourism Industry Council of Tasmania	Briefing	September	Project overview, visitor facilities
Tarkine Trails	Briefing	September	Impact on their business
Circular Head Council	Briefing	September	Visitor facilities
Advocate Newspaper	Visit Phantom Valley	September	Phantom Valley
Cradle Coast Authority	Briefing	September	Planning

Stakeholder group	Method	Month	Issues raised
Circular Head Chronicle	Briefing and tour	November	Construction
Circular Head Council	Briefing	November	Planning/construction details
Waratah-Wynyard Council	Briefing	November	Planning/construction details
Burnie City Council	Briefing	November	Planning/construction details
Phantom Valley Steering Committee	Meeting	November	Planning/construction details
Circular Tourism Association	Meeting	November	Visitor facilities, project overview
RACT NW Committee	Meeting	November	Emergency services
Central Coast Council	Briefing	November	Visitor facilities, project overview
Devonport City Council	Briefing	November	Visitor facilities, project overview

11.7. Tarkine Trails

DIER has recognised that Tarkine Trails, a fledgling business in the area would have their business negatively affected by the proposed road and separately proposed mining leases. It recognised that their existing walk would need to relocated to allow their business to grow along with the Tarkine as a tourism icon.

DIER recognises that a critical mass of tourism businesses need to thrive in the region and that Tarkine Trails are a key business in the regional industry. In September 2009, Tarkine Trails proposed a cooperative funding agreement of 50%, of a $45,000 study to identify and establish an alternative bushwalking track for their business, which DIER is considering.

11.8. Communication

During initial discussions with the community it became apparent there were some misunderstandings and incorrect perceptions about the project. The focus of the community engagement activities of DIER were then directed towards correcting those perceptions and communicating how DIER is designing and constructing the road. In addition the community engagement process was also designed to capture as many stakeholder views as possible.

Due to the level of interest in the project, DIER has developed a themed approach to all materials that is distinctive, but consistent with all Tasmanian Government publications. This approach makes sure that interested people can instantly recognise a Tarkine Road publication from DIER.

In addition the materials developed by DIER has endeavored to address some of the concerns of stakeholders.

11.9. Electronic Information

The provision of information in electronic form is a key component of assisting people to understand the project. DIER website has a series of Tarkine Road pages, which include maps, information about the project and copies of printed materials in PDF format.

As the project is developed more pages will be added, as will copies of any printed materials.

In addition the website also has a page to allow interested to lodge their views, in addition there is a 1300 number for stakeholders to call. All issues raised either by email or the 1300 number have been satisfactorily addressed.

11.10. Printed Information

So far DIER has produced two information sheets;

- Project Overview Sheet, provides an overview of the project in terms of design, existing roads, timings and project staging. (appendix 2.)

- Proposed Tourism Facilities Information Sheet, details possible tourism facilities and requests feedback on them. (appendix 3.)

Both information sheets have been distributed to interested parties in hard copy, via email and are available for download on the web page.

DIER is keen to receive feedback on the information contained in either document, and visits to meet with stakeholders will continue as the design progresses and on ground work continues.

11.11.Printed Materials and Display Distribution

The displays consisted of sets of information flyers, maps, counter cards and posters. All of these have been used extensively throughout the consultation process.

The printed information DIER produced along with hard copies of the maps contained in it are available from the following outlets:

- Tall Timbers, Smithton
- Circular Head Council, Smithton
- Stanley Visitor Centre, Stanley
- Boat Harbour Store, Boat Harbour
- Waratah-Wynward Council Chambers, Wynyard
- Wonders of Wynyard, Wynyard
- Burnie City Council Chambers, Burnie
- Bryan Green's Electorate Offices, Burnie
- Central Coast Council Chambers, Ulverstone
- Devonport City Council Chambers, Devonport

12. CONSTRUCTION PROGRAM AND COSTS

12.1. Construction Program

Due to the length of the road and accessibility by construction traffic, the project has been split into three stages with construction expected to commence around mid 2010 (subject to DEWHA approval) and will be complete by the end of June 2012. The key dates are shown in Table 3 below.

Project Phase	Start Date	End Date
Design development	May 2009	October 2009
PSCPW approval	November 2009	December 2009
ECI tendering and tender assessment	December 2009	February 2010
ECI Phase 1	March 2010	June 2010
Possible early works	April 2010*	June 2010*
ECI Phase 2	July 2010*	June 2012

Table 3, Project Phases

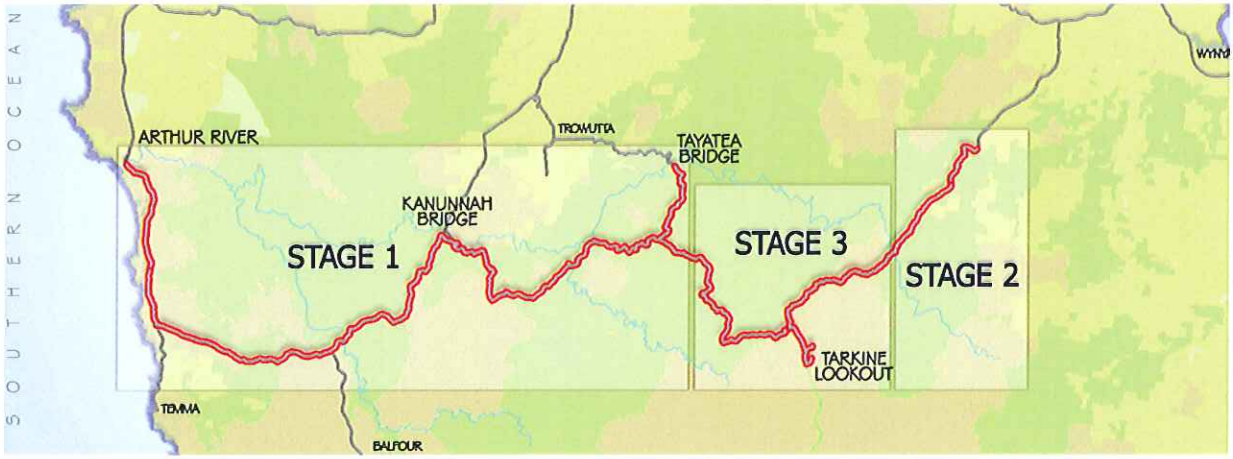

Figure 15. Proposed construction staging

* All construction times are approximate and dependent on local, state and federal government approvals.

12.2. Project Costs

The Tasmanian Government has provided funding of $23M to the project inclusive of tourism infrastructure facilities.

For costing purposes the route was divided into numerous sections each with similar design and construction elements for most of their length.

The cost of the works has been estimated based on historical rates for similar works delivered by DIER. Previous estimates undertaken for the works have also been taken into account and appropriate contingencies are included for each line item to compensate for the uncertain scope in some areas and uncertain cost in others.

The estimated project cost is $25.5M with the major project components and estimated costs shown in Table 4. A detailed cost estimate is provided in Appendix 5. The project cost takes into account the uncertainty associated with a potentially lengthy environmental approvals process and its consequences.

It is prudent to adopt this position which is consistent with DIER's estimation processes. Whilst more definitive costs will be known following the tender process, it is expected the project can be managed within the $23M budget, due to the benefits accrued from the ECI process.

Cost Item	Amount ($'000)
Project Specific	5,543
Earthworks	1,770
Drainage	2,352
Pavement	5,931
Bituminous Surfacing	4,506
Traffic Facilities	1,010
Landscaping	60
Additional Items	201
Overheads (design, project and contract management)	2,867
Provision for Cost Increases	1,260
TOTAL	**25,500**

Table 4, Project cost summary

13. SUMMARY

Once complete, the Tarkine Road will provide the following benefits:

- The project will ensure a consistent maintenance program over the entire length of the road, safeguarding the environmental assets of the area and enhancing the capacity for cross-government stewardship.
- The project will increase safe tourist and recreational access to the Tarkine Region.
- The project will be create the impetus for the development of the tourism industry in the region by leveraging the Tarkine experience.

The project is being developed with due regard to established DIER process and technical standards, and construction will not commence until all statutory approvals have been received.

It is requested the PSCPW approves this project on the grounds that there is an established need and the proposal provides significant benefits to the North West community.

ANNEXURE 'B'

Presentation to the Joint Standing Committee on Public Works

Scott Jordan, Tourism Project Officer, Tarkine National Coalition Inc

Re: Tarkine Road

25/11/2009

Is it necessary?

Fundamentally, the answer to this question is no. The Tarkine has incredible potential for tourism, a potential that is already yielding benefits in the area. The already has Tarkine has over 400 km of high quality sealed and unsealed roads, and many more current and former forestry roads that provide access to visitor sites. This road network already accesses the numerous lookouts, bushwalking tracks and features in the Tarkine, and the tourism operators currently working in and around the Tarkine have based their businesses on these existing networks.

The Tarkine National Coalition has recently produced a visitor's guide to the region Tarkine with 24 walks, lookouts and features that are all accessible on the existing road network.

The Cradle Coast Authority's Tarkine Tourism Development Strategy was the result of over two years of consultation and input from a wide range of groups representing tourism groups, Forestry Tasmania, Parks and Wildlife Service, Tourism Tasmania, representation from the four local government areas, the Aboriginal community, and Tarkine National Coalition. As well as extensive market research and consultants reports on the needs for tourism in the Tarkine.

The Tarkine Tourism Development Strategy did not support the Tarkine Road. Instead, quite rightly it advocated a broad strategy of utilising the existing road network, with the natural visitor nodes of Corinna in the south, Waratah in the east, and Arthur River in the far north-west. The market analysis contained in the strategy predicted the creation of 1100 jobs through the clever use of branding the natural values of the Tarkine, and maintaining it's integrity at the heart of the tourism offering. Tarkine National Coalition supports the Tarkine Tourism Development Strategy.

In relating this to the current proposal, the sections of new roading from and including, Hilder's Bridge at Meunna to Tayatea Road is unnecessary. This section does not service any existing attractions, and the promise of the Tarkine Falls and Tarkine Lookout we believe to be red herrings. They are not funded beyond the road access and carparks. While they are both beautiful locations, there are an abundance of natural attractions on the existing road network that would not require large expenditures on new roading or bridges. Tarkine Falls and Tarkine Lookout are currently accessed from the four day Blue Peak walk which is currently used by at least one commercial guiding company, and by numerous self guided tourists and recreational walkers. The creation of the road will spoil the wilderness experience of the Blue Peak walk.

In relation to the upgrade of the existing road network, the Tarkine National Coalition has remained willing to discuss alternate routing of the road to utilise existing roads. We have repeatedly made this offer both to Forestry Tasmania and to the Government, but have not had this offer taken up. We believe that alternate routes proposed by Cradle Coast Authority and Tourism Industry Council of Tasmania represented more environmentally sustainable options, and at much reduced cost allowing more funds for infrastructure needs identified in the Tarkine Tourism Development Strategy.

Is it economically sound?

Again the answer to this is no. Forestry Tasmania commissioned two reports into the potential jobs impact of the road. Both these reports referred to the fact that their figures were based assumptions provided by FT of both visitor numbers and investment.

The visitor numbers have not been the result of any market research relating to the road. They appear to be derived from the numbers predicted in the Tarkine Tourism development Strategy which specifically related to a 'no-road' scenario. It can at best be described as an exercise in circular logic to say that a given number of tourists will visit the Tarkine, if we build a road they will drive on it, and so therefore our road creates the jobs. It is a flawed argument that clearly cannot be used for prudent government expenditure.

In terms of the assumptions for investment expenditure, it cannot be explained where these figures are derived from. It is even more concerning that the terms

of reference for these reports stacked the 'full loop road scenario with an additional $25million of as yet unfunded government investment and a hypothetical $60million of private investment against two straw man scenarios with virtually no investment in order to manufacture a result where the $100million super investment scenario could be more jobs rich than the $4.5million scenario.

The reality is that these assumptions have been made by the same team within Forestry Tasmania who developed the business case for Dismal Swamp, which has consistently failed to match it's assumptions and this year lost $200,000.

The project costings were also premised on the absurd statement that FT could build roads 40% cheaper than the government. Since DIER taking carriage of the project we have seen the visitor infrastructure promised in the initial stages cut to bring the project within budget. At Tarkine Fall and Tarkine Lookout this will be just access roads and carparks with only the first 100m of track leaving the carpark. Not the new attractions publically promised.

Additionally there has been no discussion from the Government regarding the financial risks associated with this proposal. The Arthur River catchment has a notorious habit of eating bridges. Log jams frequently occur and build up before being set loose in flooding every few years. The original Hilder's bridge was lost over 20 years ago to floods, with Farquhar's Bridge, Blackwell's Road Bridge, The Savage River Pipeline Bridge and Tayatea Bridge being lost in the last decade despite the last three being substantial concrete pier bridges.

The folly of premising the $23million dollar government Tarkine tourism plan on bridges in an area prone to bridge losses raises serious questions about whether any risk assessment was undertaken.

Is it environmentally sustainable?

The answer to this key question is a resounding no. The Tarkine Road Project is likely to have significant effects on a number of threatened species. The referral documents do not adequately spell out any mechanism by which these impacts would be managed or mitigated, instead referring to collection of further surveys, completion of incomplete survey data and reports, and a general promise of management plans and mitigation strategies. The lack of complete data collection, especially on the new sections of the road, leaves the reader at a

significant disadvantage in the assessment of this project. The referral is critically deficient, and does not allow for a complete assessment of impacts to be completed based on the information submitted. This view is confirmed by the recent decision of the Federal Minister to stop the clock on the EPBC assessment and seek further information.

Of particular note is the impact on the Tasmanian devil *Sarcophilus harrisii* (listed as Endangered at both the national level and state levels). The threat to the Tasmanian devil is well documented in the project's Vegetation Survey and Fauna Habitat Assessment, however the Government has failed to present any clear mitigation or management program that would address the risks of either increased road kill or introduction of the Facial tumor disease into the currently disease free Tarkine. As the last refuge for disease free Tasmanian devils, the Tarkine must not be used as a testing ground for theoretical or unproven mitigation measures.

The Government commissioned North Barker Ecosystem Services (2009) report states:

> *" Impact on the Tasmanian devil is considered to be potentially significant for the following reasons:*
> *• There is considerable potential for increased roadkill rates following completion of the road (this is discussed further in the section Roadkill below).*
> *• Animals with large movement ranges, low reproductive rates and low natural densities (such as devils) tend to be negatively affected by roads and traffic (Fahrig and Rytwinski 2009).*
> *• The increase in Arthur River crossing sites may lead to the spread of DFTD into new areas south of the Arthur River. "*

The Tarkine remains the last refuge for disease-free Tasmanian devils. Compromising this refuge significantly increases the likelihood of extinction of this iconic species in the wild. In particular the submission states:

> *"The devil facial tumour disease (DFTD) is the single most significant cause of mortality and consequent threat to the conservation of the Tasmanian devil. The retention of naturally occurring disease free*

populations is a key factor in ensuring the long term survival of the species in the wild. Any activity that may increase the risk of accelerating the spread of DFTD into areas currently disease free may be considered as having a significant impact on the species."
"Construction of the proposed road, and in particular construction of new bridges across the Arthur River, may increase the mobility of devils (i.e. increase their ability to range from north of the Arthur River to south of the river) and hence increase the spread of the disease into areas that are currently disease free."

Contrary to the assertions made in the Vegetation Survey and Fauna Habitat Assessment, the experience of the sealing of the Arthur River road saw and increase in Tasmanian Devil road kill despite substantial mitigation measures. Raw data obtained from G. King (the source of the data used for the Landscape Impressions (2008) report quoted) showed an increase in Tasmanian devil road kill from 12,13,and 18 kills in the pre-construction years (mean = 14.3) 1999-2001, going to 33 and 17 (mean =25) in the construction years 2002-03, and 20,35,23,28,31 (mean = 27.1). This equates to a near doubling of Tasmanian devil road kill on the 12.8km section that was sealed. The Landscape Impressions (2008) report recommends:

"Through the process of completing this assessment report, it became evident that there is likely to be a common problem in relation to the planning and design of road works through environmentally sensitive areas: there is a lack of baseline data on road kill. Without comprehensive and complete baseline data, over at least a five-year period prior to major works, there can be little chance of accurately assessing the impacts of the works on wildlife. Furthermore, without this knowledge the planning and design of mitigation works (such as underpasses) cannot be comprehensively undertaken. Therefore, it is recommended that more comprehensive and complete road kill monitoring be considered as a core activity by land management agencies, particularly where there is likely to be future development in respect to the road network. A case in point is future road development in the Tarkine in North West Tasmania."

This recommendation has been ignored in the preparation and submission of the EPBC referral, with only limited surveys conducted to date, and the planned surveys over to only cover the next six months. The referral documents also admit to no survey work having being done on the proposed new sections of road.

This demonstrates an indifferent attitude towards conservation of this species that is at odds with requirements under the EPBC Act. The risk assessment does not consider additional risks to the Tasmanian devil posed by increased fire potential resulting from the road.

Other listed threatened species in the Spotted-tail quoll, Eastern-barred bandicoot , Wedge-tailed eagle are also succeptable to increased roadkill, and along with the Swift parrot and Orange-bellied parrot parrot are threatened by increased risk to habitat caused by fire associated with roads.

The Giant freshwater crayfish is mentioned in the EPBC referral, but it fails to address the connection between roading and poaching. New roading has been identified in the recovery plan as a key threat to the survival of this species. Poaching remains one of the major threats to lobster conservation

Serious concerns are also held regarding the potential for spread of the pathogens into the area during and following construction. *Phytopthera cinnamomi* (root rot fungus), *Chalara australis* (myrtle wilt disease fungus) and *chytrid* fungus are of particular concern. Previous experience has shown that new roading facilitates the spread of theses pathogens. In meetings with Mineral Resources Tasmania it was indicated to TNC that the construction of the Western Explorer road spread *Phytopthera cinnamomi* by an additional 12km into previously undisturbed areas.

In addition to these threats, the increased risk of wildfire caused by increased roading poses an unacceptable risk to the Tarkine's heritage values. Human-induced fires whether by misadventure or arson represent a large number of fires in north west Tasmania. Fragile rainforest ecosystems within the Tarkine are highly susceptible to fire, and many rainforest flora do not regenerate after fire. As such, any increase in fire risk jeopardises the integrity of these ecosystems.

Illegal off road vehicles will also present an increased risk following new roading. Experience in this area has shown that new roading also results in a proliferation of illegal off road vehicle use, creating uncontrolled sites with direct damage to natural values, and an increase in fire risks. The combination of illegal off road vehicle use and the absence of effective policing or regulation already poses a high management threat to fragile coastal ecosystems and significant Aboriginal heritage.

The lack of clearly identified visitor management also raises significant concerns with the project. The proposed road will increase access and is projected to increase visitor numbers to 100,000 without any additional resourcing for Parks and Wildlife to manage these areas (particularly in light of the 30% cut was announced in recent months). A classic example of this under resourcing is the Arthur River camping grounds. For the past three years these sites have been without rubbish bins after PWS staff were forced to remove them due to an inability to devote stretched staff resources to emptying bins. Unfortunately this is a classic example of the Tasmanian state government's negligence of heritage areas, and speaks of their capacity to deliver on appropriate management of the ongoing visitor issues should the road proceed.

The Tarkine National Coalition strongly recommends that the Tarkine road project should not proceed.