Milk Powder Processing Facility

Development Proposal and Environmental Management Plan

Prepared for: Tasmanian Dairy Products Co Ltd
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Authorised by: Andrew Buckley

Date: 29 June 2011
Foreword

This Development Proposal and Environmental Management Plan (DPEMP) has been prepared to support a development Application by Tasmanian Dairy Products Co Limited (TDP) to the Circular Head Council.

The application is for the development and operation of a new milk processing facility (‘the facility’) on the former Gunns Timber Mill on the corner of Bass Highway and Irishtown Road in Smithton, northwest Tasmania.

The facility will produce Whole Milk Powder (WMP), Skim Milk Powder (SMP) and Anhydrous Milk Fat (AMF) for the international market using state of the art dairy technology inside a fully enclosed factory, operated by trained staff.

The purpose of this DPEMP is to provide:

- Support to the development application to the Circular Head Council
- A basis for the Circular Head Council and the Board of the Environment Protection Authority (EPA) to consider the planning and environmental aspects of the proposal
- A basis for the conditions under which any approval can be given
- A source of information for stakeholders and groups to gain an understanding and appreciation of the proposed facility

The DPEMP has been prepared according to the EPA’s General Guidelines for the preparation of a Development Proposal and Environmental Management Plan for Level 2 activities and ‘called in’ activities, May 2010 and the EPA’s Development Proposal and Environmental Management Plan Project Specific Guidelines for Tasmanian Dairy Products Co Ltd, Powdered Milk Processing Facility.

The DPEMP project specific guidelines were developed by the EPA based on the information supplied by TDP in a Notice of Intent (NOI) submitted March 2011 in accordance with the EPA’s NOI guidelines and the requirements of Section 27B of the Environmental Management and Pollution Control Act 1994.

The development application will be advertised by the Circular Head Council in the Advocate newspaper and the DPEMP will be available for public scrutiny at the:

- Circular Head Council offices in Smithton
- The Environment Protection Authority’s internet site
- The Department of Primary Industries, Parks, Water and Environment library in Hobart, for a period of 28 days following the formal newspaper advertisement of the application

Any member of the public may submit a representation on the proposal, describing their comments and/or objections. Representations must be in writing and lodged within the statutory period with:

Mr Greg Winton
The General Manager
Circular Head Council
PO Box 348
Smithton TAS 7330

Council will consider the development application in accordance with its obligations under the Land Use Planning and Approvals Act 1994 and the Environmental Management and Pollution Control Act 1994.
Because the proposed activity is deemed a Level 2 activity under Schedule 2 of the Environmental Management and Pollution Control Act 1994, the EPA will assess the potential environmental impacts and conditions for the proposed activity in accordance with the Environmental Management and Pollution Control Act 1994. The EPA advised TDP on 1 April 2011 that the assessment will be undertaken as a Class 2B.

The environmental conditions from the EPA’s assessment will be forwarded to the Circular Head Council for inclusion in the permit, if and when Council approves the proposed activity. Any persons who made written representations on the proposal will be notified by Circular Head Council of its decision. Persons aggrieved by a decision to approve the development, or by the conditions or restrictions of the permit, may appeal to the Resource Management and Planning Appeal Tribunal (the Tribunal). The applicant, TDP, may also appeal a refusal of the proposal by the EPA, or appeal the conditions or restrictions imposed by the EPA.

Appeals must be lodged in writing within 14 days of the Council’s decision. The Tribunal will hear appeals and independently reassess the proposal, to either confirm, overturn or modify the decision and/or the permit conditions and restrictions.

TDP has not referred, and does not intend to refer, the project to the Commonwealth Government for a determination on whether approval under the Environment Protection and Biodiversity Conservation Act 1999 is required because the project is very unlikely to impact upon matters of national environmental significance or upon Commonwealth land. Approval under the Commonwealth’s Environment Protection and Biodiversity Act 1999 is not required.

No other planning or environmental approvals are deemed necessary.
Executive Summary

Tasmanian Dairy Products Co Limited (TDP) propose to develop a new milk processing facility on the former Gunns Sawmill site on the corner of Bass Highway and Irishtown Road in Smithton.

The operation will process 480,000 L of milk per 8 hours. Note that for the purposes of this document, 1m$^3$ = 1kl = 1000l. When weights of milk are discussed, assume 1m$^3$ of milk = 1t.

TDP was formed by Little Lion Holdings (LLH), the principals and management of which have extensive background in dairy farming, commercial real estate development, project management, dairy processing, green field development and enterprise building.

TDP have an agreement in principle to purchase the land and site buildings from Gunns Limited and redevelop part of the site for the milk processing facility. As part of the agreement, Gunns Limited will rehabilitate the site in accordance with their existing permit to operate.

Existing reticulated infrastructure (power, water and wastewater), site buildings and road accesses will be retained and reused for the proposed facility. Upgrades to the site power supply infrastructure will be undertaken during construction and a rising main for the sewer will be established on site to allow liquid wastes to be directly discharged to the Cradle Mountain Water (CMW) network.

TDP have an in-principle agreement with a nearby premise, Ta Ann, to supply all heat (steam) requirements for the facility. As part of this agreement, Ta Ann will utilise excess condensate from the proposed facility as boiler feed water to reduce emissions to the environment. Ta Ann is an existing facility operating under a current license.

Site buildings will compose:

- Storage and warehouse building (existing dry mill building of approximately 2450 m$^2$) incorporating:
  - Compressor/electrical control room
  - Toilets and basic amenities
  - Palletising belt
  - Finished product storage (nominally 100 pallets)
- Dryer Building (320 m$^2$)
- Wet Processing (210 m$^2$)
- Amenities building (105 m$^2$)
- 3 x 150 to 200 kL milk storage silos
- 2 Bay milk unloading facility
- 20 staff car spaces (a further 15 car spaces are located outside the existing administration building)
- Chemical storage area
- 1 potable water tank and 2 fire water tanks
- Landscaped ‘break out’ area for staff

Construction will occur over a 10 month period, nominally commencing from September 2011 or when suitable contractors have been engaged. Existing site buildings will be utilised as covered and secure construction areas.
All site vehicles will access the site via the established site access of Bass Highway > Irishtown Road (for vehicles travelling east/west) or directly from Irishtown Road.

The existing Bass Highway/Irishtown Road intersection has suitable layout, turning circles and sight distances for B-Double vehicles and anticipated traffic loads and volumes.
1. Introduction

Tasmanian Dairy Products Co Ltd (TDP) is planning to develop and operate a milk powder processing facility (“the facility”) on the site currently occupied by the Gunns Timber Mill, Smithton (“the proposed site”).

The facility will be capable of processing 480,000 litres of milk in an 8 hour period during peak processing. Note that for the purposes of this document, $1\text{m}^3 = 1\text{kl} = 1000\text{l}$.

The proposed site occupies 3 titles and is commonly referred to as 2 Irishtown Road, Smithton. Any reference to the proposed site is a reference to all three titles. Refer to the Land Use Planning Report, Appendix K, for more detail on the title boundaries.

Tasmanian Dairy Products Co Ltd (TDP) is a public company that has been established to undertake the construction and operation of a milk powder processing facility in Circular Head, Tasmania.

The company has been formed by Little Lion Holdings (LLH), the principals and management of which have extensive background in dairy farming, commercial real estate development, project management, dairy processing, green field development and enterprise building.

LLH has accumulated a portfolio of dairy farms in Circular Head, currently valued at approximately $100 million. The farms were purchased, developed, cleared and improved over a 5-year period. Productivity is well in excess of industry norms, and LLH is currently pursuing additional opportunities to enhance the value of these farms, including investing over $1.5 million to date to advance the milk drying plant that is the subject of this DPEMP.

Executives of TDP/LLH have career experience in dairy processing, having worked with regional industry leaders since the mid-1970’s. Responsibilities included building and designing dairy processing plants, quality control, operations management and oversight of multiple, complex operations throughout Tasmania and other states.

These industry leaders have agreed to work with TDP, providing additional evidence that the business concept and operational plan are achievable.

In addition to LLH's activities in the dairy industry, the company and its principals also have a successful track record in commercial and residential real estate development and property management. Affiliates of the company have developed numerous residential sub-divisions in Tasmania, as well as industrial parks and other commercial projects. Principals of the company have the requisite engineering and finance backgrounds to successfully undertake and manage such projects. LLH's ongoing management of commercial ventures also provides additional financial resources to support the plant development.

Prior to LLH's involvement in the dairy industry, its principals were successful operators in the Tasmanian timber industry, having built a company that achieved a market capitalisation of over $200 million. This company acquired, developed and harvested timber assets, building significant value for shareholders and other stakeholders.

In addition to LLH's investment in the farms and the drying plant to date, the company has also retained KPMG Corporate Finance to assist in raising the requisite equity and debt capital to complete the plant and achieve commercialization. KPMG has prepared the requisite collateral materials, including extensive financial models, and has already begun discussions with prospective strategic and financial investors.
2. **Background Information**

2.1 **Dairy Industry**

The Dairy Industry is a significant rural industry in Australia, third to the beef and wheat industries based on a farm gate value of production of 3.4 billion dollars in 2009/2010. Dairying is also a significant source of value adding to local farming communities, through significant economic activity and employment.

Fat and protein concentrations in Tasmania’s milk are high on a per capita basis, due to favourable climatic conditions and industry knowledge, much of which is concentrated in the North West.

Tasmania produces approximately 673 million litres of milk per annum and employs 2700 people in the industry. Both of these numbers are expected to rise in the future, aligned with industry innovation and the adoption of new technologies.

Approximately 8% of Tasmania's milk production is used for drinking, with the remainder used for butter, cheese, cream, ice cream, yoghurts, custards, whey proteins and nutraceuticals (e.g. natural health products).

Skim and whole milk powder, like that to be produced by the proposed facility, accounted for approximately 35% of milk utilisation in Australia during 2009/2010. Asia remains the dominant export market for milk powder, purchasing close to 80% of production. Future markets in the Middle East will continue to increase demand for milk powder.

A by-product of milk powder production is Anhydrous Milk Fat (AMF), which is primarily 99.9% pure butter fat utilised in the confectionary and bakery industries in both domestic and export markets. Powder production deems AMF to be a waste; however, it remains a valuable commodity in the dairy industry and offsets the costs of production.

2.2 **Milk Quality**

Cows’ milk consists of milk fat, protein, lactose and minerals (generally grouped under the term *solids*) in water, with water making 88% of milk volume. The composition of solids varies in Tasmania and nationwide due to cow breed, age, nutrition and feed quality.

Concentrations of average milk fat and protein in Tasmanian herds is higher than mainland herds, resulting in greater yield of saleable product per litre manufactured.

2.3 **Milk Supply in Northern Tasmania**

The North West of Tasmania produces 250 million litres of milk per year and this is expected to rise to 319 million litres by 2015. The increase in production is generated by increasing herd numbers, better on-farm management of herds to reduce waste milk and increased production per cow.

The initial production requirement for the proposed facility is 140 million litres, of which 35% will be sourced from farms owned by the proponent, and the remainder sourced under contract from dairy farms located within a 30 km radius of Smithton.
2.4 Company Profile

Tasmanian Dairy Products Co Ltd (TDP) is a public company that has been established to undertake the construction and operation of a milk powder processing facility in Circular Head, Tasmania.

The company has been formed by Little Lion Holdings (LLH), the principals and management of which have extensive background in dairy farming, commercial real estate development, project management, dairy processing, green field development and enterprise building.

LLH has accumulated a portfolio of dairy farms in Circular Head, currently valued at approximately $100 million. The farms were purchased, developed, cleared and improved over a 3-year period. Productivity is well in excess of industry norms, and LLH is currently pursuing additional opportunities to enhance the value of these farms, including investing over $1.5 million to date to advance the milk drying plant that is the subject of this DPEMP.

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These industry leaders have agreed to work with TDP, providing additional evidence that the business concept and operational plan are achievable.

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Prior to LLH’s involvement in the dairy industry, its principals were successful operators in the Tasmanian timber industry, having built a company that achieved a market capitalisation of over $200 million. This company acquired, developed and harvested timber assets, building significant value for shareholders and other stakeholders.

In addition to LLH’s investment in the farms and the drying plant to date, the company has also retained KPMG Corporate Finance to assist in raising the requisite equity and debt capital to complete the plant and achieve commercialization. KPMG has prepared the requisite collateral materials, including extensive financial models, and has already begun discussions with prospective strategic and financial investors.

2.4.1 Organisation Structure

The proposed organisation structure will incorporate 52 people into the running, delivery and management of the proposed facility. Table 1 summarises the roles and employee numbers.

It is anticipated that flow-on effects will also increase employment on farms due to the secure milk demand and better farm gate prices.
Roles and responsibilities in the organisation will be further developed during the business planning phase.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Supervisors/Managers</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive Officer</td>
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<td>-</td>
</tr>
<tr>
<td>Milk Procurement</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Production - WMP/SMP</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Production - AMF</td>
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<td>4</td>
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<tr>
<td>Maintenance</td>
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<td>2</td>
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</tr>
<tr>
<td>Administration</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Milk Collection (under contract)</td>
<td>1</td>
<td>12*</td>
</tr>
</tbody>
</table>

Table 1: Anticipated Organisational Structure

Milk production will consist of 3 plant operators split between wet processing, warehouse/milk receival and shift supervision.

2.5 Proposal Outline

TDP propose to construct and operate a milk drying facility in Smithton that will process 1.60 ML of milk per 24 hours (during peak processing). The factory will be capable of producing approximately 130 tonnes of milk powder from this 1.6 ML input. Approximately 3.5t AMF will be produced during the same period.

TDP have an agreement in principle to purchase the land and site buildings from Gunns Limited and redevelop part of the site for the milk processing facility. Gunns Limited will rehabilitate the entire site, in accordance with the existing Gunns Limited permit to operate, prior to TDP taking possession of the site.

Existing reticulated infrastructure (power, water and wastewater), some site buildings and road accesses will be retained and reused for the proposed facility (refer to the plan shown in Appendix B for more detail). Upgrades to the site power supply infrastructure will be undertaken during construction and a rising main for the sewer will be established on site to allow liquid wastes to be directly discharged to the CMW network.

TDP have an in-principle agreement with a nearby premise, Ta Ann, to supply all heat (steam) requirements for the facility. As part of this agreement, Ta Ann will utilise excess condensate from the proposed facility as boiler feed water to reduce water emissions to the environment. Ta Ann are an existing facility operating under a current license.

The proposed facility will feature the latest milk processing technology, with energy efficient driers and steam provided by Ta Ann, and will take approximately 10 months to construct and commission. Some construction of key infrastructure will take place interstate and be delivered to site during the construction program.

When completed, the milk processing building (both the wet and dry processing areas as defined on the plan in Appendix B) will be fully sealed by an internal positive pressure air system to prevent ingress of foreign materials, thereby maintaining the strict hygiene requirements dictated by food manufacturing legislation and standards.
It is proposed that the milk drying facility will operate 24 hours a day, 7 days a week (peak production). Potential exists for seasonal variation with shorter daily operating hours from May - August when on-farm milk production is lower. Operating hours during this period could be as low as 8 hours, or a single shift.

During peak production, milk powder production occurs for 21.5 hours per day, with the remaining 2.5 hours used for cleaning and maintenance (as required). Factory operating hours for non peak production will be determined by milk supply.

2.5.1 Variability in Production

The milk volumes processed, and therefore milk powder produced, will vary over the season, with peak milk supply occurring during the spring months, generally from October through to December.

The graph of typical yearly milk intake and milk powder produced is shown below in Figure 1, with Figure 2 showing milk intake vs. AMF produced. The figures represent the plant operating at full production.

From the graphs, it can be determined that the monthly average anticipated milk intake is just under 21,000 kL, producing a monthly average of 2900 tonnes of milk powder and 77 tonnes of AMF.

![Figure 1: Annual Milk Intake and Milk Powder Produced](image)
TDP plan to ramp production up to these annualised production levels over a few years, as milk supply in the regional area grows and they are able to contract additional suppliers.

The graph of the anticipated production ramp up is shown in Figure 3 below. The resulting anticipated milk powder production levels are shown in Figure 4.
2.5.2 Process

TDP will source fresh milk from dairy farms located typically in Circular Head to produce milk powder for the international market, particularly Asia. TDP have confirmed milk supply commitments with Circular Head farmers (however details are strictly confidential).

Milk will be delivered to the facility via B-Double tanker, under contract (a transport operator has yet to be confirmed). Tanker cleaning will occur off site as part of contract conditions. Milk will be stored on site in two or three 200 kL silos at as-delivered temperature. This storage will provide buffer capacity only, being approximately 1 day of total production.

The production process will use powdered lactose to standardise protein concentrations in the final product. TDP will buy the lactose from local and international suppliers and have this delivered to site on an as needed basis. Finished product will be packed into 25 kg bags, sealed and distributed on containerised wooden pallets or stored on site in site warehouses, until distribution is required.

All wet and dry processing equipment will be contained inside a fully bunded and enclosed section of the factory in accordance with best practice guidelines and legislation for dairy manufacturing facilities.

While the process design is still at concept design stage, TDP anticipate that the facility will process approximately 350,000 litres of milk per 8 hours on average and 480,000 litres per 8 hours during peak processing. The facility will process milk for 24 hours per day, 7 days per week.

The facility will maintain a small buffer storage of raw milk, prior to evaporating and drying the milk to make the milk powder, then packaging powder into 25 kg bags. Finished product will be stored on wooden pallets and transferred to a warehouse for distribution.
TDP have an in-principle agreement with CMW to discharge all liquid waste generated inside the factory to the existing sewerage network. The actual amount discharged will be the surplus above the facility and Ta Ann requirements (expected only during the peak production months).

TDP will have a single discharge to atmosphere (from the spray dryer) via a bag filter and will generate some noise emissions during operations.

The facility will be accessed off Bass Highway > Irishtown Road > existing site entrance off Irishtown Road. While the site access route has not been finalised, it is unlikely that Irishtown Road will require upgrading to facilitate B Double access, as the road layout, width and site distances are sufficient for the anticipated vehicle types and volumes.

TDP plan to commence construction on 1 September 2011 or earlier if possible, subject to all statutory planning and environmental approvals.

**Process Summary**

A summary of the milk drying process is provided below in Figure 5 and a short summary of each stage is also provided. A more detailed process summary is provided in Appendix A which identifies major inputs and outputs at each stage of the production process.

In general terms, approximately 88% of milk is water content, which is removed in a 2 stage milk drying process:

- Milk is concentrated by evaporation to remove up to 90% of the total water content of the milk
- Removal of the remaining 10% water by spray drying

The water is removed as condensate, and with little additional treatment (likely to be chlorine dioxide, via a package plant delivery system, for disinfection) is of suitable quality for reuse on site as wash and cleaning water, mainly in the CIP system.

The two stage approach is used because the energy required per kilogram of water evaporated in the spray drying process is up to twenty times more than is required in the evaporation process.

The remaining 12% product is predominantly milk solids, with further processing producing Milk Sludge and Butter Oil by products for re-sale.
**Initial Processing**

Milk is pumped from the milk silos to centrifuges where it is separated into cream at 42% butterfat and skim milk at <0.1% butterfat. This process also removes any extraneous matter from the milk (commonly referred to as milk sludge).

Skim milk is then standardised for protein content by the addition of lactose powder. Depending on the specification of the final product (Skim Milk Powder [SMP] or Whole Milk Powder [WMP]), cream may be added back. WMP normally has a fat content between 26% and 28% and so requires cream whereas SMP has a fat content < 1.25% fat and so no cream addition is needed.

Surplus cream is then converted to Anhydrous Milk Fat (AMF) by a different process and is sold to the food industry.

**Evaporation**

Standardised milk then passes to the evaporator where water is removed under vacuum to produce a concentrate at 53% total solids.

As part of the evaporation process the milk is heat treated to provide the microbiological and chemical performance of the final product.
Drying
Concentrate from the evaporator then passes to spray drying where it is sprayed at high pressure into the drying chamber and mixes with heated air. Water is further removed before powder at a maximum of 4% moisture is powdered from the chamber.

Basic quality testing of the powder is performed by the plant operator to provide information for the optimum operation of the plant.

Packing
In some cases the powder may be inert gas packed, dependant on customer specifications. The inert gases are normally a mixture of nitrogen (mostly) and carbon dioxide. Given the quantities of gas required (refer section 4.6), it is likely that storage on site will be in the form of either banks (skid mounted) of bottled gas, or larger single tanks filled from delivery vehicles. Note that the latter has been shown on the plans included in this document.

TDP are also evaluating use of an onsite package nitrogen generator for supply of this gas. In general terms, these generators produce nitrogen gas utilising air separation by mechanical means - taking atmospheric air (78% nitrogen & 21% oxygen), pressurising it in an air compressor and then separating it with either a membrane or Pressure Swing Adsorption generator. The advantages of this method of nitrogen supply are:

- Less transport costs
- Generation of gas on demand (less storage requirements)
- Cheaper operating costs

A decision on whether to install this equipment will be made during the detailed design phase of the project.

Powder packing has been designed to operate autonomously to provide an opportunity for labour to be utilised in other areas of the facility for short times when required.

Finished powder can be stored in the processing area for up to 4 hours before packaging starts and the packing line can pack 30% faster than production (to make up for delays or interruptions).

Storage, Distribution & Marketing
All products will be stored in ambient temperature warehouses prior to export. Initially milk powder storage will occur on site in the warehouse. This will be approximately 2 weeks of product, as quality assurance requirements dictate that testing results be received prior to dispatch. This equates to approximately 2000t of milk powder. Following transfer to an external warehouse or port of loading, the product will be further handled by shipping firms under contract.

A LPG powered forklift will be utilised to transfer product from the end of the packing line into storage and onto dispatch vehicles. Note that loading of dispatch vehicles occurs in the warehouse. This same forklift would be utilised for unloading general deliveries to the processing area.

Further Information
Anhydrous Milk Fat
Anhydrous Milk Fat (AMF) or butter oil is the product produced from cream not used in the powder process. The process involves concentration of the fat up to 99.5% butterfat by using a series of centrifuges. The non fat milk solids taken out by the centrifuges are returned to the powder process.
The temperature of operation ensures that all butterfat is in a liquid state. This varies and can be as high as 80 degrees Celsius. The final step in the process removes the last trace of moisture and ideally produces AMF of 99.9% purity. Note that the purer the oil content of the AMF, the more value it may attract in the market place, and therefore there will be a continual production focus on ensuring the quality is maintained.

This product will be packed into 200 litre drums

**Milk Sludge**

This waste is a mixture of dirt and excrement, commonly referred to as ‘milk sludge’. Quantities generated per day vary according to the time of year, quality of milk and operational requirements, but may be as much as 1.5m³ per day.

The sludge will be stored in covered waste bins for daily collection. TDP will secure agreements with local pig farmers (or similar) in the North West to reuse the sludge as feed and negate the need for disposal at a landfill.

**Cleaning In Place (CIP)**

At the end of each daily production run (21.5 hours at peak production, 8 hours during the winter months and commissioning), all equipment that has come in contact with milk and milk products is fully cleaned to maintain hygiene standards, using what is known as CIP equipment. This equipment is fully automated and integral to the plant equipment being cleaned, so that the only location of losses from the system is the discharge to the local sewer network via a dedicated TWA.

The automated process of cleaning will follow the following steps:

- Rinse with cold water
- Additional of detergents (sodium hydroxide)
- Circulation of cleaning solution through the equipment with turbulent flow to loosen and suspend soils
- Rinse with fresh water
- Nitric or phosphoric acid rinse to prevent build-up of milk scale
- Rinse with fresh water

Refer to Section 4.6 for likely quantities of the chemicals listed above.

**Major Services Inputs**

The major services inputs to the production process are steam, water and electricity. Steam will be sourced under a supply contract from the adjacent Ta Ann boiler, with water (where not recycled as part of the condensate reuse system) and electricity sourced from the local network.

Ta Ann has confirmed that TDP can take the steam from their boiler to use in the production process. The water/electricity network providers have confirmed that TDP can utilise the existing network.

**2.5.3 Site Buildings**

One of the attractions of redeveloping the former Gunns Site is to utilise existing site buildings during both construction and operational phases with the existing amenities and administration block providing a functional space from which to control and oversee the construction program, and then the same facilities will be used during full operations.
Below is a summary of the site buildings (including nominal sizes), with an indicative site plan provided in Appendix B. Appreciation views of the new buildings are provided in Appendix C.

- Storage and warehouse building (existing dry mill building of approximately 2450 m$^2$) incorporating:
  - Compressor/electrical control room
  - Toilets and basic amenities
  - Palletising belt
  - Finished product storage (nominally 100 pallets)

- Dryer Building (320 m$^2$)

- Wet Processing (210 m$^2$)

- Amenities building (105 m$^2$)

- Three 200 kL milk storage silos

- 2 Bay milk unloading facility

- 20 staff car spaces (a further 15 car spaces are located outside the existing administration building)

- Chemical storage area

- One potable water tank and 2 fire water tanks

- Landscaped ‘break out’ area for staff

Some site sheds will eventually be removed to make way for the new facilities. However, as demonstrated on the plan, most site buildings will remain for future use in the proposed facility.

**2.5.4 Construction**

**General**

Construction will occur over a 10 month period, nominally commencing from September 2011 or when suitable contractors have been engaged and approvals have been granted. Existing site buildings will be utilised as covered and secure construction areas.

The building works and process equipment installation will occur in tandem with up to 100 contractors on site during the peak construction phase of the project.

A detailed safety management plan will be developed to ensure the works are undertaken in a responsible manner, and to ensure all contracting parties are fully aware of their OH&S requirements.

Local building and contracting firms will be utilised for the construction of the main building and infrastructure works (where required).

While local manufacture of the processing equipment is preferred, to maintain a strong Tasmanian presence on the project and to minimise transport costs, it is envisaged that a reasonable percentage of the processing equipment will be sourced from interstate.
Site Preparation

A 1.8m high chain link screen fence will be established around the works area to maintain security and prevent unauthorised access. Signage at the site entry will prevent general traffic mixing with construction related traffic. No changes are proposed to the existing site access entry and exits during construction.

Reusing the existing site sheds, hard stand areas, topography, established utilities and site accesses significantly reduces the site preparation works required to facilitate the construction of the facility. No bulk earthworks are anticipated.

Shallow utility trenches will be excavated to facilitate the upgrading and realignment of power, water and sewerage lines. Shallow excavations will also be required for the construction of concrete footings and floor slabs for the new processing buildings.

Existing office facilities in the proposed storage/warehouse building will be used in the first instance, supplemented by temporary construction offices as required.

Working Hours and Days

While the construction hours will generally be limited to 0630-1800 Monday to Saturday, it is possible that construction will need to occur on a 24 hour basis (3 shifts) from Monday to Saturday, with an additional 8 hour shift from 7am to 4pm Sunday.

Any night time fabrication work will be completed in existing site workshops with doors and windows closed. Once the main building is erected, installation works may continue overnight or when scheduling permits.

Construction Noise

The construction of the proposed plant will utilize typical conventional building erection and process equipment installation, techniques and equipment. No high noise operations such as pile driving or blasting will be required. Major building components and process equipment will be fabricated off site, requiring only final assembly on site.

The noise emissions during construction have been estimated by setting up a specific construction scenario within the SoundPLAN noise model, developed to predict the plant’s operation noise. Two cases were investigated, one for day work and one for night work.

The following external noise sources were used to characterize the noise emissions for these two cases:

<table>
<thead>
<tr>
<th>Day</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Mobile Crane</td>
<td>1 Mobile Crane</td>
</tr>
<tr>
<td>3 Trucks</td>
<td>1 Truck</td>
</tr>
<tr>
<td>1 Forklift truck</td>
<td>1 Forklift truck</td>
</tr>
<tr>
<td>3 Angle Grinders (or similar power tools)</td>
<td>2 Angle Grinders (or similar power tools)</td>
</tr>
<tr>
<td>1 Mobile Air Compressor / Generator</td>
<td></td>
</tr>
<tr>
<td>1 Excavator</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Construction Noise Modelling Basis

In both cases, in addition to these external noise sources, it was assumed that a forklift truck and two angle grinders (or similar power tools) were operating inside the warehouse.
The noise levels due to these emissions were calculated for the same nearby houses, checked in the operational noise assessment. The daytime noise levels ranged between 30.2 and 46.5 dBA and the night time noise levels between 23.3 and 44.2 dBA.

**Working Areas**
Construction work will be restricted to existing site sheds and the footprint of the new buildings.

All onsite fabrication will be carried out inside existing site sheds. Some construction plant and equipment will be stored on hard stand areas, with most processing plant and equipment stored in site sheds to provide an appropriate level of security and weather protection.

**Plant and Equipment**
Mobile cranes will be used on site to assist with the erection of building components and the installation of process equipment. General construction will be supported by forklift trucks and other light vehicles and equipment. Materials deliveries will be received on site from utility trucks, rigid trucks, semitrailers and concrete agitator trucks.

Tracked excavators, bobcats and backhoes will be utilised to excavate footings and service trenches. Electricity supply will generally be from the mains, but small generators and other petrol or diesel powered equipment may be used from time to time.

No rock crushers, concrete batching plants, asphalt makers, gravel pits, clay pits or workers accommodation will be required on site.

**Raw Materials**
Raw materials will be sourced locally where possible. This includes:
- Pre-mixed concrete from Burnie or Wynyard
- Cladding materials manufactured in either Hobart or Launceston
- Precast concrete panels manufactured on the NW Coast, Hobart or Launceston

**Environmental Management**
All contractors working on site will be required to establish an appropriate environmental management plan for the work they will conduct on site, as part of their terms of engagement.

An erosion and sediment control plan (ESCP) will be established to ensure that construction works do not cause runoff of sediment into the nearby water courses. No works will be conducted during periods of high winds. Dust suppression measures will be deployed where required.

All solid waste will be collected in bulk skip bins. Final offsite disposal of solid waste will be to the municipal landfill. The existing sewerage facilities will be utilised.

**Site Access**
The existing main site access, from the corner of the Bass Highway and Irishtown Road, will be used for the majority of deliveries and personnel movements. The site also has multiple secondary entrances, which will be used less frequently during construction as required. The Bass Highway and Irishtown road geometry has sufficient room to accommodate B-double vehicles and any large loads transported in accordance with DIER protocols.
The site has more than sufficient space to provide parking on site for all contractor vehicles, plant and equipment. At the peak of construction activity, up to 100 contractor vehicles would be expected on site. The majority of these vehicles would enter and exit the site once per day, mostly on short trips to accommodation in Smithton. Some contractors are likely to travel from other locations on the North West coast using the Bass Highway each day.

Some specialist contractors will be engaged from interstate. These contractors would generally fly into Tasmania via one of the northern airports and hire a vehicle, or bring their own vehicle via Devonport using the Spirit of Tasmania ferry service. Interstate contractors are likely to utilise accommodation in Smithton, for periods of several days or weeks at a time.

2.5.5 Commissioning

The commissioning process is expected to take 6 to 8 weeks to complete.

Commissioning follows mechanical completion of the installed components - this is a key deliverable of the main equipment supply contract, and must be certified by a suitably responsible person (superintendent) prior to commissioning commencing.

Commissioning Team

A dedicated commissioning team will be engaged to be responsible for the timely, efficient and effective commissioning of the plant. The commissioning team will have the skills, experience and knowledge required to commission the processing plant.

Key components of the commissioning process are detailed as follows:

Dry Commissioning and IO Testing

Input/Output (IO) testing is undertaken on all electrical connections, including field devices, motors, and Programmable Logic Controllers (PLC’s) to ensure equipment is connected as required.

Once complete, dry runs (virtual operations) will be undertaken of all the equipment and process control equipment. The MSDS and operating manuals will be studied and operator training will commence. The equipment suppliers and commissioning team will commence training of new operators. Equipment drawings and the as-constructed drawings will be studied and filed.

Operators will learn the unit process operations, operating parameters, and OHS requirements from the commissioning team.

Wet Commissioning

All tanks, pipes, pumps, and major items of equipment will be filled with water for pressure testing and pump motor direction and flow checks. All problems will be systematically reported to the commissioning team leader for repairs or modification prior to coming on line.

It is expected that the process section will be commissioned using clean water in small batch operational runs on distinct processes, to ensure that each complies with operational and environmental requirements.

Once testing with water is complete, equipment will be commissioned using steam, in a similar manner to the water process described above.
**HOLD POINT – Critical Analysis**

Production performance of equipment and ancillary infrastructure is reviewed and all outstanding issues addressed as required. Repairs, calibration or maintenance is scheduled and signed off.

**Critical Hygiene and Cleaning in Place (CIP)**

All equipment, surfaces and interconnecting parts are cleaned to ensure all construction and installation related dust/dirt is removed and does not contaminate the first batch of milk and powder.

A CIP run will then be completed for three main reasons:

- Ensure the CIP process works to specification and does not interfere with other processes or equipment
- Sterilise the manufacturing equipment in readiness for the first milk processing run. This is an important step to ensure the powder produced in the first run is safe for human consumption
- Ensure all wastewater connections and processes work appropriately and competently

At this stage, the process is considered a milk processing facility, and although any output, in terms of milk powder and AMF, may be suitable for sale should they meet operational parameters, all production is sold for stock feed.

**Primary Milk Processing**

A known volume of milk will be processed for 1 hour. The efficiency and timing of the process will be noted and assessed using the manufacturer’s specifications. The milk sludge and AMF process is critically analysed at this stage to ensure operational efficiency.

Any wastewater generated at this stage will be assessed by the online water quality mechanism and directed to either CMW or on site for reuse as appropriate.

**Full Production**

Once commissioning is completed to the satisfaction of the contract, the equipment is deemed Practically Complete, and therefore suitable for full production.

**2.5.6 Complaint Management**

TDP are committed to maintain a positive relationship with the Smithton community, local residents and adjacent site users to foster an ongoing constructive working relationship. As such, TDP are committed to ensuring all works necessary for the construction and commissioning of the facility do not adversely affect these stakeholders.

In the highly unlikely event that a complaint is received in the construction or commissioning phase, the following procedure will be used to document, address and resolve the complaint.

Any complaints received will be reported to the site supervisor immediately and they will either delegate responsibility or assume responsibility themselves, to respond to the complaint.

To manage the complaint process and ensure the complaint is documented appropriately, a complaint/incident management pro forma will be developed which captures the following information:
Nature of the complaint including:
- Date
- Time
- Complainant
- Works occurring at time of the complaint
- How the complaint was received (in person, phone call etc)
- When the event/issue generating the complaint occurred

The response to the complaint will be addressed in the following format:
A person will be assigned to the complaint to ensure it is addressed and managed and primarily responsible for documenting:
- Urgency of complaint (negligible, moderate, major)
- Steps taken to verify the nature of complaint
- Steps taken to address the complaint (including notifying appropriate authorities if necessary)
- Complaint resolution including notifying the complainant
- Necessary actions/procedures to prevent further complaints of this nature
- Date/time complaint resolved
- Communicating complaints to site contractors at site meetings

Completed proformas will be filed by TDP for future reference and retrieval if required

2.6 General and Regional Location

The regional location of the proposed facility is provided in Figure 6 and local location is provided in Figure 7. The proposed site is located approximately 3 km from Smithton and 5 km from Irishtown.

The proposed site is surrounded by other industrial uses with the nearest sensitive use approximately 380 m from the proposed site, on the Bass Highway.
2.7 Site Plan

The site layout plan is provided in Appendix B. The site plan includes the following main features:

- Wet processing area and milk unloading area
- Milk unloading bay
- Electrical transformer bay
- Administration and office area (including amenities)
- Services supply, including water treatment and compressed air supply (internal)
2.8 Road Access

All site vehicles will access the site the via the established site access of Bass Highway > Irishtown Road (for vehicles travelling east/west) or directly from Irishtown Road.

The existing Bass Highway/Irishtown Road intersection has suitable layout, turning circles and sight distances for B-Double vehicles and anticipated traffic loads and volumes.

2.9 Vehicle Movements

It is estimated at peak demand 38 B-double vehicle movements will be required for milk delivery and approximately 6 semi-trailer movements for despatch per day delivering palletised milk powder to either external storage facilities or to the wharf for containerisation (both under contract). Peak demand is anticipated for October - January. Outside of peak demand, B-double and semi-trailer movements will be aligned with farm gate production.

Milk delivery and despatch movements are expected during daylight hours only (nominally 0800 - 1700 hours), 7 days per week.

It should be noted that the vehicle movements associated with milk delivery and despatch is existing traffic transporting milk from the farm gate, along the Bass Highway to processing facilities in either Burnie or Wynyard. The proposed facility will not create more vehicle movements; rather, existing movements out of Smithton will be rerouted locally.

In addition to the B-Double movements, normal car movements for the workforce of approximately 50 persons will be generated. Due to the staff being shift workers (anticipated 3 x 8 hour shifts during peak production), large concentrations of vehicle movements are not expected and there should be no significant traffic issues.

The existing Bass Highway/Irishtown Road intersection has suitable layout, turning circles and sight distances for B-Double vehicles. A summary of traffic movement is provided in Table 3.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours / day</th>
<th>Days / week</th>
<th>Number of movements</th>
<th>Austroads Vehicle Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per day</td>
<td>Per annum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Delivery</td>
<td>10</td>
<td>7</td>
<td>39</td>
<td>14200</td>
</tr>
<tr>
<td>General maintenance</td>
<td>12</td>
<td>1</td>
<td>10</td>
<td>520</td>
</tr>
<tr>
<td>General deliveries</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>520</td>
</tr>
<tr>
<td>Staff</td>
<td>24</td>
<td>7</td>
<td>20</td>
<td>7280</td>
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<tr>
<td>OUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Powder</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>1870</td>
</tr>
<tr>
<td>AMF</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>312</td>
</tr>
<tr>
<td>General outgoing</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>520</td>
</tr>
</tbody>
</table>

Table 3 - Summary of Traffic Movements
2.10 On Site Infrastructure

The envisaged key infrastructure is listed below. It is anticipated that this infrastructure will generally be housed in the ‘wet’ area and ‘warehouse’ area:

- Raw milk receiving station (2 bay)
- 3 x 200 kL silos for raw milk buffer storage
- A wet processing area, including a fully bunded and controlled chemical storage area
- A dry processing area, including:
  - One stage mechanical vapour recompression evaporator
  - Spray dryer (with bag-house emission control)
  - Powder packing system (hermetically sealed)
- A palletising system
- Despatch awning

2.11 Off-site Infrastructure

**Potable Water**

The proposed plant requires little potable water due to the extraction of water from the milk during processing (evaporator condensate) being suitable for plant cleaning and general process requirements. Given this, and the fact that the site has 3 existing water connections (fed from an existing 150 mm diameter water main at Irishtown Road), there are no additional off site water supply connection requirements.

It is proposed that for fire fighting purposes an onsite water storage facility and dedicated fire booster pumps will be installed.

**Sewer**

When the plant is operational, approximately 170 to 236 cubic metres per day of effluent will be created. This will be discharged to a CMW maintained sewer system under a trade waste agreement.

CMW has indicated that it has capacity at its existing treatment plant to deal with the effluent generated and have categorised the proposed plant as a Category 4 Trade Waste Producer due to the volume discharged.

The nearest point of connection is via an existing sewer pump station in Britton Road. A new sewer rising main will be installed to provide this connection via the road reservation. The connection point will be at the northern end of the site.

The sewer will be designed to ensure that it is capable of accepting all trade waste from the site, including an allowance for evaporator condensate in the event that it is not suitable for reuse on site, and also an allowance for potential future load from additional industry on the site.

**Electricity**

Electricity usage has been estimated as follows:

- Evaporator and Dryer 2100 kW
- Ancillary Drying Equip 350 kW
- Dryer Bldg Power & Lighting 400 kW
Separators & Milk Receipt 350 kW
- AMF 450 kW
- CIP 150 kW
- Power & Lighting Warehouse & Wet Process 400 kW
- Contingency 100 kW
- Total 3980 kW

Up to 3 X 2 MVA 22kV/433V privately owned transformers will be supplied and installed in a separate fenced and bunded area at ground level adjacent to the MCC room. The transformers will be an oil filled type for outdoors installation. Each transformer will have the following features:
- 5 position off circuit tapchanger
- Rapid rise relay
- Oil thermometer with 2 contacts
- Winding temperature indicator with 4 sets of contacts
- Self resealing pressure relief device
- HV/LV air insulated cable boxes
- Skid base

Aurora Energy have confirmed that the existing infrastructure to site is capable of supporting this load (as it is a similar loading to that of the existing saw mill), and therefore there are no additional electrical off-site infrastructure requirements.

**Steam Supply**

The proposed plant requires steam to be provided in one of two forms:
- If high pressure steam is provided at 30 bar pressure, 9 tonnes/hour will be used of the 30 bar and a further 4 tonnes/hour will be used at a reduced pressure of 10 bar
- If steam is provided entirely at a lower pressure of 10 bar, 15 tonnes/hour will be required and electricity will be used to provide a top up in the manufacturing process

The adjoining Ta Ann site is capable of producing steam through the combustion of biomass, a renewable product. The current Ta Ann operation does not currently utilise all of their existing wood waste, which is a by-product of their operation, and there is excess available for generating steam additional to their current requirements.

The use of steam provided by another party within the manufacturing process has additional efficiencies. Once the steam is used, the by-product is the return of 100% of the condensate at approximately 80 degrees C. This in turn can be used to produce further steam from water at an already elevated temperature. In addition to the return of condensate, the process of drying milk through an evaporator produces (essentially) distilled water, which is extremely clean. As well as site re-use opportunities discussed elsewhere in this document, Ta Ann will utilise this water for further steam production.

Environmentally, the existing Ta Ann steam boiler is of very high quality. There is an extremely modern and efficient system of emission control, effectively removing all fine particulates. From an environmental perspective it is far more desirable to utilise an existing state of the art system, rather than construct a duplicate facility.
Ta Ann is currently considering their preferred method of steam provision and corresponding pricing structure. However, in general terms the supply of steam will be metered, either at the Ta Ann boiler or at the milk processing facility, and payment made for pressure and volume supplied. For the purposes of the contract:

- Steam supply will be considered as ‘over the fence’
- Equipment (in the form of steam supply and condensate return piping and associated pipe supports) will most likely be installed by TDP, who will retain ownership and therefore maintain the infrastructure. There will be a dedicated isolation valve system in place, located near the boiler, to facilitate this

2.12 Technical and Management Alternatives

TDP are a progressive and innovative company formed by a diverse group of directors with significant experience in the Dairy Industry, both on farm and in primary processing.

Considerable capital will be invested in the milk processing facility using world’s best dairy processing technology. Similar technology is currently being used as used in Victoria, South Australia, New Zealand and South America.

The technology reflects high hygiene standards required for the milk processing, the manufacturing process, the finished product and international markets demanding a high quality product from 21st Century technology.

Inferior technology available internationally would reduce the efficiency of the manufacturing process and compromise powder quality. Investment in such technology would be detrimental to the project and the long term viability.

3. Existing Environment

3.1 Planning Aspects

The land is zoned general industrial under the Circular Head Planning Scheme 1995. The surrounding land is zoned rural or rural residential.

It has been agreed in discussions with Circular Head Council that the use will be defined as Industry, Noxious and Hazardous because of the sheer volume of product being processed, rather than the implication that the plant will be a source of emissions or create a community danger from processing.

Full planning matters are discussed in the Planning Statement prepared by Brothers & Newton - Opteon, which should be read in conjunction with this document.

3.2 Environmental Aspects

The proposed site has been heavily modified by historical industrial activities, all of which have been centred around timber processing since the 1960s.

The site was established by Kauri Timbers in the 1960’s before Gunns purchased the site in 1994 and continued to operate a hardwood sawmill and timber processing mill producing green and dried timber for the local, national and international market.

The site is mostly cleared of vegetation, aside from perimeter trees planted by Gunns to screen the site and minimise dust nuisance during high winds and some riparian vegetation along the drainage line.
The site is surrounded by a mixture of industrial and residential land uses, with the nearest residence approximately 380 m to the east of the proposed facility. The Ta Ann veneer mill is immediately south of the proposed site, with the local abattoir located to the North West. Vacant industrial land lies to the west.

There is no evidence of any protected environments (e.g. State or Federally protected flora/fauna or geomorphological features of significance to the Smithton region) on the proposed site, which is consistent with historical heavy industrial use. No land use conflicts are anticipated during construction or operation of the facility.

3.2.1 Site Condition

The site has been used as a sawmilling operation for over 50 years, with no timber treatment occurring on site.

Gunns Limited have owned and operated the site since 1994 processing timber for local, national and international markets. Recently, the site has been licensed by the Director, Environment Protection Authority (EPA) under Environment Protection Notice (EPN) 7100/2.

Part of the EPN requirements include development and approval of a decommissioning and rehabilitation plan, detailing actions required to ensure that site infrastructure is remediated appropriately to prevent the risk of ongoing environmental nuisance and harm to the surrounding environment or future site users.

The intention of the DRP is to ensure the site is suitable for future industrial or commercial use. While development, approval and implementation of the plan is the responsibility of Gunns Limited, it is understood that the plan will include:

- Removal of underground storage tanks
- Removal of hydrocarbon contaminated soil areas of the site
- Removal of all asbestos from site
- General equipment and site clean-up to a state suitable for sale and re-use.

The DRP will be implemented by Gunns Limited in 2011, prior to TDP accepting ownership of the site.

3.2.2 Topography

The site is relatively flat with little or no significant undulations or topographical features.

The site ranges from 26 m AHD towards the northern extent of the site, to 31 m AHD on the southern boundary. The facility is likely to be located at the higher elevations to take advantage of site access and existing buildings.

The construction plan, site layouts, operation and rehabilitation are unlikely to alter site topography.

3.2.3 Geology

The geology of the area is shown on the Smithton 1:50 000 geological atlas sheet.¹

The site is located on Quaternary windblown sands, on the slightly elevated areas on the north and east, and Quaternary alluvium to the west and south. These sediments are underlain by chert and dolomite of the Cambrian Smithton Dolomite.

There are interbedded Cambrian sediments and volcanics outcrop on Marthicks Hill to the west and conglomerate and quartzite on Beacon Hills to the east.

An extensive area of Quaternary limestone, the Pulbeena Limestone, occurs to the south of the site.

3.2.4 Acid Sulphate Soils

The site is mapped as a low risk of acid sulphate soils (ASS) being present on site and any ASS is likely to be below 1 m from the ‘surface’\(^2\).

The risk mapping does not clarify the presence/absence of ASS on site, uniform distribution across the site or the horizontal and vertical delineation of ASS in the soil profile.

No known validation sampling has been undertaken following the mapping to quantify or delineate the potential ASS.

No signs of ASS have been observed on site and no further action is required.

*Commitment 1: If any ASS are intercepted on site during construction, they will be handled in accordance with State guidelines.*

3.2.5 Duck River Catchment

The Duck River catchment has been described in the *Environmental Management Goals for Tasmanian Surface Waters, Catchments within the Circular Head & Waratah/Wynyard Municipal Areas, January 2000.*

The catchment is approximately 655 km\(^2\) and drains into Duck Bay on the North Coast near Smithton. Recent water quality and macro invertebrate sampling\(^3\) has identified the following trends:

- Forestry and agriculture are the primary land uses in the catchment
- The lower extent of the catchment has been heavily modified by agricultural activities, with flat, straight drainage lines modified to improve grazing opportunities
- Water quality is generally poor with high nutrient, faecal bacteria and conductivity levels and low dissolved oxygen levels, consistent with uncontrolled agricultural and industrial discharges
- Aquatic communities have been impacted by modification of drainage lines and associated habitat destruction, poor water quality and willow infestations

Duck Bay supports marine farm activities but poor catchment water quality and poor estuarine water quality from the urban area has not allowed the marine farm potential to be fully realised.

Around the proposed site, the abattoir and Ta Ann Veneer Mill discharge to the drainage lines. The water quality from these premises is regulated by the EPA and the discharges are generally compliant with licence guidelines.

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Aquatic Survey

An aquatic survey of the adjacent drainage lines was completed by Kanunnah Pty Ltd on April 20 and 21 2011. The survey is summarised below with the full report provided in Appendix D.

The drainage line adjacent to former Gunns Limited sawmill was surveyed for presence of and habitat suitability for the Giant Freshwater Lobster and Australian Grayling.

The instream and riparian habitat within the drainage line has been heavily disturbed and can be described as a ‘ditch’ at best. The drainage line has little overstorey and no understorey cover.

No lobsters were captured after 66 hours of fishing time and there appears to be a very low chance of finding any populations in the near future. The lack of suitable habitat lowers the possibility of transient specimens populating the surveyed area.

Due to significant sedimentation in the drainage line, there is little to no riparian zone or in-stream woody debris to assist with habitat. There were some patches of cobble, which may provide habitat for juvenile lobsters but no juveniles were observed. Kanunnah Pty Ltd concluded that little or no aquatic fauna values of Commonwealth or State significance exist within the survey area.

3.2.6 Water Management Plans

No water management plans exist for the proposed site, or in the surrounding area.

3.2.7 Surface Water

The proposed facility is located in the Duck River Catchment, with the Duck River located approximately 3 km west of the proposed site.

Two drainage lines flow from the site and join Coventry Creek, a minor tributary of the Duck River. The confluence of the Coventry Creek and Duck River is located between Scotchtown Road and Kubanks Road, immediately south west of the Smithton Township.

The two drainage lines are described as follows:

- An unnamed tributary of Coventry Creek drains north-south on the western border of the proposed site and intersects the site near the former wood storage area. This drainage line has been referred to as ‘Berringers Creek’ in previous reports. This drainage line has been highly modified by historical agricultural activities with vertical embankments, flat gradient, little or no riffles or pools and the channel is approximately 1.5 m deep and 1 m wide. The flow is ~ 0.3 m deep. An intermittent drainage line also drains west along the southern boundary.

- Another small tributary drains east-west, along the southern boundary of the proposed site. This drainage line is intermittent, has a flat gradient and is likely to only carry localised stormwater runoff.

Water quality data is available for Coventry Creek based upon the State of the Rivers Reporting, completed in 2003. The report concluded water quality in Coventry Creek and its tributaries is adversely impacted by high nutrient levels from upstream discharges and agricultural runoff, suffers from high concentrations of suspended sediments from bank erosion and damage by stock. These inputs have resulted in poor water quality characterised by excessive siltation and algal blooms.

5 Index of River Condition for the Duck River Catchment (2003)
A surface water monitoring program commenced in April 2011 to characterise the water quality of the drainage lines and establish a baseline water quality database.

The surface water quality monitoring locations are provided in Appendix E. An explanation of the monitoring points is provided below in Table 4.

<table>
<thead>
<tr>
<th>Monitoring Point</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDPSW01</td>
<td>Drainage line 1 above the site.</td>
</tr>
<tr>
<td>TDPSW02</td>
<td>Drainage line 1 below the site.</td>
</tr>
<tr>
<td>TDPSW03</td>
<td>Main tributary of Coventry Creek</td>
</tr>
</tbody>
</table>

Table 4 - Surface Water Quality Monitoring Points

The State Policy on Water Quality Management 1995 requires the quality of Tasmanian surface waters to be maintained or enhanced.

Any potential aqueous emissions from the proposed facility must not jeopardise the water quality of the drainage line, Coventry Creek or the Duck River.

The former Department of Primary Industries, Water and the Environment (now the Department of Primary Industries, Parks, Water and Environment) and the Circular Head Council established and ratified the Protected Environmental Values (PEVs) for the Duck River catchment under the State Policy for Water Quality Management in January 2000.

The document is entitled the Environmental Management Goals for Tasmanian Surface Waters, Catchments within the Circular Head & Waratah/Wynyard Municipal Areas, January 2000.

The PEVs for the Duck River catchment in the area of the proposed facility are interpreted (based on the Surface Water under Private land tenure) to be:

A: Protection of Aquatic Ecosystems  
   (ii) Protection of modified (not pristine) ecosystems  
      a. from which edible fish are harvested

B: Recreational Water Quality & Aesthetics  
   (i) Primary contact water quality (Duck River at Trowutta Road - River Bend Youth Camp)  
   (ii) Secondary contact water quality  
   (iii) Aesthetic water quality

D: Agricultural Water Uses  
   (i) Irrigation  
   (ii) Stock watering

E: Industrial Water Supply - Food Processing
That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a modified, but healthy aquatic ecosystem.

The management strategy should also seek to provide water that is acceptable for irrigation and stock watering purposes, which will allow people to safely engage in primary contact recreational activities such as swimming on the Duck River at Trowutta Road (River Bend Youth Camp) and secondary contact recreation activities such as paddling or fishing in aesthetically pleasing waters, and allow Edith Creek to supply water suitable for use in food processing.

3.2.8 Groundwater

One groundwater bore is used intermittently on site by Gunns Limited. Details around bore depth, yield and groundwater chemistry are unknown.

The proposed facility has no use for groundwater, and therefore the groundwater bore will be decommissioned during the construction phase of the project.

3.2.9 Geoconservation

The proposed site has been heavily modified by historical industrial activities for over 50 years. The southern end of the proposed site is included in the Smithton District Mound Springs and Spring Deposit group mapping. However, no such features are located on the site and the proposed activity will have no impact on areas of geoconservation value.

There have been validation studies undertaken\(^6\) to determine whether any spring mounds are present on and around the proposed site. These studies have confirmed that the spring mounds are located in the Circular Head Wood Centre, not within the proposed site.

No other geoconservation features e.g. dunes, lunettes or deflation hollows are located on the proposed site.

3.2.10 Public or Tasmanian Reserves

No public or Tasmanian reserves are recorded on the proposed site.

3.2.11 Climate

The nearest Bureau of Meteorology (BOM) weather station to the Smithton mill site is in Grant Street, Smithton, Site Number 091092.

The site commenced measurement in 1911 and closed in 1997. The site is approximately 3 km to the north of the site at an altitude of 7m.

The rainfall and temperature data are summarised as follows:

- Mean annual rainfall is 1106.3 mm/year;
- Maximum mean monthly temperature is 21.5°C in February; and
- Minimum mean monthly temperature is 4.5°C in July

Table 5 shows the monthly rainfall statistics and temperature from the Smithton BOM station.

---

\(^6\) pitt&sherry, January 2009, Circular Head Wood Centre Geoconservation Inspection, prepared for Newood Smithton Pty Ltd.
<table>
<thead>
<tr>
<th>Statistic</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Annual</th>
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</thead>
<tbody>
<tr>
<td>Rainfall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest (mm)</td>
<td>128.7</td>
<td>155.0</td>
<td>157.5</td>
<td>261.6</td>
<td>285.4</td>
<td>289.4</td>
<td>282.6</td>
<td>295.2</td>
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<td>249.6</td>
<td>172.5</td>
<td>228.2</td>
<td>1557.0</td>
</tr>
<tr>
<td>Mean (mm)</td>
<td>49.6</td>
<td>49.6</td>
<td>57.4</td>
<td>91.6</td>
<td>110.4</td>
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<td>131.3</td>
<td>107.0</td>
<td>100.1</td>
<td>81.5</td>
<td>70.6</td>
<td>1106.3</td>
</tr>
<tr>
<td>Median (mm)</td>
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<td>44.0</td>
<td>53.4</td>
<td>84.8</td>
<td>102.2</td>
<td>110.3</td>
<td>129.4</td>
<td>124.3</td>
<td>102.8</td>
<td>95.7</td>
<td>77.2</td>
<td>63.1</td>
<td>1105.4</td>
</tr>
<tr>
<td>Lowest (mm)</td>
<td>5.7</td>
<td>5.6</td>
<td>7.0</td>
<td>2.0</td>
<td>18.9</td>
<td>32.3</td>
<td>49.2</td>
<td>31.0</td>
<td>16.8</td>
<td>8.2</td>
<td>19.8</td>
<td>1.3</td>
<td>698.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean maximum (°C)</td>
<td>21.0</td>
<td>21.5</td>
<td>20.2</td>
<td>17.7</td>
<td>15.4</td>
<td>13.5</td>
<td>12.8</td>
<td>13.4</td>
<td>14.5</td>
<td>16.2</td>
<td>17.8</td>
<td>19.4</td>
</tr>
<tr>
<td>Mean minimum (°C)</td>
<td>11.1</td>
<td>11.4</td>
<td>10.3</td>
<td>8.4</td>
<td>6.9</td>
<td>5.1</td>
<td>4.5</td>
<td>5.1</td>
<td>6.0</td>
<td>7.0</td>
<td>8.5</td>
<td>9.8</td>
</tr>
</tbody>
</table>

Table 5 - Monthly Rainfall and Temperature

3.2.12 **Land Systems**

The only land system\(^7\) to occur at the site is the Plains land system.

**593111 Plains**

This land system is principally sandy Quaternary deposits. A complex array of soils in a zone around the base of neighbouring higher geologies has developed, with clay overlying sand and alternating layers of clay and sandy material also found. Soils are diverse with mostly deep sands. Colours range from greys to brown and were whole coloured or had varying degrees of mottling.

Soils are susceptible to moderate wind erosion and have a low susceptibility to rill erosion.

3.2.13 **Land Capability**

The proposed site has not been formally classified for land capability as it is private freehold or crown land.

The surrounding land is classified as Class 5 and described as:

*Land unsuited to cropping and with slight to moderate limitations to pastoral use.*

3.2.14 **Flora/Fauna**

The site is largely void of vegetation, aside from some perimeter trees planted by Gunns for aesthetic purposes and pockets of vegetation along the drainage line traversing the site.

No flora/fauna of local, State or Commonwealth significance have been recorded on site by Gunns. Investigations in the adjacent Circular Head Wood Centre did not record any species of local, State or Federal significance.

\(^7\) Richley, LR (1978), Land Systems of Tasmania Region 3, Department of Agriculture, Tasmania.
3.2.15 European Heritage

Praxis Environmental completed a European Heritage review of the Gunns Sawmill using all available historical resources. A copy of the report is provided in Appendix F.

No European heritage values of local, State or Federal significance were identified.

3.2.16 Aboriginal Heritage

The site has been heavily modified by industrial activities over time, and no Aboriginal heritage sites or areas of potential archaeological sensitivity are likely to be present on site.

3.2.17 Previous Activities

The proposed site has been used for timber processing since the 1960’s when it was converted from pasture and swamp by the original owner, Kauri Timber Company.

The mill was established in 1964/65 with various components added until 1986, including a major rebuild in 1974 following a fire a year earlier.

In 1994 Gunns Limited brought out Kauri Timber and has been operating the site continuously since then. In recent times, Gunns has operated the site as a hardwood sawmill and timber processing mill, producing green and dried timber products for local, domestic and export markets.

The main features of the site include:
- Sawmill
- Boiler and Kilns
- Dry Mill
- Lamination plant
- Despatch area
- Log wash/storage
- Woodchip stockpile
- Finished product storage/despatch
- Site office

The site operated under an Environmental Protection Notice (EPN), regulated by the Director, Environment Protection Authority (EPA). Regular environmental reports indicate the site operates within the requirements of the EPN. Few complaints have been recorded against the site regarding its non conformance with EPN conditions.

No known significant environmental incidents been recorded on the site from the current operations. Two fires have caused minor damage to site buildings, with little or no ongoing impact.

3.2.18 Air Quality

The nearest weather station to the site is located on Grant Street, Smithton. Analysis of the wind rose indicates the dominate wind direction is south westerly, with strong north easterly winds in the afternoons.

Ambient air quality monitoring of carbon monoxide, nitrogen oxide, and sulphur dioxide is not available for the Smithton area. Similar data sets for Hobart, Launceston and George Town are not considered appropriate.
3.2.19 Baseline Surveys

Baseline surveys have been completed for proposed facility as follows:

- Air quality and AUSPLUME analysis of anticipated air emission
- European heritage values in either the site or site buildings
- Aquatic ecology of adjacent drainage lines
- Baseline water quality of adjacent drainage lines
- Noise survey of existing area and modelling of emissions from future facility
- Traffic impact assessment on the Bass Highway/Irishtown Road

3.3 Socio-economic Aspects

The proposed facility will represent a $60 million investment in Smithton and the Tasmanian Dairy Industry for the next 20 years. The facility will provide 50 jobs in the processing and administration areas and a further 25 indirect jobs in the maintenance and ancillary services area. The flow on effect to the local community is estimated to be $15 million annually.

It is expected the construction phase will create 150 -200 jobs for a period of 9 months, with local contractors used where required.

The proposed facility provides new economic opportunities for Circular Head dairy farms and the dairy industry in Tasmania.

Whilst jobs will be lost when the Gunns Sawmill closes, TDP have indicated that there will be an opportunity for this skilled labour (including those displaced from the food processing industry) to be utilised in the proposed facility, with some up-skilling and retraining to diversify the existing skill base.

The redevelopment of the former Gunns Sawmill site will reinvigorate a high profile site on the primary approach to the town and prevent the site falling into decay, becoming abandoned and unattractive to future investment. Establishing essential utilities to the remainder of the site will provide opportunities for future industrial investment.

The proposed facility will have significant positive economic and social benefit to Smithton and Circular Head and there appears to be no negative impacts to the community or the dairy industry.

3.4 Alternative Sites

TDP have put significant effort into the selection of a suitable site for the operation of the proposed milk processing facility. The site selection process has been ongoing for over 3 years.

Numerous factors were considered by TDP when making the choice, including but not limited to:

- Proximity to high quality milk and abundant supply
- Proximity to port facilities for transport of finished product to market
- Availability of skilled or semi skilled labour
- Appropriate infrastructure
- Ability to discharge process wastewater to sewer
- Price and availability of industrial land
The search for a suitable site focused on three main areas: Port Latta, Wynyard and Smithton.

Port Latta was considered as a possible location for the establishment of the processing facility, as it was perceived to fulfil the primary site selection criteria.

The Port Latta industrial area has been set aside by the Circular Head Council for the Port Latta Special Area, focusing on major industries of State significance requiring locational advantages such as proximity to major mining, forestry and vegetable production.

The current occupant is a major mineral processing facility operated by Australian Bulk Minerals, manufacturing iron ore pellets mined at its Savage River mine site.

The main advantages of Port Latta are that it is adjacent to the end of the natural gas pipeline, capable of supplying gas for the creation of steam for the new facility.

Negatives with the site are the complete lack of potable water supply and an effluent treatment plant, both of which are necessary infrastructure for the proposed facility. Furthermore, the perception of a food processing facility immediately adjacent to a heavy industrial mineral processor (Australian Bulk Minerals) may negatively affect the marketing of the finished product.

Due to the lack of major utilities and potential land use conflicts, TDP did not pursue any opportunities in Port Latta.

The only site considered in Wynyard was off the end of Terra Nova Drive, immediately adjacent to the airport. The land is owned by the Burnie Airport Corporation and is zoned Industrial under the Waratah-Wynyard Planning Scheme 2000.

An advantage of the site is proximity to skilled labour, the Port of Burnie and the natural gas pipeline.

The main disadvantages of the site are:
- Wynyard is approximately 100 km from the milk supply resulting in high transport costs significantly increasing the costs of production
- The potential location near the airport would mean the height restrictions on the dryer building to avoid impacting the flight path of airport users. The factory could not operate effectively if the height of the dryer building is restricted

Smithton has always been the preferred location for the facility, and a number of sites were investigated.

One potential site is located off Marthicks Road, immediately behind the Ta Ann rotary veneer mill, owned by Newood Smithton Pty Ltd. This site is zoned industrial, is close to the source of milk supply and skilled labour, is surrounded by a community focused on the dairy industry with necessary support industries and is close to established power, water and sewerage infrastructure.

This site is a greenfield site requiring significant earthworks to construct site buildings and establish services around the site. Marthicks Road would need to be upgraded for B-double access and part of this site is a geoconservation area of State significance (although no geoconservation values would be impacted by the proposed location facility).

Another potential site looked at closely by TDP was the now disused McCains potato processing plant in the town centre.
The site has necessary industrial infrastructure, including site buildings and warehousing, to assist construction and operation of the facility in addition to suitable power and water supply. Although not required, the onsite wastewater treatment plant could also prove useful.

Site buildings could be converted for a milk processing facility, with the addition of necessary dryer building and finished product storage.

Whilst this site would be ideal for food processing, there are implications for local traffic flow when bringing large milk trucks through the central business district.

While the road network is suitable for B-double traffic, there are doubts as to whether the network could handle the anticipated load and volumes required for the proposed facility, which is more than McCains.

A third site (and the preferred site) is the Gunns Limited timber mill on the corner of the Bass Highway and Irishtown Road, at the southern entrance to the township. The site fulfils all of the primary site selection criteria and provides added benefits.

This site has much of the infrastructure needed by the proposed facility including site buildings, administration, amenities, utilities, B-Double access and parking. All of these features can be used by the proposed facility in both construction and operational phases.

The site buildings are particularly useful as they provide an opportunity for construction to be undertaken on site, in covered/secure buildings. This will enable TDP to utilise local contractors from the Circular Head municipality and provide further economic benefit to the region and assist with the timely delivery of the project.

The Gunns site is also close to the steam supply provided by Ta Ann and allows TDP to reuse steam raised by Ta Ann, but not used by their operations and send Ta Ann condensate generated by TDP.

The remainder of the site not used by TDP may be subdivided into land parcels of various sizes and network utilities established in these areas, enabling TDP to offer these sites for sale/lease. It is hoped these established industrial lots will attract business to the municipality and prevent the site from becoming underutilised. Refer to the planning report located in Appendix K for a plan of the potential land parcel areas.

The following table is a brief summary showing scores for some of the aspects considered for each site. (1 = good, 5=poor). Note the table does not indicate weighting for each of the criteria considered.

<table>
<thead>
<tr>
<th>Location</th>
<th>Community</th>
<th>Milk Proximity</th>
<th>Port Proximity</th>
<th>Effluent Disposal</th>
<th>Water Supply</th>
<th>Power Supply</th>
<th>Steam Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smithton</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Port Latta</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wynyard</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 6: Site Considerations
4. Potential Effects and their Management

4.1 Air

PAE Holmes has completed an air quality assessment of the stack emissions on the surrounding environment, on behalf of TDP. This report summarised below and attached in full in Appendix G.

The AUSPLUME dispersion model assessment focused on emissions of PM$_{10}$ and total suspended particulate matter (less than 30 microns in size) from the stack on the local air quality and surrounding residential properties.

The model was informed with local meteorological data and stack emission tests from the Ta Ann boiler.

An odour assessment was not part of the scope of works as odour emissions are not associated with a milk powder processing facility.

Fugitive emissions from the factory site were not part of the scope of works as:

- All driveway areas will be sealed
- Packaging is undertaken internal to the factory, and in fully enclosed equipment, as dictated by strict food health and safety hygiene requirements
- Finished milk powder will be stored undercover in a large warehouse. Any spillage will be cleaned up at the end of each shift (if not immediately).

The AUSPLUME analysis concluded the following:

- The maximum predicted ground level concentration was 34.6 ug/m$^3$
- The maximum concentration expected to occur at any of the surrounding sensitive receptors is 27.9 ug/m$^3$
- These concentrations are below the Tasmanian EPA criteria ground level concentrations of 150 ug/m$^3$
- No further works, assessments or mitigation measures are required

4.1.1 Existing Conditions

Little air quality data exists for the greater Smithton area or the industrial zone, which provides details on the pollution concentrations or major pollutants. The following observations were made during a site visit:

- Steam from the boiler and dust from wood chip stockpiles are the major sources of air pollution on the proposed site. No odour sources are located on proposed site
- The major sources of air discharges in the surrounding industrial area are steam from the Ta Ann boiler and odour from the abattoir

The proposed site has sealed and unsealed access ways with a number of site sheds. The unsealed accesses are generally covered in gravel and are well compacted from traffic movements and unlikely to be a source of dust nuisance during periods of high winds.

Evergreen perimeter trees along Bass Highway and Irishtown Road offer wind protection by restricting wind movements onto and around the site and ultimately reducing the potential for environmental nuisance and harm to surrounding land users.
The existing configuration of site buildings encourages wind tunnelling. However, the majority of site buildings are located on sealed surfaces and the effect of wind tunnelling is low to negligible.

The major sources of dust emissions on the existing site, being sawdust, wood fibres and wood chips, will be removed during the proposed decommissioning and rehabilitation by Gunns Limited.

4.1.2 Performance Requirements
- Tasmanian OHS requirements (Workplace Health and Safety Regulations 1998)
- National Environment Protection Measure (Air) – PM$_{10}$ limits at the boundary of the premises
- Tasmanian Environment Protection Policy (Air Quality) 2004
- Tasmanian Environmental Management and Pollution Control 1994 environmental nuisance provisions

4.1.3 Potential Effects
Emissions of particulate matter from any source has the potential to adversely affect local air quality, the surrounding industrial area, residential properties, the health of the Smithton Community and biological diversity in the local area.

Large emissions generating noticeable fallout, can be a nuisance to surrounding properties and settle on structures and vegetation. No emission fallouts of this nature are expected from the proposed facility.

4.1.4 Avoidance and Mitigation Measures
Due to the AUSPLUME analysis confirming the stack emissions are below the Tasmanian Environment Protection Policy (Air Quality) 2004 requirements, no potential effects have been identified and no formal mitigation measures are proposed.

The bag-house, which captures all particulate entrained airflows from the fully contained production process (from the evaporator and spray dryer), uses some of the best available modern technology, including continually operating reverse air jet cleaning and CIP cleanable bags (which will get washed once per day). The bag-house will be maintained in accordance with the manufacturer’s specifications. It is likely that a complete bag filter replacement will be required every two years.

4.2 Liquid Waste

4.2.1 Operations
The facility is located in the Duck River catchment with an unnamed drainage line of Coventry Creek aligned north-south along the western boundary and east west along the southern boundary of the site (referred to as drainage line). Any discharges of liquid wastes into the drainage line from the facility would have the potential to adversely impact on water quality and water flow in the drainage line.

The sources of wastewater produced on site are as follows:
- Cleaning in Place (CIP)
- Evaporator Condensate (also referred to as ‘Cow Water’). Essentially the separated water component of the incoming milk stream
- General spillage to trade waste drains, including in the milk unloading/delivery area
- General Sewer

The process diagram provided in Figure 8 below shows the sources of waste water, the predicted volumes, and volumes able to be re-used on site. Also shown and detailed further in this document are the proposed hierarchy of re-use on site and the methodology behind control of this. A larger copy of the diagram is included in Appendix H.

A discussion of each liquid waste source, with detail provided on quality, quantity and annual variability follows the figure. Avoidance and mitigation measures are provided in Section 4.2.6.

**Figure 8: Wastewater Flow Diagram**

**Cleaning in Place (CIP) Waste Water**

Cleaning in Process (CIP) waste water is the liquid waste generated from the daily cleaning of processing equipment (including storage silos). CIP will take approximately 2.5 hours to complete in this milk powder processing facility. CIP includes a chemical wash to clean and sterilise equipment, then a clean water wash to remove residual chemical wash from the equipment.

TDP expect to generate 171 m$^3$/day (average) or 236 m$^3$/day (higher quality clean generally once per month) of liquid waste from CIP. The CIP process does not vary annually as the requirements for CIP are set by the manufacturing equipment and health standards, rather than milk quality and quantity.

The chemical composition of the CIP is difficult to predict or model as it is dependent on a number of factors including on-farm milk quality (which varies with rainfall, stock feed, grass quality etc), powder type (whole vs. skim), the nature of cleaning agents and the number of cleaning cycles required in each CIP process. Due to these variables, using data from similar interstate facilities can be misleading.
However, TDP will meet the following parameters at start up and operation of the processing facility. They are based on the National Wastewater Source Management Guidelines, July 2008 in accordance with Section 56 Z1 of the Water & Sewerage Industry Act, with the exception of BOD and SS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow - Average</td>
<td>m³/d</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>Flow - Peak</td>
<td>m³/d</td>
<td>236</td>
<td>236</td>
<td>236</td>
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<tr>
<td>BODs</td>
<td>mg/l</td>
<td>7000</td>
<td>2200</td>
<td>1000</td>
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<tr>
<td>Suspended Solids</td>
<td>mg/l</td>
<td>2500</td>
<td>800</td>
<td>720</td>
</tr>
<tr>
<td>pH</td>
<td>Units</td>
<td>6.5 - 10</td>
<td>6.5 - 10</td>
<td>6.5 - 10</td>
</tr>
<tr>
<td>Total oil and grease (FOG)- Max</td>
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<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Temperature</td>
<td>°C</td>
<td>&lt; 38</td>
<td>&lt; 38</td>
<td>&lt; 38</td>
</tr>
<tr>
<td>Total Nitrogen (TN)</td>
<td>mg/l</td>
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<td>&lt; 180</td>
<td>&lt; 180</td>
</tr>
<tr>
<td>Total Oxidisable Sulphur (TOS)</td>
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<td>&lt; 600</td>
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<tr>
<td>Total Phosphorous</td>
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<td>&lt; 50</td>
<td>&lt; 50</td>
</tr>
<tr>
<td>Total Sodium</td>
<td>mg/l</td>
<td>&lt; 800</td>
<td>&lt; 800</td>
<td>&lt; 800</td>
</tr>
</tbody>
</table>

Table 7: Wastewater Parameters

CIP wastewater will be 100% discharged to CMW for treatment in dedicated piping to the CMW owned and operated pump station located on the eastern side of Brittons Road approximately mid way between Rifle Range Road and Bass Highway.

CMW have confirmed the Smithton WWTP has sufficient capacity to treat the quality and quantity of CIP wastewater (refer Appendix I)

**Evaporator Condensate**

Evaporator condensate (or Cow Water) is generated during the evaporation and drying stages of the milk powder production process and, as described above, is essentially the separated clean water component of the incoming milk stream.

The graph shown in Figure 9 shows the volume of evaporator condensate produced on site during the first three years of operation, and during a typical peak year of production, in this case planned for the financial year starting 2025.

As can be seen, based on the type of manufacturing equipment, process throughput and anticipated milk quality, TDP expect to generate 411 m³/day average during the first three years of production (2011-2013) increasing to an annual average of 738 m³/day as milk throughput ramps to full production. Note that the maximum volume of evaporator condensate generated during peak production will be 971 m³ / day. Also note that the ‘Anticipated Flow to Local Drain’ is based on the assumption that TDP have in place an EPA approved Discharge Management Plan (DMP). Until this occurs, all evaporator condensate will be sent to CMW under a dedicated trade waste agreement.
The evaporator condensate is expected to have the concentrations summarised in Table 8 below. The quality of the evaporator condensate is such that it can be reused in the production process and for boiler feed water for steam generation (under agreement with Ta Ann, who are supplying the steam for this operation) to reduce the volume of water discharged and reduce the demand for reticulated water.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Anticipated Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Solids</td>
<td>mg/L</td>
<td>46</td>
</tr>
<tr>
<td>Dissolved Reactive Phosphorous</td>
<td>mg/L</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Total Dissolved Phosphorous</td>
<td>mg/L</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Total Dissolved Nitrogen</td>
<td>mg/L</td>
<td>0.64</td>
</tr>
<tr>
<td>Nitrite:Nitrate Ratio</td>
<td>mg N/L</td>
<td>0.18</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg N/L</td>
<td>0.46</td>
</tr>
<tr>
<td>pH</td>
<td>Units</td>
<td>8.3</td>
</tr>
<tr>
<td>Electrical Conductivity</td>
<td>µS/cm</td>
<td>8</td>
</tr>
<tr>
<td>Temperature</td>
<td>°C</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 8: Characteristics of Evaporator Condensate
As shown in Figure 8 above, it is proposed that evaporator condensate be reused on site according to the following methodology:

1) A determination will be made if the evaporator condensate water is of suitable quality for use in the process. This will be determined by online monitoring of key water quality parameters. Note that if the condensate does not meet the quality required, 100% of the flow (to a predicted maximum of 971 m$^3$/day) will be directed to the CMW WWTP.

2) Once the quality of the water is suitable for reuse on site, it will first be directed to the Process Water Reuse tank, for CIP cleaning of the centrifugal separation, AMF processing and evaporation/drying processing equipment. Approximately 170 m$^3$ will be reused per day with no annual variation. Generally one day per month this reuse will increase to 236 m$^3$/day (higher level of clean). The process water reuse tank will be nominally 400 m$^3$ and therefore provide approximately 2 days storage.

Chlorine dioxide sterilisation/disinfection will occur prior to storage in this tank, as the water from here is used to clean food manufacturing process equipment. The dosing system is likely to take the form of a small fully contained and bunded package plant with a maximum storage capacity of approximately 1000l of chlorine dioxide in liquid form. It will be located close to the Process Water Reuse tank.

3) Once the Process Water Reuse tank is full, evaporator condensate will be directed to the Ta Ann Boiler, for use as feed water - on average 26 m$^3$/day will be reused during the first year of production, ramping up to 46 m$^3$/day average as production increases. Maximum usage is predicted at 63 m$^3$/day, during peak production periods. Water will be sourced from the Buffer Storage Tank of nominal 100 m$^3$ capacity. No treatment of this water is necessary.

4) Until a DMP has been approved, discharge to CMW sewerage network would occur for any excess condensate - nominally 213 m$^3$/day average during the first year of production, ramping up to 520 m$^3$/day as production increases. Maximum discharge will be 971 m$^3$/day. Note that this maximum will occur only if the on-line monitoring of water quality deems the evaporator condensate to be unsuitable for process reuse (as detailed in 2 and 3 above) and no other reuse options are utilised.

5) Once a DMP has been submitted and approved by the EPA, discharge to the Drainage Line will occur as a priority over sending the excess condensate to CMW (as per item 4 above). The DMP will take into consideration

(a) the final quality of the evaporator condensate and
(b) the drainage channel’s water quality and volumetric flows

Table 9 below provides a summary of the above volumes. Note again the 2013 and 2025 figures are annual averages, and will vary as production increases and decreases throughout the seasons (to the maximum stated).

<table>
<thead>
<tr>
<th>Evaporator Condensate Reuse Hierarchy</th>
<th>FY 2013 (m$^3$/day)</th>
<th>FY2025 (m$^3$/day)</th>
<th>Max Discharge / Reuse (m$^3$/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Process Water Reuse</td>
<td>170</td>
<td>170</td>
<td>236</td>
</tr>
<tr>
<td>3 Boiler Feed Water Supply</td>
<td>26</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>4 CMW as trade waste (until DMP approved)</td>
<td>213</td>
<td>520</td>
<td>971</td>
</tr>
<tr>
<td>5 Local Drainage Channel (once DMP approved)</td>
<td>To be determined</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

Table 9: Summary of Process Water Reuse
The process water storage tank and buffer storage tank provide approximately 3.5 days on site storage should equipment malfunction or environmental conditions remove any or all of the reuse options.

There is no upper flow limit for discharging to the CMW network, as such this will be the primary option for discharging liquid wastes should no onsite reuse options be available and the onsite storage is at 100% capacity.

**Milk Unloading/Delivery**

Spills of raw milk from this area are highly unlikely as the unloading and delivery process is strictly controlled as:

- Any spilt milk cannot be reused in the production process for hygiene reasons
- Therefore spillage can have significant financial impact on the costs of production

It is inherently difficult to predict the quantity of milk likely to be spilt. Strict operating procedures, trained and experienced tanker drivers from reputable transport companies, appropriately sized, installed and maintained delivery piping and supervision by TDP during unloading, greatly reduces the potential for a spill.

Analysis of similar unloading facilities around North West Tasmania indicates that spillages are rare.

Milk spillage in the unloading area will be 100% discharged to CMW for treatment, again via the dedicated pipe route to the local pump station. CMW have confirmed that the Smithton WWTP has sufficient capacity to treat the minimal volumes of this wastewater stream. Correspondence from CMW is included in Appendix I.

Note that all unloading is undertaken in a covered area with all drainage directed to CMW. No stormwater will enter this system.

**General**

Wastewater from toilets and common areas will be discharged to the CMW network as municipal wastewater.

All cleaning agents will be housed in properly designed storage areas in the processing areas in accordance with Australian Standards, Material Safety Data Sheets (MSDS) and Dangerous Good regulations.

Condensate from the steam supply for heat generation in the evaporation and drying process will be returned to Ta Ann in dedicated piping. Note that this is a separate (and fully contained) condensate stream to that of the evaporator condensate.

Milk tanker washing (either inside tanks or general cleaning of exterior) will not occur on site under any circumstances. Milk delivery will be completed under contract via a local transport company with specific terms and conditions that all tanker washing/cleaning occurs off site in a dedicated facility. TDP will not be responsible for tanker cleaning.

No bulk fuel storage or refuelling facilities will be located on site. Dust suppression may be required during the construction phase and periods of high winds.
4.2.2 Existing Conditions

On site
The site was owned and operated by Gunns Limited and liquid waste discharges were regulated by an EPN. A summary of the known liquid waste discharges is contained below:

- Site stormwater from the yards and site buildings was treated in onsite stormwater ponds and discharged to the drainage line
- Log wash wastewater was collected in a dedicated treatment basin and discharged to a drainage line aligned east/west along the boundary with Ta Ann. This water was reused by Gunns in the log wash facility until suspended solid concentrations were deemed too high and reusing the water was counterproductive
- Site sewerage was treated on site in the soakage trench
- Water accumulating in the bund from the above ground diesel storage, drained into site stormwater
- Any other extraneous discharges were directed into the site stormwater system

Surface water discharge quality from the stormwater ponds and log wash was regularly monitored by Gunns and generally complied with EPN limits. The volume and frequency of these discharges is unknown.

Water remaining in stormwater storage ponds, log wash facility and diesel bund have been decommissioned and remediated (where required) by Gunns.

Off Site

- Stormwater from the adjacent Circular Head Wood centre (excluding Ta Ann) drains to naturally occurring drainage lines and ultimately into Coventry Creek
- It is expected that other local industries around the site discharge stormwater into the local drainage lines
- No known downstream users exist in Coventry Creek (e.g. irrigation off takes or stock water). It is anticipated that the Duck River supports primary and secondary contact recreational values and aquaculture industries

4.2.3 Performance Requirements

Any emissions to receiving waters during construction and operations must comply with the following:

- State Policy on Water Quality Management 1997
- *Environmental Management and Pollution Control Act 1994*
- *Water Management Act 1999*

Any emissions to the CMW sewerage network will need to comply with

- Cradle Mountain Water Trade Waste Agreement
- *Water and Sewer Industry (General) Regulations 2009*

Surface Water Discharges

The discharge to the drainage line of site surface water will be managed to ensure that existing environmental values are maintained or enhanced in accordance with the *State Policy on Water Quality Management 1997* (State Policy) and PEV’s for private land.
The objectives of the State Policy are as follows:

- Focus water quality management on the achievement of water quality objectives which will maintain or enhance water quality and further the objectives of Tasmania’s Resource Management and Planning system
- Ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged into waterways are reduced as far as is reasonable and practical by the use of best practice environmental management
- Ensure that efficient and effective water quality monitoring programs are carried out and that the responsibility for monitoring is shared by those who use and benefit from the resource, including polluters, who should bear an appropriate share of the costs arising from their activities, water resource managers and the community
- Facilitate and promote integrated catchment management through the achievement of objectives above
- Apply the precautionary principle to part 4 of the State Policy

The former Department of Primary Industries, Water and the Environment (now the Department of Primary Industries, Parks, Water and Environment) and the Circular Head Council established and ratified the Protected Environmental Values (PEVs) for the Duck River catchment under the State Policy for Water Quality Management in January 2000.

The Duck River catchment has been described in the Environmental Management Goals for Tasmanian Surface Waters, Catchments within the Circular Head & Waratah/Wynyard Municipal Areas, January 2000.

The PEVs for the Duck River catchment in the area of the proposed facility are interpreted (based on the Surface Water under Private land tenure) to be:

A: Protection of Aquatic Ecosystems
   (ii) Protection of modified (not pristine) ecosystems
      a. from which edible fish are harvested

B: Recreational Water Quality & Aesthetics
   (i) Primary contact water quality (Duck River at Trowutta Road - River Bend Youth Camp)
   (ii) Secondary contact water quality
   (iii) Aesthetic water quality

D: Agricultural Water Uses
   (i) Irrigation
   (ii) Stock watering

E: Industrial Water Supply - Food Processing

That is, as a minimum, water quality management strategies should seek to provide water of a physical and chemical nature to support a modified, but healthy aquatic ecosystem.

The management strategy should also seek to provide water that is acceptable for irrigation and stock watering purposes, which will allow people to safely engage in primary contact recreational activities such as swimming on the Duck River at Trowutta
Road (River Bend Youth Camp) and secondary contact recreation activities such as paddling or fishing in aesthetically pleasing waters and on Edith Creek a supply of water suitable for use in food processing.

4.2.4 Potential Effects

The potential environmental impacts to the drainage line from site stormwater (both during construction and operations) are discussed below.

**Site Stormwater - During Construction**

Soil disturbed during construction has the potential to adversely impact the drainage line and aquatic species, if run off from disturbed soil is not managed appropriately with erosion and sediment controls.

Sediment loss to the drainage line has the potential to:

- Increase turbidity and reduce visibility for natural predation and sunlight for photosynthesis
- Displace aquatic animals from river bed habitat by filling up the spaces between the rocks and gravels on the river bed
- Adversely affect fish gills and respiration under extreme sediment loads

Due to the flat gradient and large proportions of sealed surface on the site, any impacts from sediment laden water are expected to be minor.

**Site Stormwater - Post Construction**

Impacts on drainage and water quality will be significantly reduced following the commissioning of the factory as the majority of site surfaces will be hard-stand areas with little or no potential for sediment discharges.

Potential exists for small traces of oils from transport vehicles to drip onto hard-stand areas and be washed into site stormwater and contributing to surface water sheens when discharged.

In the highly unlikely event of a small milk spill outside of the milk unloading area, this product may enter site stormwater adversely affecting the drainage line and downstream users.

Rainfall on the remainder of the site will soak into site soils, as has been the case during occupation by Gunns.

**Discharges to CMW Network**

The discharge of CIP water and any other discharges to the CMW network are deemed to have a low risk of environmental nuisance and harm. This is based on the following:

- Discharge pipes from the facility to the site will be correctly sized, installed and maintained such that risks from overflowing, ruptures or breakages are low to negligible
- CMW have confirmed the WWTP has sufficient capacity to treat the anticipated discharge volume and concentration (refer to Appendix I for documentation)

**Surface Water Discharges – Evaporator Condensate — Initial Discussion**

The anticipated contaminants in the evaporator condensate are very low in concentration of nutrients, pH and solids, with no or very little concentrations of metals due to the organic nature of milk.
The expected concentrations are comparable with Australian Drinking Water Guidelines, indicating the low risk the contaminants have to humans.

Based on the existing understanding of the expected evaporator condensate quality and drainage line water quality, any future discharge of condensate to the drainage line is unlikely to compromise the PEV’s for the Duck River, or render the Duck River unsuitable for primary/secondary contact, stock watering or agricultural irrigation.

The State Policy does not contain any appropriate Emission Limit Guidelines for milk processing facilities when discharging to surface waters. Current guidelines for vegetable processing are considered inappropriate as the nature of the waste stream is quite different.

The reuse hierarchy is consistent with the key principles for limiting emissions from point sources, in particular, Section 16.2 (b), as contained in the State Policy. Discharging to the drainage channel is the last option to be used, where viable reuse on site is not feasible.

The volume or rate of evaporator condensate discharged over a 24 hour period has the potential to:

- Erode the channel of the drainage line causing downstream sedimentation issues and channel instability at the discharge point
- Displace riparian vegetation
- Overflow the channel during periods of sustained heavy rainfall when the channel is at carrying capacity

A discharge of condensate to the drainage line is unlikely to have significant impacts, due to the low concentrations of nutrients, BOD and solids. The most significant potential impacts are:

- Low dissolved oxygen levels in the discharge may reduce oxygen concentrations available to invertebrates, leading to suffocation and death
- If temperature is not controlled adequately, the water could scald aquatic species or destroy habitat

The water quality in the drainage line indicates the highly degraded nature, compared to 95% level of protection provided in the ANZECC guidelines:

- Concentrations of total heavy metals generally exceed ANZECC guidelines
- Concentrations of nutrients exceed guideline levels, further indicating the poor water quality
- Although oil and grease concentrations are low, a number of surface sheens were observed in the drainage line

The above considerations will be further developed in a Discharge Management Plan to be submitted to, and approved by, the EPA prior to any release of evaporator condensate to the drainage line.

4.2.5 Avoidance and Mitigation Measures

The proposed environmental objectives are to reduce potential environmental nuisance and harm in the drainage lines downstream of the proposed facility. This objective will be achieved by the following strategies.
Stormwater – Pre and During Construction

Construction management controls will be implemented by TPD to manage sediment discharges during construction from disturbed areas.

The controls are consistent with the Soil and Water Management on Large Building and Construction Sites (Fact Sheet 1, December 2008 NRM South, in particular the following features:

- A ‘sure-gro silt stop’ (or similar) silt fence attached to 1.5m star pickets (using zip ties) at 3m spacing (or closer if required) placed down gradient of disturbed areas.
- The silt fence will capture runoff and prevent ‘under cutting’ or ‘out flanking’
- Where lengths of silt fabric join, they will overlap by 2m
- Protection of Stormwater Connections:
  - Around site stormwater sumps 3 ‘sure-gro filter socks’ (or similar) filled with scoria and sand will be secured in place to prevent uncontrolled and untreated discharges
  - Where individual filter socks join, a minimum 300 mm overlap will occur
  - If any material is stockpiled, a 400 mm (width) by 100 mm (depth) strip drain (nominal but subject to change dependent on site conditions) will be established around the stockpile to capture runoff

All controls will be maintained appropriately during construction and repairs carried out where required. The controls will be modified to incorporate any changes in site activities that cannot be fully realised until construction commences.

All sedimentation controls will be removed following the completion of construction once all disturbed surfaces have stabilised.

Stormwater – Post Construction

Site stormwater generated from the roof and exterior of site buildings, paved areas and hard stand areas from the works area will accumulate in a 3 stage interceptor (via appropriately sized and located spoon drains located around the perimeter of the milk processing site) located on the western extent of the site, then discharge into the existing drainage line. The interceptor will be of sufficient capacity to take the largest anticipated annual rainfall event, with buffer capacity to contain a milk spillage. Note the buffer capacity size will be based on the results of a detailed risk analysis of likely spillage from the largest source (likely to be the main milk storage tanks or milk tanker delivery vehicles), to be undertaken during the design phase of the project.

The interceptor will provide some primary treatment to remove floating material and oil sheens, to prevent these materials entering the drainage line.

Prior to undertaking the above mentioned risk assessment, it is believed that milk spillage from the process is highly unlikely to occur, as all milk pumping, piping and tank storage equipment prior to use in the fully bunded process buildings is constructed using fully welded piping with minimal flanged joints, operated via computer controlled valve switching, level and pressure control systems, and is completely sealed due to strict regulated hygiene requirements. In the highly unlikely event that milk is spilt from the process or during delivery, management procedures will dictate that an operator (or milk delivery driver) will activate a valve located at the outlet of the triple interceptor, capturing the (potentially) contaminated water prior to off-site discharge. This will provide TDP with time to address the spill and clean up where necessary. Note that milk delivery will only occur when TDP staff are on site.
Maintenance of the interceptor will be undertaken on an as needed basis by TDP to ensure performance expectations are maintained and debris accumulations are kept to a minimum.

Note that milk powder handling (including truck loading) is undertaken within the confines of the building, and therefore has very little chance of entering the stormwater system.

**Spills during Milk Unloading/Delivery**

The milk unloading and delivery process will be strictly controlled to ensure that no milk is split at this stage and subsequently wasted. In the highly unlikely event a spill does occur, the unloading area has been specifically designed with the following:

- The unloading area will be hard-stand with no opportunity for spilt product to contaminate near surface soils or enter groundwater
- Any unloading will be strictly monitored by the tanker driver. Interconnecting pipes will be regularly checked to ensure they do not rupture or have any slow leaks
- The milk unloading/delivery bay will be contoured to direct any spilt milk into a dedicated sump and hard piped to CMW for discharge
- A perimeter strip will also capture any spilt milk and direct to the collection sump. Site stormwater will be prevented from entering the strip drain
- Any spills outside the perimeter strip drain will be controlled with temporary booms and remediate appropriately
- Strict speed limits will be set on site (5 km/hr) to ensure tankers and dispatch vehicles have little chance of accident, including roll-over. In the very unlikely event that this occurs, little damage will result at this speed

**Cleaning in Process**

No specific avoidance or mitigation measures will be required for the CIP process. CMW have not indicated pre-treatment will be required and no buffer storage is required to control the volume of water discharged.

If necessary, an oil/grease trap can be used to provide on-site treatment, should the TWA warrant such pre-treatment.

**Evaporator Condensate**

The following avoidance and mitigation measures would be incorporated into any Discharge Management Plan that is developed.

As a precautionary principle, prior to Practical Completion when the plant is still being commissioned all evaporator condensate produced will be discharged to CMW via the dedicated sewer line - i.e. there will be no discharge to the local drainage network.

Note that once commissioning is completed to the satisfaction of the contract, the equipment is deemed Practically Complete, and therefore suitable for full production. At this stage all evaporator condensate discharged from the process evaporator/dryer will be monitored on line for the following parameters:

- pH
- Dissolved Oxygen
- Conductivity
- Temperature
If the on-line monitoring indicates one or more of the parameters is unsuitable for process reuse, 100% of the Evaporator Condensate will be discharged to CMW. The potential maximum volume discharged to CMW may be 971 m$^3$/day, on the basis that all available storages are full (process water storage tank and buffer storage tank) and no-site reuse opportunities exist, potentially due to mechanical or plant failure prevents process water reuse/rate of reuse.

The discharge to CMW will continue until such time that online monitoring indicates that evaporator condensate is once again suitable for reuse. Evaporator condensate will be reused on site in the following hierarchy, to reduce the volume discharged to CMW and the demand for reticulated water.

- Evaporator condensate will be primarily discharged to the Process Water Reuse Storage Tank. The storage tank will be 400 m$^3$ in volume with nominally 170 m$^3$ being reused per day
- When the process water reuse tank is full, water will discharge to the 100 m$^3$ Buffer Storage Tank. This tank will provide an additional 1.5 days storage (approximately, depending on the season and stage in the production ramp up plan) of evaporator condensate
- From the Buffer Storage tank, evaporator condensate will be reused for the Ta Ann boiler feed. Ta Ann have indicated the boiler will require nominally 26 to 46 m$^3$ of water per day, with a maximum of approximately 63 m$^3$/day
- Subject to final approval of the DMP, surplus water will then be discharged to the local drainage channel. Monitoring will identify any changes in the water quality in the drainage line. The likely full monthly monitoring regime is provided in Section 5.1

4.2.6 Assessment of Effects

Stormwater generated during construction does not present a significant risk to local water quality. The use of sediment controls, flat site gradient and distance to surface waters from the works area (nominally 100 m) mitigate the potential risks.

The use of silt stop fences will be an effective sediment control tool where run off is generated from disturbed ground.

The proposed reuse scheme for evaporator condensate will reduce the volume and frequency of water discharged to CMW.

Commitment 2: Erosion and sediment controls will be established prior to works and maintained by the site supervisor (visually) as necessary and after prolonged and/or heavy rainfall.

Commitment 3: Evaporator condensate will be reused as per the reuse hierarchy.

Commitment 4: Until a Discharge Management Plan for discharge of evaporator condensate to the drainage line has been approved, all excess evaporator condensate will be discharged to CMW via the dedicated sewer line.

Commitment 5: During the first 3 months of production, evaporator condensate will be tested once a week to ensure the online monitoring equipment is performing to specification. Thereafter tests will be undertaken annually.
4.3 **Groundwater**

There are no anticipated impacts on groundwater level, chemistry or use in the surrounding catchment, for the following reasons:

- The proposed facility will not take groundwater, either during construction or operations
- Liquid wastes will not be discharged to the environment to either directly or indirectly recharge groundwater
- There will be no underground storage of fuels or other liquid wastes, with potential to leak into site groundwater
- The site will be on hardstand, with no pathways for liquid wastes to recharge groundwater
- All liquid wastes will be enclosed in the building and discharged in properly constructed and maintained pipes of appropriate capacity for the anticipated loads

As there are no anticipated impacts on groundwater, no formal mitigation measures are proposed.

4.4 **Noise Emissions**

A noise survey has been undertaken, summarised below, and provided in full in Appendix J.

The proposed plant includes a milk tanker unloading area, a powdered milk production facility and associated packaging plant, warehouse and services. Most equipment is installed inside the drying tower or wet processing buildings, however some plant items are located externally.

The external equipment includes two milk transfer pumps, a water supply pump, a nitrogen generation plant (modelled, but not planned to occur), a cooling tower and two rooftop exhaust fans.

Some traffic noise will be generated on site, by milk tankers and product dispatch trucks entering and leaving the milk unloading bay and the warehouse.

4.4.1 **Existing Conditions**

The level of existing ambient noise at residences near the proposed plant has been assessed by carrying out attended noise measurements at three representative locations.

Measurements were made during Day, Evening and Night periods of the day, on the 3rd and 4th of May 2011. A map identifying ambient noise locations is provided in Figure 10.

The measurements were made with a Bruel and Kjaer “Observer 2260” sound meter and were carried out in accordance with the DPIPWE “Noise Measurements Procedures Manual” - July 2004.

Weather conditions during the evening and night measurements were cold (5-9°C) and clear with no wind. Conditions for the daytime measurements were cool (9-11°C) and overcast with some short periods of light rain and light westerly winds varying between 0 and 10kmh.

The results are shown in Table 10 below, expressed as continuous equivalent noise level (L_{eq}) and background noise level (L_{90}). Note that the night measurement for Site 3 was not completed successfully. Where required elsewhere in this report, the evening
result for this site has been used instead. Conditions including traffic volumes were observed to be quite similar at both times so this result should be representative.

<table>
<thead>
<tr>
<th>Location</th>
<th>Day</th>
<th>Evening</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L_{eq}</td>
<td>L_{90}</td>
<td>L_{eq}</td>
</tr>
<tr>
<td>1. Bacon Factory Road</td>
<td>58.9</td>
<td>55.4</td>
<td>49.8</td>
</tr>
<tr>
<td>2. Irishtown Road</td>
<td>68.1</td>
<td>46.2</td>
<td>46.9</td>
</tr>
<tr>
<td>3. Bass Highway</td>
<td>70.7</td>
<td>53.8</td>
<td>45.4</td>
</tr>
</tbody>
</table>

Table 10 - Noise Measurement Results (dBA)

The ambient noise at Site 1 was dominated by noise from refrigeration equipment at the abattoir during all three measurements. During the daytime measurement, noise from vehicles including forklifts and trucks at the abattoir and on the Bass Highway were audible.

At Sites 2 and 3, the dominant noise was from Ta Ann which operates 24 hours per day. The noise appeared to be mostly from ventilation fans and was relatively constant. No dominant tones or impulsive noise was noted during the measurement. During the daytime measurements similar noise from the Gunns’ saw mill was also audible. The Gunns’ saw mill was not operating during the night and evening measurements.

In addition to the industrial noise, significant noise was contributed by traffic on Irishtown Road and the Bass Highway, both of which carry significant numbers of light and heavy vehicles. As would be expected, traffic was much less frequent during the evening and night measurements.
4.4.2 Performance Requirements

- Environmental Management and Pollution Control Act 1994 - environmental nuisance
- Environment Protection (Miscellaneous Noise) Regulation 2004

4.4.3 Avoidance and Mitigation Measures

While it is not possible for the proposed plant to implement mitigation measures that would eliminate the impact of noise from other sources, it is possible to put in place measures to ensure that the noise emissions from the plant are no louder than is absolutely necessary.

The following noise mitigation measures have been included in the plant design:

- The drier tower building, which contains the most noise power, is constructed with precast concrete walls, has no openable windows and all access is via other connecting buildings
- All vehicle doorways to the warehouse are equipped with fast roller doors that are normally kept shut
- All external personnel doors will be provided with door closers and be kept shut
- All ventilation fans and ventilation inlet / outlets will be provided with silencers
- Any nitrogen generation plant (modelled, but not planned) will be provided with an acoustic enclosure
- All external pumps will be provided with acoustic enclosures
- All access roads on the site will be sealed to minimise tyre noise and a low speed limit set
- All vehicles and equipment used will fully comply with or exceed the requirements of the current Australian vehicle design rules

4.4.4 Assessment of Effects

The calculated results of the modelling were combined with the measured noise levels to assess the impact of the noise from the proposed plant on the nearby residences.

The results of the modelling show that TDP on its own will generate a predicted noise level of 31 dB(A) at the nearest residence.

The results of the noise measurements indicate that noise levels at most of the residences already exceed levels likely to cause sleep disturbance and affect outdoor living.

Noise mitigation measures have been incorporated in the design of the plant to ensure that the additional noise is kept as low as possible.

**Commitment 6: Undertake a further noise measurement survey after commissioning to provide confirmation of the results.**

**Commitment 7: Implement the noise mitigation measures as described in Section 4.4.3 of this document.**
4.5 Solid and Controlled Waste Management

The proposed facility will generate the following solid wastes:

- Milk sludge (essentially dirt/excrement in milk) and non-performing product
- Powder spills in the packing line and storage area
- Miscellaneous packaging wastes including plastic bags, cardboard, packaging tape and shrink wrap
- Bag filters from the bag house (disposal approximately every 2 years upon replacement)

The wastes are not classified as a controlled waste as interpreted under the Schedule A of the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure as varied November 2010.

Out of specification product will not be delivered to site, as it is tested prior to loading into the milk delivery vehicle at the farm.

No under or above ground bulk fuel stores will be located on site.

There will be small quantities of waste chemicals generated on site from laboratory testing operations for both milk and milk powder quality. Although the quantities will be minimal (refer Section 4.6) they are classified as a controlled waste.

Other chemicals used on site, as discussed in Section 4.6, are used in the process for internal cleaning purposes, and will therefore be discharged to Cradle Mountain Water via the Trade Waste Agreement.

4.5.1 Existing Conditions

The proposed site has been recently decommissioned and rehabilitated by Gunns Limited and all solid or controlled wastes removed by an appropriate contractor for disposal at a licensed waste facility.

No solid or controlled wastes remain on site.

4.5.2 Performance Requirements

- Tasmanian Environmental Management and Pollution Control Act 1994 - Environmental nuisance or harm provisions
- National Environment Protection (Movement of Controlled Waste between States and Territories) Measure as varied November 2010
- Tasmanian Environmental Management and Pollution Control (Waste Management) Regulations 2000

4.5.3 Potential Effects

Milk sludge and non-conforming product can cause significant environmental nuisance or harm to the surrounding environment if this material is not contained and managed appropriately.

Both wastes could degrade surface water quality due to increasing BOD and turbidity and low dissolved oxygen and adversely impact aquatic species, riparian vegetation and may render the water unsuitable for stock or irrigation.

Large spills could be a significant source of nuisance odour to surrounding land uses.
Powder spills in the packing line or storage areas are relatively low risk as both of these areas are indoors and little risks of powder escaping from the building with potential to be become air borne and deposited off site.

Although the quantities of laboratory chemicals used on site will be minor, should they not be contained and managed appropriately, they could cause environmental nuisance or harm.

4.5.4 Avoidance and Mitigation Measures

The following mitigation measures will be utilised to minimise the environmental risks from solid waste generation and handling.

- Milk sludge will be generated inside the wet processing area during the production process. There is low risk of an uncontrolled discharge outside the factory. It will be stored inside sealed/covered storage containers (200 L drums) inside the factory, for daily collection by waste transporter. Containers are loaded onto pallets and shrink wrapped for safe transport
- Powder spills are vacuumed up using mobile vacuum cleaners and disposed in sealed bags for use as stock feed
- Non conforming product will be packaged as if for sale (confirmation of non-conformance is generally undertaken after packaging)
- Ripped or unusable bags and waste shrink wrap will be stored in the factory in a secure lidded garbage bins and regularly taken to a waste transfer station for disposal.
- Filters from the bag-house will be disposed of in this manner also.
- Laboratory chemicals will be stored, handled, managed and disposed of according to legislated requirements, by suitably trained operators. Quantities to be stored on site will also be kept to a minimum (refer Section 4.6)
- In the highly unlikely event that any soil is contaminated during construction, the contaminated soil will be removed and excavation area remediated, then the contaminated soil disposed of at an appropriate treatment facility by an authorised transporter. If necessary, appropriate authorities will be notified and state waste classification guidelines used as guidance.

4.5.5 Assessment of Effects

The factory layout and wet/dry processing areas are designed to maintain critical hygiene and there are no feasible pathways for solid wastes to emanate outside the building.

The laboratory is to be located internal to the main processing building, and therefore as above, there are no feasible pathways for waste to emanate outside the building.

Although milk sludge and out of specification milk power is deemed a ‘waste’, it is a tradable commodity that will offset the costs of production.

Commitment 8: Milk sludge will be stored in secure bunded storage containers inside the factory to prevent unnecessary discharges.

Commitment 9: General wastes will be stored in lidded waste bins for collection and disposal.

4.6 Dangerous Goods and Environmentally Hazardous Materials

Milk processing requires the following environmentally hazardous materials during the production process:
<table>
<thead>
<tr>
<th>Material</th>
<th>Storage Type</th>
<th>Anticipated Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP detergent - Sodium Hydroxide (of approximately 45 % concentration)</td>
<td>Tank</td>
<td>4000l</td>
</tr>
<tr>
<td>CIP Cleaning Acid (nitrogen or phosphate based)</td>
<td>Tank</td>
<td>4000l</td>
</tr>
<tr>
<td>Carbon Dioxide and Nitrogen (to gas pack the finished product and protect whole milk powder from oxidising)</td>
<td>Either tank or banks of bottles</td>
<td>2000 m$^3$ each gas</td>
</tr>
<tr>
<td>Chlorine Dioxide (for evaporator condensate water sterilisation prior to use as CIP wash water)</td>
<td>Tank</td>
<td>1000l</td>
</tr>
<tr>
<td>LPG</td>
<td>Gas Bottles</td>
<td>200kg</td>
</tr>
<tr>
<td>Laboratory chemicals as determined by Food Safety requirements</td>
<td>As required</td>
<td>Micro quantities</td>
</tr>
</tbody>
</table>

Table 11: Anticipated Quantities of Chemicals on Site

4.6.1 Existing Conditions
The saw mill site will be decommissioned and rehabilitated by Gunns Limited and no dangerous goods or environmental hazardous material remain on site.

4.6.2 Performance Requirements
- *Environmental Management and Pollution Control Act 1994* - Environmental nuisance or harm provisions
- *Environmental Management and Pollution Control (Waste Management) Regulations 2000*
- *Dangerous Substances (Safe Handling) Act 2005*

4.6.3 Potential Effects
The known potential effects are as follows:
- Acids and cleaning agents can cause environmental nuisance and harm to structures, surface waters and site users
- Carbon dioxide and LPG storages are an explosion risk

4.6.4 Avoidance and Mitigation Measures
- Chemicals and acids will be stored/bunded in accordance with the *Dangerous Substances (Safe Handling) Act 2005*
- All necessary chemical licenses will be sought from Workplace Standards Tasmania
- Material Safety Data Sheets will be filled as necessary for chemicals stored on site and used by emergency authorities and reference as required
- All chemicals will be handled appropriately and training undertaken by staff if necessary
**4.6.5 Assessment of Effects**

The mitigation measures will significantly reduce the risk of an explosion or uncontrolled spill causing environmental nuisance or harm to the surrounding environment, site users or staff.

Should a spill occur, appropriate measures will be employed to contain the spill using dedicated equipment.

*Commitment 10: Dangerous Goods storage and handling will comply with the requirements of Dangerous Substances (Safe Handling) Act 2005.*

**4.7 Biodiversity and Nature Values**

The site has been industrial in nature since 1960's, used for the timber processing industry. Prior to 1960, the site was pastoral and it is assumed used as grazing for beef cattle.

Aside from perimeter trees and riparian vegetation, no known botanical values exist on site. This is a function of the industrial use for over 50 years.

The riparian vegetation on site consists of reeds in poor condition. This is attributed to poor water quality from industrial runoff over a long period of time.

No natural values exist on the site, including spring mounds.

Due to the absence of botanical and aquatic values of local, State or Federal significance, no formal mitigation measures are proposed.

**4.8 Marine and Coastal**

The proposed milk powder processing facility is located almost 3 km from the nearest coastal area, being Bass Strait.

The construction and operation will not be affected by any marine or coastal hazards including:

- Potential tidal inundation
- Storm surge inundation or wave impacts
- Climate change induced sea level rise impacts
- Potential coastal erosion processes

The proposed facility will not impact on any marine or coastal areas and no formal mitigation measures are proposed.

**4.9 Greenhouse Gases and Ozone Depleting Substances**

Greenhouse gases will be generated by the project as a result of:

- Diesel powered mobile equipment operations
- Processing operations
- Onsite and offsite heavy duty and light vehicle transport activities

The site selected is central to the various dairies to be used for supply of raw milk. This centralization minimises the offsite transport requirements and therefore the carbon dioxide emissions.
The proposed processing site is significantly closer to the dairies than the existing process sites used by these dairies and this will result in a reduction of greenhouse gas emissions from bulk transport when compared with current operations.

There is no expectation of production of ozone depleting substances.

4.9.1 Existing Conditions

There is currently an active sawmill on the site that produces greenhouse gas emissions. This, however, is being scaled out of production.

The processing of the milk that will supply this factory currently occurs at Spreyton, Burnie or Wynyard, at significant distance (average 100 km) from Circular Head farms surrounding the proposed facility.

Comparative figures available internationally for existing milk powder production are for benchmarks of approximately 1.4 kg CO$_2$e/per kg of milk powder produced (IFC 2007, Flapper 2009).

There are few studies of reported energy inputs (rather than CO$_2$e) for milk powder production, that can be used as an estimate as part of the emissions profile (usually the major component). These figures vary greatly, but for processing and distribution to market, the minimum appears to be 5 MJ/kg of milk powder produced (Flapper, 2009).

4.9.2 Performance Requirements

There are no performance requirements for operations. There are no reporting requirements relating to the National Greenhouse and Energy Reporting Act 2007. Current trigger points are 100 ktonneCO$_2$e / 25TJ for a facility, neither of which are exceeded by the operation.

4.9.3 Potential Effects

- There is significant operational usage of electricity and fuels. The production of electricity and the combustion of fuels all contribute to greenhouse gas emissions
- The primary heat supply will be by steam delivery from the nearby peeler mill. Steam will thus be generated from biomass and this process will have a net carbon footprint very close to zero

4.9.4 Assessment of Effects

A summary of operational carbon emissions is given in the Table 12 below. This table includes only the major elements of production with other known aspects not expected to contribute materially to the sum. Anticipated production is assumed to be 75,000 tonne p.a. of milk powder from approximately 570,000 tonne of raw milk.

Other by-products have not been included in the greenhouse or energy attributions—that means the greenhouse footprint has been distributed only across the mass of the primary product (milk powder) even though other products are produced.

---

Table 12: Operational Carbon Emissions

Please see reference section for details of references used.

The electricity usage corresponds to 56TJ per annum. The level of energy consumed and the level of greenhouse gas emissions are thus expected to be below the annual reporting threshold of 25 ktonne CO$_2$-e and the annual threshold of 100 TJ. At these levels it is determined that application for registration to report under the National Greenhouse and Energy Reporting (NGER) Act 2007 is not required.

4.9.5 Implementing Greenhouse Best Practice

The estimated greenhouse effect of the operation results in 0.14 tonne CO$_2$e per tonne of product at port. This can be compared very favourably to the reference point of 1.4 tonne CO$_2$e per tonne of product from reviews of current plants. The advantage here is the use of heat from a greenhouse neutral process - burning of wood waste is considered a short term cycle following the growth of the original wood and (for example) is assumed to be followed by regeneration from the CO$_2$. It is greenhouse neutral under the IPCC rules.

The primary contributor to the greenhouse footprint for most plants is about is 80-84% thermal energy and by supplying this from a greenhouse neutral source the plant operation has a significant advantage.

The electrical consumption is detailed in Table 13 below and is expected to be 760kJ/kg product and can be compared to an assessment by Murray (2010)$^{10}$ as 890 kJ/kg product for a conventional plant.

The overall footprint of the operation from a greenhouse gas and energy perspective, is better than world practice.

<table>
<thead>
<tr>
<th></th>
<th>amount</th>
<th>units</th>
<th>Carbon factor</th>
<th>factor units</th>
<th>reference</th>
<th>tonne CO$_2$e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>15777 MWh/yr</td>
<td>0.32 kgCO$_2$e/kWh</td>
<td>NGER</td>
<td>5,049</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potable water</td>
<td>93,000 tonnes (KL)</td>
<td>40 kgCO$_2$e/tonne</td>
<td>Bakhshi 2009</td>
<td>3,720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NaOH 50% solution</td>
<td>360 tonne</td>
<td>1.1 tonneCO$_2$e/tonne</td>
<td>EcoInvent 2010</td>
<td>396</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HNO3</td>
<td>126 tonne</td>
<td>2.17 tonneCO$_2$e/tonne</td>
<td>National Accounts</td>
<td>273</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off site bulk movements</td>
<td>12,111,237 tonne km</td>
<td>0.000044 kg CO$_2$/kg/km</td>
<td>EU LCA Dataset</td>
<td>533</td>
<td></td>
<td></td>
</tr>
<tr>
<td>return journey</td>
<td></td>
<td>70%</td>
<td></td>
<td></td>
<td></td>
<td>373</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10,344</td>
</tr>
<tr>
<td>total tonne per tonne milk powder produced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.138</td>
<td></td>
</tr>
</tbody>
</table>

For transport it is clear that the proposed operation has greenhouse gas advantages over the current operation. If we substitute the transport outcomes into the operation compared with current operations we have a reduction in tonne km of 44 million. The net effect, shown in the table below is a reduction to an even lower figure for emissions per kilogram of product.

Water is a large component of the greenhouse footprint of this operation. A comparison with a conventional plant indicates the water performance of the plant is also consistent with current international practice. Using figures from Ridoutt (2010)\(^\text{11}\) we can calculate the following comparison:

---

**Table 13: Electrical Consumption**

<table>
<thead>
<tr>
<th>stage</th>
<th>item</th>
<th>kW</th>
<th>no.</th>
<th>% active</th>
<th>total kW</th>
<th>hours process</th>
<th>hours CIP</th>
<th>kWh/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>separation</td>
<td>centrifuge</td>
<td>55</td>
<td>2</td>
<td>50%</td>
<td>55</td>
<td>1182.5</td>
<td>137.5</td>
<td>1,320</td>
</tr>
<tr>
<td>AMF processing</td>
<td></td>
<td>45</td>
<td>6</td>
<td>50%</td>
<td>135</td>
<td>2902.5</td>
<td>337.5</td>
<td>3,240</td>
</tr>
<tr>
<td>Water treatment</td>
<td>included in GEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cooling</td>
<td>included in GEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>compressed air</td>
<td>included in GEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drying process</td>
<td>GEA total</td>
<td></td>
<td></td>
<td></td>
<td>2215</td>
<td></td>
<td>47,623</td>
<td></td>
</tr>
<tr>
<td>pumping</td>
<td>to process</td>
<td>10</td>
<td>1</td>
<td>100%</td>
<td>10</td>
<td>215</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>pumping</td>
<td>milk store</td>
<td>10</td>
<td>2</td>
<td>40%</td>
<td>8</td>
<td>172</td>
<td>20</td>
<td>192</td>
</tr>
<tr>
<td>Total</td>
<td>all operations</td>
<td></td>
<td></td>
<td></td>
<td>2,191</td>
<td></td>
<td>52,590</td>
<td></td>
</tr>
<tr>
<td>kW installed capacity</td>
<td></td>
<td>2,600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>electrical nominal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.19</td>
<td>24</td>
<td>6</td>
<td>50</td>
<td>7200</td>
<td>15777</td>
<td>56.8</td>
</tr>
</tbody>
</table>

**Table 14: Anticipated Greenhouse Gas Emissions during Transport**

<table>
<thead>
<tr>
<th>consideration of nett effect on transport</th>
<th>units</th>
<th>Carbon factor</th>
<th>factor units</th>
<th>reference</th>
<th>tonne CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off site bulk movements reduced</td>
<td>20,857,094 tonne km</td>
<td>0.000044</td>
<td>kg CO2/kg/km</td>
<td>EU LCA Dataset</td>
<td>918</td>
</tr>
<tr>
<td>return journey</td>
<td></td>
<td>70%</td>
<td></td>
<td>-</td>
<td>642</td>
</tr>
<tr>
<td>new total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7,878</td>
</tr>
<tr>
<td>new tonne per tonne milk powder produced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.105</td>
</tr>
</tbody>
</table>

**Table 15: Anticipated Water Consumption per kg of Milk Solids**

<table>
<thead>
<tr>
<th>Water comparison</th>
<th>L/kg total milk solids</th>
</tr>
</thead>
<tbody>
<tr>
<td>farm gate</td>
<td>14.4</td>
</tr>
<tr>
<td>at export</td>
<td>15.8</td>
</tr>
<tr>
<td>difference (processing)</td>
<td>1.4</td>
</tr>
<tr>
<td>this process</td>
<td>1.2</td>
</tr>
</tbody>
</table>

---

4.9.6 **Ozone Depleting Substances**

The proposed facility will not involve the generation or use of any ozone depleting substances.

4.9.7 **Additional References**


**EU LCA Dataset** - from SimaPro Australian and other databases: The database is used a priori and references to the database are not expanded upon.


EcolInvent, 2010. Swiss Centre for Life Cycle Inventories, Data v2.1

4.10 **European Heritage**

4.10.1 **Existing Conditions**

The site has been heavily modified by historical industrial activities for close to 50 years. The most recent sawmill operated by Gunns Limited has been subject to an Environmental Protection Notice (EPN).

The ‘footprint’ proposed facility including factory, raw milk and finished product storage, loading/unloading and site access is within the boundary of the former Gunns site.

Brad Williams of Praxis Environmental completed a Historic Heritage Assessment of the former Gunns site and processing infrastructure, on behalf of TDP, in May 2011. The report is attached in Appendix F.

The findings of the heritage assessment are that no European heritage sites or values on the former Gunns site (including saw mill equipment or buildings) of local, State or National value.

4.10.2 **Performance Requirements**

- *Historic Cultural Heritage Act 1995*

4.10.3 **Potential Effects**

There are no site specific historic heritage values identified and no avoidance or mitigation measures are required.

4.10.4 **Aboriginal Heritage**

The site has been heavily modified by historical industrial activities for close to 50 years. The most recent sawmill operated by Gunns Limited has been subject to an Environmental Protection Notice (EPN). No Aboriginal Heritage values are protected under this EPN.
The ‘footprint’ proposed facility including factory, raw milk and finished product storage, loading/unloading and site access is within the boundary of the former Gunns Mill, as such, there is little or no risk of any undiscovered Aboriginal heritage values being intercepted during construction or operation of the proposed facility.

4.10.5 Existing Conditions

No Aboriginal heritage values, relics or areas of potential archaeological sensitivity (PAS) exist on the site due to the historical industrial use of the site.

4.10.6 Performance Requirements

- Aboriginal Relics Act 1975
- Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984

4.10.7 Potential Effects

No potential effects are anticipated as no Aboriginal values are likely to be present on the proposed site.

4.10.8 Avoidance and Mitigation Measures

No specific avoidance or mitigation measures are proposed. However, all site works will be conducted in accordance with Section 14 (1), of the Aboriginal Relics Act 1975 which states in part:

- ‘Except as otherwise provided in this Act, no person shall, otherwise than in accordance with the terms of a permit granted by the Minister on the recommendation of the Director’
- Destroy, damage, deface, conceal, or otherwise interfere with a relic’

In the event that any Aboriginal artefacts are discovered during the land clearance, all work will stop immediately in that area and the Tasmanian Aboriginal Land Council and the Manager of the Aboriginal Heritage Section at the Department of Primary Industries, Parks, Water and Environment will be contacted to assess the situation.

4.10.9 Assessment of Effects

There are no site specific archaeological requirements or impediments to the proposed development activity. No specific commitments are made.

4.11 Land Use and Development

A full assessment of this proposal is covered in the document prepared by Brothers & Newton - Opteon in Appendix K.

4.12 Visual

The existing visual landscape setting is industrial land surrounded by agricultural land, with pockets of residential areas. The proposed site is located within an established industrial zone, adjacent to Ta Ann.

Smithton has an industrial context with food processing and agricultural support industries merging with a local shopping district and residential areas. Irishtown is located south of the proposed facility and is the transition between the industrial/residential areas of Smithton and dairying/beef/forestry industries.

Tourist accommodation at Tall Timbers is located approximately 1.6 km from the proposed site.
The surrounding visual landscape is dominated by the large blue shed, timber/log storage and the associated boiler at Ta Ann. The highest feature on the existing Gunns site is the stack approximately 30 m high.

The closest residential property is 380 m from the proposed site (east of Bass Highway/Irishtown Road intersection). It is likely the dryer building will be visible from this property, although the building is likely to blend into the landscape at this distance. Properties south of the proposed site on Marthicks Road and Irishtown Road are 400-500 m from the site and are unlikely to notice any significant landscape changes.

The proposed facility will introduce the following elements into the visual landscape:

- A dryer building 33 m high - this is a critical element to the process
- 3 milk storage silos
- Milk unloading facility approximately 6.9 high
- The colour scheme will be muted to blend with the natural and industrial landscape
- Existing site sheds will be retained with no modifications to the exterior colours or size. The interior will be modified to suit the future use. No changes to the administration areas are proposed.

The highest part of the building is 33 m in height and the process will not work without a building of this scale. The building will be read in the landscape as part of an existing industrial area and be visible from Irishtown Road and the Bass Highway.

The building has been designed to be set back to the rear of the existing site to blend the building into the existing landscape. Photo montages of the proposed facility on the existing site are provided in Appendix C.

Existing landscaping/perimeter trees around the site will be maintained to assist visual screening. Post construction vegetation planting will reduce some of the visual impact (if any) of the site from users of Irishtown Road and Bass Highway.

The facility is unlikely to impact on vantage points around Smithton including Marthicks Hill, Christmas Hills, Pokes Hill and Ollingtons Hill.

The elevations of the site and site buildings do not breach height restrictions imposed by the Smithton Aerodrome (5 km to the North West).
4.13 Health and Safety Issues

4.13.1 Public Safety

The public’s safety during construction and operation of the site will be managed in accordance with all State and Commonwealth guidelines. Appropriate signage will be used to delineate construction areas and maintain a safe working distance for other site users.

The construction crew will be subject to contemporary occupational health and safety (OHS) requirements. These requirements will be implemented prior to construction and adjusted to reflect site activities and complexity of construction tasks.

The site will be managed with site signage and temporary site fences (if required) to prevent unauthorised access.

Site layout has been designed to minimise human/traffic interactions with car parking and factory access located away from major trafficked areas around milk unloading/despatch.

Access inside the processing areas and around major infrastructure will be restricted to appropriate staff only and controlled appropriately.

Speed limits on arterial roads will be strictly observed by staff and necessary contractors.

4.13.2 Occupational Health and Safety

Employee safety will be managed in accordance with the requirements of the Tasmanian Workplace Health and Safety Act 1995, dairy industry regulations and any Workplace Standards Tasmania requirements. The legislation and regulations apply to both the company and employees alike.

TDP will design the site and construct the factory to fulfil necessary contemporary health and safety regulations where required. Employees will be appropriately qualified, trained and skilled operators. Specific training will be undertaken and maintained as required.

General safety practices include:

- Appropriate clothing (including hair nets, footwear etc) to be used in processing areas. Changing rooms will be provided where necessary
- Critical hygiene areas and roll over benches associated with raw milk and treated milk. Signage will be placed in these areas to notify contractors they are entering a critical hygiene area
- The interior of the dry process building is pressurised such that air flows from critical hygiene to non-critical hygiene. This assists with controlling biological hazards. The air intake is filtered to remove other hazards
- A critical hygiene tool set to facilitate repairs to mechanical equipment in critical hygiene areas. This prevents contractors using their own tools and introducing potential hazards to processing areas
- Processing areas are designed to ensure a physical separation of work areas and amenities to reduce biological hazards
- Fire protection equipment, including fixed (e.g. pressurised hydrants) and mobile equipment (e.g. extinguishers) around the site
- Appropriately trained staff will operate machinery and equipment
• Mechanical equipment will be used to reduce manual lifting, where appropriate
• Hearing and protection will be provided and used where necessary
• Chemical use is restricted to adequately trained staff and all chemicals will be stored and used appropriately

4.14 Hazard Analysis and Risk Assessment

The risk of major incident at the proposed site is low due to the design and operation of the facility. Risks to surrounding site users and the community will be addressed with the design and site layout and implemented then maintained during construction and operation.

Chemical storage is minimal and will be in accordance with Australian Standards and guidelines to prevent and control potential hazards.

The construction of the factory presents a low risk to workers and site users as a site occupational health and safety plan will manage risks associated with each stage of construction. The construction area will be clearly delineated from the remainder of the site to prevent unauthorised access or vandalism during evenings and weekends. Only appropriately trained and resourced contractors will be used.

The design of the milk unloading area reduces the likelihood of a spill caused by ruptured couplings on either the tanker or milk supply line. The milk storage silos cannot be overfilled or over pressurised (the milk unloading pumps will be interlocked utilising computer controls to level and pressure sensors on the milk silos).

A spill during milk unloading is a possibility but highly unlikely as the unloading is completed by trained drivers and staff using properly designed, operated and maintained equipment.

In the event of a spill, perimeter strip drains will capture spilt milk and direct this to the sewerage network. Any overflow from the perimeter drains will be contained on site or in the worst case scenario, in the interceptor and pumped out by a waste contractor.

The hazards and risks associated with the decommissioning and rehabilitation of the site will be identified, assessed, and managed when the nature of these works is known.

Offsite hazards are related to vehicle use and transport of raw materials or finished product. All transport will be under contract using reputable drivers and licensed transport companies. Strict compliance with speed limits and exercising safety driving protocols will be a requirement of the transport contract.

An HAZOP analysis will be undertaken as part of the detailed design process for the facility. The HAZOP will systematically review each part of the process to determine how deviations from design intent can occur. The process will be divided into sections and applied to identify possible deviations. For each deviation the consequences and existing safeguards will be analysed and mitigating actions assigned.

The HAZOP will be minuted and documented in pre-prepared record sheets, and will include the following:
• A description of the process
• A description of the HAZOP methodology
• A summary of main findings and recommendations
• The minutes of the HAZOP
4.15 Fire Risk

TDP are committed to managing site fire risks to prevent damaging or disturbing persons, infrastructure and the natural values that occur on and around the site. The construction and design of the process equipment and site buildings will be the primary management tool to ensure fire risks are identified, addressed, managed and management systems will continually review fire risk associated with site activities.

**Fire Risk and Management References**

Guidance on appropriate fire management will be sought from the following agencies and references:

- Smithton/Circular Head Fire Brigades and relevant personnel
- Circular Head Planning Scheme requirements
- *The Fire Services Act 1979*
- *The Workplace Health and Safety Act 1995*
- Relevant Australian Standards

The proposed facility will be located on an established industrial site within an established industrial zone. The site has full frontage to Bass Highway and good road access and internal access for large vehicles.

**Sources of Fire**

Fire risks associated with the facility emanate from three main areas:

- Fire originating from outside the boundary of the facility
- Fire originating within the boundary of the facility
- Fire originating from within the wet/dry processing areas

**Outside the Facility**

The risk of an uncontrolled fire originating outside the premise and disturbing the facility is low, because the surrounding industrial premises are managed appropriately to prevent and manage fire risks.

The Ta Ann log storage area presents a fire risk due to the nature of material and large volumes that can accumulate in this area. The storage area is approximately 150 m from the packaging warehouse.

The remaining Circular Head Wood Centre and surrounding land on Marthicks Road, Irishtown Road and Bass Highway is pastoral and relatively clear with no topographical features reducing visibility or access to the proposed site in the event of a fire. No areas of bush land, forestry or other features give rise to a significant risk or fire originating outside the facility.

**Inside the Facility**

The land parcel housing the facility is relatively barren, with some perimeter trees along the Bass Highway and internally around the drainage line. There are no other significant patches of vegetation or sources of combustible material on site including bulk fuel storage.
**Processing Areas**

Potential fire risks associated with site activities (including ancillary administration and milk unloading buildings) include:

- Fire and dust explosions within the spray drier and other plant that handles milk powder and adjoining spaces
- Electrical fire
- Exhaust fumes on dry vegetation
- Discarded cigarette butts on dry vegetation
- Oven and microwave electrical failure in common areas
- General building fire

**Fire Risk Assessment**

Dust explosion / milk powder fire in the processing and packaging areas is the most significant fire hazard on site. The high potential of this hazard is due to:

- Powdered milk is flammable and in suspension as a dust cloud, explosive
- An initial explosion may cause secondary explosions in adjoining spaces if the dust from the first explosion is not effectively vented to the outside of the plant
- Accumulations of milk powder are subject to self ignition under certain conditions such as where a layer of powder builds up on a hot surface
- Serious explosions and fires have occurred in powdered milk plants in the past

The following low fire risk has been identified:

- There is a low risk of fire originating inside the chemical storage areas. These areas will have fire detection and sprinkler systems as required and emergency fire fighting equipment and infrastructure. Chemicals will be stored in appropriate facilities and segregated as required. Onsite fire water tanks ensure there is a ready volume of water should this be required for fire fighting purposes

The other potential fire risks associated with this proposal are generally considered to be very low for the following reasons:

- There is a very low risk of fire originating outside the processing areas and within the site boundary as there is little or no combustible material on the site. Hydrants and mobile fire fighting equipment will assist in managing risks on the site
- There is little risk of a fire spreading from Ta Ann or the abattoir as these sites are managed appropriately to minimise fire risk. Both sites have fire response procedures (mobile equipment, fire water tanks etc) to manage risks
- The Ta Ann log storage areas on the western side of the site do not present a fire risk as the logs are watered to maintain moisture for operational purposes. By default, regular watering reduces the likelihood of these logs combusting
- There is little or no risk of a wildfire originating outside the site and impacting site facilities or infrastructure because of the cleared land around the site
- The Circular Head area and Smithton township are well serviced by the Tasmania Fire Service, with stations in close proximity to the site
- There will be no bulk fuel storage or refuelling facilities on site
- There will be no burning of solid waste on site
4.15.1 Fire Risk Management

TDP have committed to managing all fire risks associated with the processing areas with the following measures:

- A detailed hazard analysis will be carried out to address the risk of dust explosion and milk powder fire. This will encompass the entire plant, including all process equipment, the process buildings and warehouse. The hazard assessment will draw on the Approved Code of Practice for the prevention, detection and control of fire and explosion in New Zealand Dairy Industry Spray Drying Plant, June 1993, as well as all relevant Australian standards and legislation relating to design and management of hazardous areas. The required control measures will be determined from this analysis. These are likely to include:
  - Explosion relief venting systems in the Spray Dryer. The basic principle of venting provides for the rapid opening of a sealed but weak vent to the atmosphere (explosion vents must discharge to a safe location - usually external to the main process building) of sufficient area to allow unburned dust and explosion products to escape, thus limiting the pressure rise to an acceptable level. The acceptable pressure rise is determined by the requirement that the vessel should not rupture and, in some cases, that it should not deform. Dust monitoring systems and dust extraction system to prevent build up of milk powder
  - Strict housekeeping standards and procedures to control any possible build up of milk powder
  - Hazardous area rated electrical equipment will be specified as required
  - Hazardous areas will be identified by signage and work in these areas strictly controlled through hot work permits and other relevant procedures

- A properly designed building compliant with all relevant fire regulations and measures to prevent fires occurring and spreading throughout the processing areas. Smoke detectors will be used as appropriate

- Requirement for active and passive fire safety systems and evacuation procedures will be assessed and implemented as required in accordance with the Building Code of Australia

- Install electrical equipment with appropriate insulation and safety detection devices/systems

- Installing pressurised fire hydrants around the site

- Appropriate mobile fire fighting equipment will be kept on site during construction phases and inside processing areas during operations. Staff will be trained in emergency procedures and the use of mobile fire fighting equipment

- Establish evacuation procedures and display these in processing, common and administration areas

- Maintain site access for fire fighting vehicles

- Complete regular safety audits to ensure all fire risks are known and appropriately addressed or mitigated

- Site vigilance during the construction phases

TDP will develop the mitigation strategies into a formal Fire Management Plan (FMP) once all design and fire system compliance details for processing buildings and ancillary buildings have been confirmed.

The FMP will be developed in accordance with relevant legislation, regulations and guidelines. The development of the FMP will also include consultation with appropriate local authorities and agencies.
Commitment 11: **Develop and implement Fire Management Plans and Evacuation Procedures in consultation with relevant agencies, prior to construction and operations.**

Commitment 12: **Review the FMP after 12 months and on the 3 year anniversary of the Circular Head Council permit and after a significant event.**

### 4.16 Environmental Management Systems

This DPEMP outlines the significant environmental issues, management prescriptions and commitments that TDP have developed to ensure that risks to site personnel, the surrounding community, site infrastructure and surrounding natural environments are removed or minimised.

Translating commitments into sustainable actions requires implementation of an environmental management system (EMS) that forms an integral part of the facilities overall management, where commitments are clearly identified, roles and responsibilities defined with an underpinning framework of transparency, accountability and continuous improvement.

TDP propose a staged process towards development and implementation of a certified EMS.

Prior to start-up, a site Environmental Management Plan will be prepared that consolidates the environmental management and monitoring commitments made in this DPEMP, any special conditions that form part of the operating permit and responsibilities for compliance, improvement and adding new aspects that cannot be fully realised until operations commence. This EMP will be refined over the first 3 years of operation.

Development and implementation of the EMP will be the primary responsibility of the CEO, with delegated person ensuring the smooth and timely delivery. The delegated persons will be confirmed when the workforce has been engaged by TDP and appropriate roles are known.

The EMP will be disturbed to employees and contractors to ensure they are aware of commitments, requirements and steps to achieve successful implementation. The EMP will be included in employee induction packages and part of the employee performance reviews.

**Commitment 13:** TDP will develop an Environmental Management Plan for submission and approval of the EPA prior to start-up of the facility.

### 4.17 Cumulative and Interactive Effects

The proposed facility presents no cumulative or interactive effects which will negatively affect the Smithton community, dairy industry, the local environment or the future use and development of the Circular Head Wood Centre.

The facility will provide significant employment opportunities to the region during both construction and operation. The facility will utilise existing skilled labour provide opportunities for employees to diversify existing industrial and dairy processing skills.

TDP plan to redevelop the Gunns site and provide opportunities for other industrial uses by establishing utilities of sufficient capacity to support industrial uses.

The employment opportunities and provision of suitable infrastructure can only have positive effects on the community and local economy.
4.18 Traffic Impacts

A traffic impact assessment was completed by pitt&sherry to quantify the traffic impact of the proposed development and to identify any adverse impacts that need to be addressed.

The report is summarised below and contained in full in Appendix L.

The traffic impact generated by the proposed facility was found to be minimal. Traffic operations on the surrounding road network will continue to operate at an acceptable level of service.

The Safe Intersection Sight Distances from the proposed access onto Irishtown Road and at the Bass Highway - Irishtown junction are in accordance with Council’s Planning Scheme and Austroads Guidelines. It was found that there is sufficient parking at the development.

Turning paths within the development were assessed as part of the traffic impact assessment which found that a b-double cannot turn left out of the Bass Highway-Irishtown Road junction sufficiently without driving over the western corner of the junction. It is recommended that minor adjustments to the junction be made to allow for b-doubles to make sufficient left turns out of the junction.

The width of the access road into the property narrows allowing for only one b-double truck to enter or exit at one time. It was recommended that this section of the access is widened to allow for two-way traffic flow at this location and enable safer movements in and out of the development.

SIDRA analysis results indicate that the 95% back of queue is 0.9 vehicles will be queuing at the Irishtown Road north approach of the proposed development access. The worst case is if the vehicle queuing at this location is a b-double truck. The turning movement assessment indicated that there is sufficient space for a b-double truck to prop opposite the development access to turn into the access and not protrude onto the Bass Highway.

Commitment 14: Widen the left turn out junction at Bass Highway/Irishtown Road to facilitate B-Double access.

Commitment 15: Widen the internal access road to provide dual access.

5. Monitoring and Review

5.1 Monitoring

During Construction

The following monitoring and maintenance plan will be implemented by TDP for the construction period (nominally 9 months):

- Drainage lines will be inspected regularly during construction to identify any potential impacts or obvious changes in appearance. Issues will be identified and addressed as appropriate
- Erosion and sediment controls will be inspected regularly after establishment and after heavy sustained rainfall, to ensure all controls are in an acceptable standard
- Construction hours will be limited to those permissible under the Circular Head Planning Scheme
Dust emissions from the site will be managed during periods of high winds with watering and construction will cease if site activities are causing dust nuisance.

**Commissioning**

In addition to the above actions, the following actions will be incorporated during the commissioning period:

- Strip drains will be inspected to ensure they are free from debris
- On line water quality equipment will be monitored to ensure it is operational and calibrated as per manufacturer’s specification. In the unlikely event that performance deficiencies are identified, they will be addressed accordingly
- The performance expectations of the bag filter will be monitored and deficiencies addressed accordingly

The contract between TDP and supplier of processing equipment has provisions for the commissioning of equipment, namely all commissioning and adjustments of manufacturing equipment will be undertaken by appropriately qualified persons experienced with the nature and scale of the equipment.

Appropriate records will be filed to document the commissioning of manufacturing equipment.

**During Normal Operations**

The following monitoring and maintenance plan will be implemented by TDP when operations commence:

- Drainage lines will be inspected weekly to identify any potential impacts or obvious changes in appearance. Issues will be identified and addressed as appropriate
- The interceptor will be inspected weekly to ensure it is operational at all times and meets performance expectations
- Strip drains around the milk unloading area will be inspected daily to ensure that they are free from debris and remain operational
- Bag filters will be cleaned and maintained in line with operating specifications
- Online monitoring equipment will be maintained in accordance with manufactures specifications
- The results of any equipment related inspections and monitoring will be filed with TDP for future reference

**Surface Water Monitoring**

Surface water monitoring will be undertaken in the drainage line aligned north-south, along the western boundary of the proposed site during operations, as detailed below:

- Three surface water monitoring locations are proposed in the drainage line (as indicated in Appendix E):
  - TDPSW01: Upstream, where the drainage line enters the proposed site
  - TDPSW02: In the drainage line
  - TDPSW03: Downstream, in the main tributary to Coventry Creek
- All three monitoring locations have been inspected, with access and safety deemed accessible and feasible for 1 person. The monitoring locations or accesses are unlikely to be impacted by site operations or future industrial activity in the Circular Head Wood Centre
The following parameters will be field analysed monthly for 6 months following wet and dry commissioning:
- pH
- Dissolved Oxygen (%)
- Conductivity (μS/cm)
- Temperature (°C)
- General appearance: scums, floating material, discolouration or odours etc

If water quality samples for laboratory analysis are taken, samples would be analysed for the field parameters and the following:
- Oil and Grease
- Total Nitrogen
- Total Phosphorous
- Total heavy metals (including Mercury)
- Biochemical Oxygen Demand
- Total Suspended Solids
- General appearance would be noted in a field book (e.g. scums, floating material, discolouration or odours etc)

All samples will be obtained in appropriate sampling vessels and submitted to the laboratory within the nominated holding time

All samples will be collected in accordance with AS/NZS 5667.1:1998 Water quality - Sampling Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples and other appropriate or relevant guidelines

All samples will be analysed in a NATA accredited laboratory

All sampling and sample handling will be undertaken by a suitably qualified or trained person

Sample results will be tabulated electronically in Microsoft EXCEL for assessment against appropriate guidelines. Results will be graphed to allow trends and compliance with assessment criteria to be observed

All analytical reports will be filed for later reference and retrieval

At the end of 6 months, if monitoring data is consistent with the ambient water quality data, the frequency will be reduced to 3 monthly. Otherwise, monitoring will continue as normal and reviewed at the 12 month anniversary of commissioning

Commitment 16: implement the monitoring regimes as detailed in Section 5.1.

Commitment 17: All surface water quality monitoring data will be forwarded to the Director, EPA as soon as reasonable practicable after results are received.
5.2 Review

A review of the environmental management plan will be undertaken on the 12 month anniversary of wet commissioning.

It is anticipated the review report will incorporate the following aspects (as a minimum):

- Environmental performance of the facility and management systems
- Monitoring results to date and performance trends
- Expected environmental management and performance for the following 3 years
- The review report will recommend operational changes where necessary to rectify any environmental issues or actions to reduce the potential for environmental nuisance or harm. Any recommendations will have a timeframe and a responsible person to ensure recommendations are achieved and implemented
- The review report will be provided to the Director, EPA, for review and authorisation

The 3 yearly environmental performance review is expected to include the above and the following:

- Changes in the operational performance/capacity of the facility
- Expected changes in production (diversity, timing or materials)
- Scheduled improvements to environmental performance and management of the facility
- Any other aspects relevant during the operation or performance of the facility

A summary of the proposed monitoring regime is shown in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Weed Control/ GPT/ Strip Drain</th>
<th>Erosion and Sediment Controls</th>
<th>Drainage Line</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment During Construction</td>
<td>NA</td>
<td>Y</td>
<td>Y</td>
<td>Weekly and following heavy rainfall</td>
</tr>
<tr>
<td>Assessment During Operations</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Regularly</td>
</tr>
<tr>
<td>pH/Suspended Solids/Temperature</td>
<td>NA</td>
<td>NA</td>
<td>Y</td>
<td>Monthly</td>
</tr>
<tr>
<td>Laboratory analysis of surface water quality samples</td>
<td>NA</td>
<td>NA</td>
<td>Y</td>
<td>As required</td>
</tr>
<tr>
<td>File Reports</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>As required</td>
</tr>
</tbody>
</table>

Table 16: Proposed Monitoring Regime

- Commitment 18: Undertake a review of the environmental management plan on the 12 month anniversary for authorisation by the Director, Environment Protection Authority.
6. Decommissioning and Rehabilitation

The decommission and rehabilitation strategy (DRS) provided below outlines the process TDP are likely to undertake if and when the site no longer continues as a milk processing facility.

TDP are committed to an open and progressive DRS that will reflect the contemporary expectations of stakeholders and intended future use or users for the site.

A three phase DRS has been developed as a means to attract a new owner and operator to continue the milk processing facility and enable ongoing economic benefit to the Circular Head community.

**Phase 1**

A new owner would be sought for the milk processing facility while TDP continue to operate the facility.

The site would be advertised ‘as is’, with infrastructure fully operational to attract new owners who have the intention to continue milk processing.

Phase 1 may continue for months or years, depending on a number of factors including economic conditions, future performance in the Dairy Industry and international commodity markets.

The EPA will be notified if a new owner/operator is found.

**Phase 2**

Phase 2 would commence when or if Phase 1 does not yield a viable new owner with intentions to continue milk processing. The anticipated scope of works for Stage 2 may involve:

- Ceasing milk processing (TDP may maintain a presence on site)
- Disconnect utilities if necessary
- Clean processing equipment following the final manufacturing process
- Dispose of dangerous good using a suitably qualified waste contractor
- Clean chemical bunds and stores
- Removing the bag-house filters and cleaning the bag-house itself
- All solid waste will be disposed of by a waste contractor
- All finished product (including milk sludge and AMF) will be sold as usual. Any small quantities remaining on site will be sold to local farmers
- Clean and secure administration areas

The site will remain secure with fire fighting capability and appropriate perimeter security.

**Phase 3**

Phase 3 would be implemented if there are no known future milk processors or future users of the site for a different industrial process.

Anticipated actions would include:

- Sell or recycle process related equipment
- Empty fire water tanks and other bulk water storages
• Secure the site
• Site sheds, hard stands and access roads would remain on site

Following the decommissioning of site infrastructure, TDP would continue with a rehabilitation phase, appropriate to the contemporary expectations of the future use of the site.

The rehabilitation plan would be determined by considering the following elements:
• Necessary permits required during rehabilitation (local and state level)
• Environmental standards for industrial/commercial land uses
• Stakeholder input
• Performance expectations and targets
• Validation/verification of rehabilitation
• Safety considerations of staff, contractors and surrounding site users

It is likely that TDP personnel (assuming TDP own the site when rehabilitation occurs) would be appointed to manage the rehabilitation process, ensure all objectives are met and document the rehabilitation process including variations to the process in addition to maintaining communications with the EPA.

*Commitment 19: A formal decommissioning and rehabilitation plan will be developed during the 3 year review of the DPMP review and reviewed periodically thereafter.*
## 7. Commitments

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>When</th>
<th>Responsible Person</th>
<th>Report Section</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Acid Sulphate Soils</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>If any ASS are intercepted on site during construction, they will be handled in accordance with State guidelines.</td>
<td>During Construction</td>
<td>Construction Supervisor</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td><strong>Liquid Waste</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Erosion and sediment controls will be established prior to works and maintained by the site supervisor (visually) as necessary and after prolonged and/or heavy rainfall.</td>
<td>Prior to construction</td>
<td>Construction Supervisor</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Evaporator condensate will be reused as per the reuse hierarchy.</td>
<td>During operations</td>
<td>Site Manager</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unless a Discharge Management Plan for discharge of evaporator condensate to the drainage line has been approved, all evaporator condensate will be discharged to CMW via the dedicated sewer line.</td>
<td>As required</td>
<td>Site Manager</td>
<td>4.2</td>
</tr>
<tr>
<td>5</td>
<td>During the first 3 months of production, evaporator condensate will be tested once a week to ensure the online monitoring equipment is performing to specification. Thereafter tests will be undertaken annually.</td>
<td>During operations</td>
<td>Site Manager</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Noise</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Undertake a further noise measurement survey after commissioning to provide confirmation of the results.</td>
<td>Immediately after operations commence</td>
<td>Site Manager</td>
<td>4.4</td>
</tr>
<tr>
<td>7</td>
<td>Implement the noise mitigation measures as described in Section 4.4.3 of this document.</td>
<td>During construction/commissioning</td>
<td>Construction Supervisor</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Solid and Controlled Waste Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Milk sludge will be stored in secure storage containers inside the factory to prevent unnecessary discharges.</td>
<td>During operations</td>
<td>Site Manager</td>
<td>4.5</td>
</tr>
<tr>
<td>9</td>
<td>General wastes will be stored in lidded waste bins for collection and disposal.</td>
<td>During operations</td>
<td>Site Manager</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dangerous Goods and Environmentally Hazardous Materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Dangerous Goods storage will comply with the requirements of Dangerous Substances (Safe Handling) Act 2005.</td>
<td>During operations</td>
<td>Site Manager</td>
<td>4.6</td>
</tr>
</tbody>
</table>
### Fire Risk

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Develop and implement Fire Management Plans and Evacuation Procedures in consultation with relevant agencies, prior to construction and operations.</td>
<td>During construction/operations</td>
<td>Site Manager</td>
</tr>
<tr>
<td>12</td>
<td>Review the FMP after 12 months and on the 3 year anniversary of the Circular Head Council permit and after a significant event.</td>
<td>As required</td>
<td>Site Manager</td>
</tr>
</tbody>
</table>

### Environmental Management Systems

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>TDP will develop an Environmental Management Plan for submission and approval of the EPA prior to start-up of the facility.</td>
<td>As required</td>
<td>Site Manager</td>
</tr>
</tbody>
</table>

### Traffic

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Widen the left turn out junction at Bass Highway/Irishtown Road to facilitate B-Double access.</td>
<td>During construction</td>
<td>Construction Manager</td>
</tr>
<tr>
<td>15</td>
<td>Widen the internal access road to provide dual access.</td>
<td>During construction</td>
<td>Construction Manager</td>
</tr>
</tbody>
</table>

### Monitoring

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Implement the monitoring regimes as detailed in Section 5.1.</td>
<td>During operations</td>
<td>Site Manager</td>
</tr>
<tr>
<td>17</td>
<td>All surface water quality monitoring data will be forwarded to the Director, EPA as soon as reasonable practicable after results are received.</td>
<td>During operations</td>
<td>Site Manager</td>
</tr>
</tbody>
</table>

### Review

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Undertake a review of the environmental management plan on the 12 month anniversary for authorisation by the Director, Environment Protection Authority.</td>
<td>As required</td>
<td>Site Manager</td>
</tr>
</tbody>
</table>

### Decommissioning and Rehabilitation

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Timing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>A formal decommissioning and rehabilitation plan will be developed during the 3 year review of the DPEMP review and reviewed periodically thereafter.</td>
<td>During decommissioning</td>
<td>As required during decommissioning</td>
</tr>
</tbody>
</table>

Table 17: Commitments
8. **Conclusion**

- The DPEMP has been developed in accordance with the EPA Division’s generic DPEMP guidelines and the site specific guidelines from the Board of the EPA issued on 6 May 2011.

- The DPEMP has identified and assessed the potential environmental and health impacts associated with the proposed facility and provided mitigation measures to reduce the identified impact.

- The commitments developed by TPD demonstrate appropriate operational and management measures to minimise any potential impacts and minimise any risks to the environment and human health.

- The DPEMP demonstrates that the proposal will be compliant with Tasmanian Policies, Legislation and Regulations relevant to the proposed facility.

- The community will benefit from the socioeconomic advantages associated with the project through local employment, expenditure and job creation/security.
Appendix A

Detailed Process Summary
Appendix B

Site Plan
Appendix C

Photo Montage
Appendix D

Aquatic Survey
Appendix E

Surface Water Quality Monitoring Points
Appendix F

European Heritage Investigation

Courtesy of Praxis Environmental
Appendix G

AUSPLUME Modelling Report

*Courtesy of PAE Holmes*
Appendix H

Wastewater Flow Diagram
Appendix I

Correspondence from Cradle Mountain Water
Appendix J

Noise Survey
Appendix K

Land Use Planning Report
Appendix L

Traffic Impact Assessment
Appendix M

Abbreviations
From Bass Highway Departing Smithton
From Irishtown Road
Freshwater Survey Tributaries of Coventry Creek, Smithton.

Prepared by Kanunnah Pty Ltd

ABN: 44 126 160 692

28 April 2011
CITATION

This report can be cited as: Walsh, T and Walsh, B. (2011). Survey of the Giant Freshwater Lobster (Astacopsis gouldi) at Coventry Creek. Report by Bronwyn Walsh and Todd Walsh of Kanunnah Pty Ltd 28 April 2011.

AUTHORSHIP

Field assessment: Todd Walsh

Report production: Bronwyn Walsh, Todd Walsh

Disclaimer

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are the authors’ own and may not necessarily reflect those of the relevant agency. It is the client’s responsibility to confirm management prescriptions with the relevant agency before acting on the content and recommendations of this report.
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  2.4 Surveyor ............................................................................................................................................ 2
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| Table 2: Astacopsis captures | 5 |
1 Executive Summary

The lower section of tributaries of Coventry Creek were surveyed on April 20 and 21 2011 for the purpose of determining the presence of the Giant Freshwater Lobster (*Astacopsis gouldi*) and the Australian Grayling (*Prototroctes maraena*). Trapping and visual searches yielded no *A. gouldi* specimens. The habitat in Coventry Creek appears unsuitable for a significant population of *A. gouldi*, and is likely to only hold a minute number of transient individuals who may migrate temporarily from the Duck River (confluence approximately 1km downstream). The habitat appears highly unsuitable for Australian Grayling, and none were sighted in this survey. There is little to no available habitat for either species. The area should be classed as one of very low significance for either species, due to the degraded state of the waterway.
2 Introduction

2.1 Background
The Giant Freshwater Lobster (*Astacopsis gouldi*) is a designated Threatened Species endemic to parts of Northern Tasmania. The water release is to be located in or near a potential *A. gouldi* habitat area (Coventry Creek), thus requiring an investigation relating to *A. gouldi* and its presence/absence. Kanunnah Pty Ltd has been contracted to provide a report detailing the population of *A. gouldi* in this area.

This report covers the surveys for the proposed water releasing project on Coventry Creek.

2.2 Site Description
The drainage line is a tributary of Coventry Creek is situated in the North-West of Tasmania, as shown in Figure 1. It is adjacent to an abattoir and Gunns Limited wood milling Smithton operations. It is approximately 2km south of Smithton, and is a tributary of the Duck River.

Figure 1: General location of the proposed project. Tasmapi 1:25000 3447 Smithton
2.3 Survey Aims
To determine the likelihood of the presence of *A. gouldi* and *P. maraena* populations at the proposed water releasing site.

2.4 Surveyor
The surveys were conducted by Todd Walsh of Kanunnah Pty Ltd, on the 20th and 21st of April 2011. The report was compiled by Todd Walsh and Bronwyn Walsh of Kanunnah Pty Ltd

Kanunnah contact details:
85 Lovett St, ULVERSTONE, TAS, 7315
Ph: 03- 6425 5302
Mob: 0439 693377
Email: giantlobsters@hotmail.com

2.5 Permits
Survey, collection and specimen handling/management is permitted under DPIW permits TFA10138, in the name of Todd Walsh, and Inland Fisheries Service Permit IFS 2010-18, in the name of Todd Walsh and Bronwyn Walsh. As required by permit conditions, relevant data will be forwarded to the relevant authorities.

3 Methods

3.1 Background information on *Astacopsis gouldi*
*Astacopsis gouldi*, commonly known as the Giant Freshwater Lobster, is the largest freshwater crustacean in the world, with recorded sizes of 76cm and more than 3kg (Hamr, 1990; Horwitz, 1991), and recent surveys obtaining a specimen over 4.5 kg (Walsh, 2006a). Its recorded distribution ranges from the Arthur-Pieman catchment in North-West Tasmania, across the northern part of the state in most river systems discharging into Bass Strait (see Figure 2). Two other species of *Astacopsis* are recognised: *A. franklinii* and *A. tricornis*. These are smaller *Astacopsis* species, and have different distributions to *A. gouldi*, although there is some overlap for all three species’ distributions.
Habitat requirements for *Astacopsis gouldi* may vary, depending on the age-class in question. Juveniles (approx. 10mm – 75 mm Carapace Length (CPL) (T. Walsh, pers. comm.) require shallow, fast-flowing streams with substrates containing primarily cobbles and boulders, that are used for shelter; adults often move to slower-flowing reaches where they dig burrows in stream banks and underneath logs and boulders in the stream bed (Lynch and Bluhdorn, 1997; Walsh, pers. comm.). As a general rule, *A. gouldi* requires well-vegetated forest streams with low turbidity and even temperatures (*ibid*). Abundant in-stream and riparian vegetation provides both food and habitat for *A. gouldi*; it also protects the water from temperature extremes and often acts as a filtration system, reducing the turbidity level of the water (Lynch and Bluhdorn, 1997). In-stream woody debris is of particular importance to *A. gouldi* (Hamr, 1990), and is usually considered a critical habitat requirement; *A. gouldi* subsists primarily on woody debris and leaf litter (Hamr, 1990; Walsh, pers. comm.) and large logs provide the bulk of in-stream structures that *A. gouldi* uses for shelter (Hamr, 1990; Lynch and Bluhdorn, 1997; Walsh, pers. comm.). Davies (2004) states that *A. gouldi* prefers water temperatures of less than 18°C and oxygen levels greater than 7mg/L, and notes that they are sensitive to sedimentation. Davies and Cook (2004) give an approximate threshold value of 5% silt substrate and salinity threshold of 160 microSiemens/cm (no *A. gouldi* were captured in these conditions during their surveys). These are important factors to consider when evaluating both the likelihood of *A. gouldi* being present at any given site within its distribution, and also when considering the potential impacts that any development may have on these values.
3.2 Field survey

One nominated location was surveyed for habitat suitability and presence of Astacopsis. The site was as follows:

1. COV1 – Coventry Creek approx. 342109mE/5474997mN and drainage line 343378mE/5474652mN to 342943mE/5474650mN.
2. This covered the proposed drainage outlet to the junction with Coventry Creek and downstream.

Geographic datum used: – Map Grid of Australia MGA94 Zone 55.

Survey location is marked on the map in Figure 1 (p.1).

Site survey covered approximately 500m stretch of stream. A combination of opera house traps¹; baited stringlines², ring nets and baited box traps³ were used for the trapping component of the surveys. Visual searching⁴ for Astacopsis was also undertaken. The exact amount of time spent at each site depended on the amount of available habitat: sites with no shelter (e.g., cobble, boulder or woody debris) were not surveyed as intensively as sites assessed with suitable habitat; the amount of man-hours spent at each site was based on the habitat suitability and ease of access through the site. There was no suitable habitat of any significance located, so traps were left at regular intervals.

Surveys were conducted during daylight hours, with some traps left overnight. The prevailing weather conditions during the survey period were wet and cool. Mr Walsh has been trapping Astacopsis professionally for over ten years, and recreationally for over thirty years. He uses his years of experience to find the most likely sites for Astacopsis habitation and he has a high success rate for catching Astacopsis species where they are present.

There was no suitable habitat of any significance located, so traps were left at regular intervals.

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¹ **Baited traps**: The animal must enter the trap to access the bait; once in the animal has almost no chance of exiting the trap.
² **Baited stringlines**: Bait is tied to a length of cord; when the animal approaches the bait, it is “walked” in (the bait is slowly pulled closer to the shore while the animal follows it) and/or captured using a hand net.
³ **Baited Box Traps**: The animal must enter the trap to access the bait; once in the animal has almost no chance of exiting the trap. The baited box trap is approximately one metre in length and is much larger than the opera house traps. The baited box trap can capture extremely large lobsters.
⁴ **Visual searching**: This involves the lifting of larger rocks where juveniles may be present. A hand net is placed immediately downstream of the rock/woody debris in order to capture any animals flushed out by the water current in the process of lifting the rock/woody debris. Larger specimens may also be observed using this method.
4 Results

No lobsters were captured at the site after 66 hours of fishing time. There appears to be a very low chance of finding any specimens at this site in the near future. The lack of any available habitat dramatically lowers the possibility of even transient specimens being in the surveyed area.

5 Discussion and Recommendations

Davies and Cook, in their 2004 report to the Forest Practices Board, cite the habitat preferences of juvenile *Astacopsis gouldi* as being for wide streams at intermediate catchment sizes with low levels of silt/sediment, low salinity and high levels of moss cover and boulder substrate. A number of sources also state that in-stream woody debris is an important habitat feature (Hamr, 1990; Lynch and Bluhdorn, 1997); this has been borne out by experience, with the incidence of location of *A. gouldi* in streams with little to no available larger substrate cover and low in-stream woody debris being negligible (Walsh, pers. comm.).

The in-stream and riparian habitat within the surveyed area has been heavily disturbed and the drainage line and Coventry Creek can only be described as a ditch at best. The drainage line and Coventry Creek ran through paddocks, with little overstorey and no understorey cover to speak of (grass, weeds and blackberries). There is little to no likelihood of finding *A. gouldi* and *P. maraena* in the area.

There is significant sedimentation in Coventry Creek, which is likely having an impact on lobster recruitment. There is also little to no riparian zone or in-stream woody debris to assist with habitat, food and sediment mitigation. There are some small patches of cobble, which could be potential habitat for juvenile lobsters; however none were located with visual searching.

It is starkly obvious that this site is extremely impacted by agriculture and industry. The likelihood of finding *A. gouldi* and *P. maraena* at any time of year would be low, and extremely opportunistic. Lobsters do tend to migrate upstream during rain events, and this would be the only time that there may be a realistic opportunity of locating a specimen in the surveyed region.

It is the authors’ opinion that little to no aquatic fauna values of federal or state significance exist within the survey area.

The proposed discharge should not have a significant impact upon the area provided that the water quality is within all ANZECC guidelines.


<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Oxygen</td>
<td>90% saturation</td>
</tr>
<tr>
<td>pH</td>
<td>6.5-7.5</td>
</tr>
<tr>
<td>Salinity micro-siemens</td>
<td>30-350</td>
</tr>
<tr>
<td>Turbidity (NTU)</td>
<td>2-25</td>
</tr>
</tbody>
</table>
The drainage water from the proposed development should be of a quality to ensure that no downstream impacts occur in areas where threatened species (and other species) could possibly reside. The water quality should be constantly measured to ensure that it is within recommended guidelines. The oxygen and temperature levels should also be measured at point of release, to ensure that they are similar to that in the waterway, to minimise temperature and oxygen shock issues.

If possible, the water should be released over a large flat area such as a paddock, to minimise erosion and sedimentation issues. Releasing the water through a wide flume onto grassed areas would reduce erosion potential, and allow the water to cool or warm to the temperature of the soil and therefore the drain. This would also allow some reoxygenation if the oxygen levels are lower than anticipated.

The proponents may wish to have AusRivAS assessments (http://ausrivas.canberra.edu.au/) carried out in the drainage line where the discharge is to occur and at a point further downstream. These assessments provide a before and after picture of the aquatic fauna health, and is a nationally recognised rapid fauna assessment. AusRivAS assessments can only be carried out in autumn and spring, and the final date for the 2011 autumn assessment is May 15. Each assessment would cost $500.00 per site through the authors.

6 References


Walsh, T. (2006a). Lobster ID 861 (DIP022). In Microsoft Access database recording all Astacopsis gouldi captures by Todd Walsh 1998 – current, annually reported to Threatened Species Unit, DPIW.

7 Appendix

Summary of Essential Habitat Assessment Criteria

In stream habitat:

- Shelter must be available; adults require woody debris, undercut banks or boulders for habitat. One of these must be present.
- Sediment which fills in all available pools and undercut banks severely restricts habitat availability for adults and juveniles.

Substrate:

- Predominantly cobble substrate or larger.
- Riffle areas must be relatively sediment free (<5% silt for juveniles).
- Other fine sediments such as sand, gravel and pebble appear to be unsuitable for juvenile *A. gouldi* and cannot be the largest available substrate.

Water Quality:

- High in oxygen content, temperature range 4-21°C,
- Electrical conductivity <500 microsiemens
- Low turbidity after rainfall events to prevent sedimentation.

Riparian zone and canopy:

- Riparian zone predominantly trees with closed canopy (especially smaller tributaries), shading important for temperature regime.
- Riparian zone must have ability to supply waterway with in-stream woody debris and plant material for food. Trees provide a good food source and habitat.
- Grassland, tea tree and scrub do not appear to provide suitable habitat for *A. gouldi*.

Complete assessment criteria may be accessed at:

Historic Heritage Assessment

Kauri Timber
Irishtown Road
SMITHTON TASMANIA

Brad Williams
Historical Archaeologist

For Pitt and Sherry Pty. Ltd.
on behalf of
Tasmanian Dairy Products Pty Ltd

May 2011
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This document was written by Brad Williams (BA.Hons Archaeology, G.Dip Maritime Archaeology, MA Cultural Heritage Management)
Historical Archaeologist and Director of Praxis Environment.

Unless otherwise stated, the north point (or approximate) of maps, aerials and plans is to the top of the page.
1. Rationale, study area and limitations

This report has been commissioned by Pitt and Sherry Pty. Ltd. (Launceston), on behalf of Tasmanian Dairy Products Pty. Ltd. to assess the possibility of historic cultural heritage values at the Kauri Timber Company Pty. Ltd. site at Irishtown Road, Smithton. The site comprises of a number of titles as shown on Figure 1.1, and for the purposes of this report only, particularly for the historical context, these titles have been designated ‘Areas’ as also shown on Figure 1.1.

Figure 1.1– Title and location plan of the study area (outlined in red). Adapted from www.thelist.tas.gov.au
The brief for this project was to undertake a desktop assessment of available historical and secondary sources, in order to determine whether the site is likely to have some level of historic heritage significance. A site visit was not undertaken, and this assessment has not considered wider landscape or community/social values. This assessment has not considered any possible Aboriginal heritage values.
2. Existing heritage listings

The following possible heritage listings and overarching legislative provisions have been considered for their relevance to the management of the historic cultural heritage values (including archaeological values) of the study area (and any adjacent heritage place):

2.1 Circular Head Planning Scheme 1995
No part of the study area, nor adjacent sites, are listed as heritage items, or within a heritage/historic area/zone under the Circular Head Planning Scheme 1995. Nonetheless, regardless of whether a site is listed on a local planning scheme schedule, an objective of the Tasmanian Resource Management and Planning System, through the Land Use Planning and Approvals Act 1993 (Schedule 1, Objective 2g) is to require a planning authority to consider historic heritage values in land use planning – therefore historic heritage may be a consideration in any development application if a case for such is deemed reasonable.

2.2 Historic Cultural Heritage Act 1995
No part of the study area, nor adjacent sites, are listed on the Tasmanian Heritage Register, therefore are not subject to the Historic Cultural Heritage Act 1995.

2.3 Environment Protection & Biodiversity Conservation Act 1999
No part of the study area, nor adjacent sites, are listed on the National or Commonwealth Heritage Lists, therefore are not subject to the historic cultural heritage provisions of the Environment Protection and Biodiversity Conservation Act 1999.

2.4 Non-statutory heritage lists
No part of the study area, nor adjacent sites, are recognised by the (now defunct) Register of the National Estate, nor the superseded register of the National Trust of Australia (Tasmania).
3. Methodology and sources consulted

3.1 Contextual history – the Smithton area

A brief survey of secondary historical sources were consulted to build a very brief overview of the developmental context of the Smithton Area. Two key historical works were consulted, these being:


From these works, the following brief points are drawn regarding relevant contextual history of the area:

- The first survey of the Smithton township site was undertaken by Surveyor Gordon Burgess in 1855. Burgess laid out seven streets and 30 lots. This plan also shows three sawpits and three huts – indicative of the area’s initial timber industry. The lots were advertised in the Hobart Town Gazette in 1856. A further 10 lots were surveyed in 1858.
- By 1870, a bridge had been built over the Duck River, and a wharf erected into Duck Bay, although by 1877, Smithton had still not grown, and was only home to a single family of six people.
- The first administrative building, a public school, was constructed in 1880. It was not until 1900 when a post and telegraph office was established, and not until 1925 that the town had a church.
- By 1890 the town had only a dozen houses, but by 1919 there were over 100 (Weekly Courier 21/8/1919).
- The first settlement of the wider Smithton vicinity was not until after 1884, when the Lee Family took up land in the Mowbray Swamp, to the west of the township (just north of the study area).

Whilst the above certainly is not a definitive history of the context of the study area, it demonstrates that Smithton was not a comparatively early settled area of Tasmania, and in particular the study area was unlikely to have been settled prior to 1900. This is further confirmed by the lands titles and grants data described below.

3.2 Previous historic heritage investigations

No historic heritage documents specific to the site were found in a search of the collections of the State Library of Tasmania, and the Department of Primary Industry, Parks, Water and Environment (DPIPWE) library. Nonetheless, two documents were searched which may have included these values:

This document assessed an array of potential environment impacts arising from the operation of the timber operations within the study area. With the exception of a very brief overview of the history of the operation of the sawmill complex, did not consider historic heritage impacts of that operation.

*An Archaeological Assessment of the Burnie to Smithton Optical Fibre Cable Route, A report to Telecom Australia.* Robert Paton, October 1990.

This document assessed the possible archaeological resources along the line of a proposed optical fibre cable, which runs very near to the north-eastern boundary of the study area. Whilst the brief for this report stated that historic heritage values would be considered, the report was limited solely to Aboriginal heritage values, therefore of little use to the current report.

### 3.3 Department of Primary Industry, Parks, Water and Environment – Historical maps and lands titles

A search of the DPIPWE historic map archives did not yield any useful information on the study area itself. Early Smithton Town Plans (e.g. DPIPWE S/23) only showed the township itself, and not the study area (being 2.6 kilometers from the town centre). Similarly, county charts as also held by DPIPWE (as well as the State Library of Tasmania) were of little use, as these (at most) only showed the original land grant allotments. Nonetheless, the original grant size, location and grantee were determined from these county charts, as also verified from Lands Titles records (Purchase Grant books and Certificate of Title folios).

The land upon which Areas 1 and 2, and most of Area 3 are situated was part of 99ac 2r 9p originally granted to Harry Hanson and William Geale, a Smithton Auctioneer, in 1925 (DPIPWE CT CCXCVII/180). A former road reserve (which once intersected the original Hanson & Geale grant) was added to Area 1 by way of a Purchase Grant to the (then) owner Arnolds Association Holding Ltd. in 1988 (DPIPWE Purchase Grant 341/9). On the death of Geale, his share in the land passed to Hanson, who sold part (52ac 3r 32p) of the land (which included Areas 1 & 2 plus the road reserve described above, as well as part of Area 3) to Margaret Quilliam in 1931 (DPIPWE CT 375/17). The Quilliam family sold the land to Louis Miller, motor mechanic, in 1949 (DPIPWE 549/29). The Miller family held the land until the mid 1960s when it was purchased by the Kauri Timber Company Pty. Ltd. and a sawmill established.

The land upon which part of Area 3 is situated was part of 66ac 1r 36p originally purchased from the Crown by Chester Ward, a Smithton Bootmaker, at a cost of £44 61/- 8p in 1919 (DPIPWE Purchase Grant CLXVI/146). Ward sold the land to local farmer Thomas William Marthick in 1936 (DPIPWE CT 406/134). Part of that land marked on

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1 It is possible that this was a grant under the *Returned Soldiers Settlement Act 1916*, as the grant shows no fee paid for the land, which is unusual for such a late grant. Further research in the DPIPWE *Applications for Free Selection – Returned Soldiers Settlement Act* (DPIPWE N/RSS(16)) may yield further information on this grant.
Figure 1.1 as Area 3 was sold to the Kauri Timber Company in 1970 (DPIPWE CT 2869/27) for the expansion of sawmilling operations.

### 3.4 Department of Primary Industry, Parks, Water and Environment – Aerial photograph collections

The DPIPWE collection of aerial photographs were consulted, as a means of gaining a pictorial overview of the site and area development. Images from the 1940s to the 1960s were examined, with excerpts from these in relation to the study area illustrated below:

A 1947 aerial photograph of the area shows the land as undeveloped, with light scrub. No cultural or historical features are evident, and it is likely that the land was being used only for grazing purposes.

Figure 3.1 – Excerpt from a 1947 aerial photograph of the area – the approximate study area bounded in red. DPIPWE Smithton 306-58.
A marked difference is seen when comparing the 1947 aerial photograph with the establishment of the Kauri Timber Company sawmill at around that time – correlating with the Miller family’s sale of the property, and the first intensive use of that land for industrial purposes.

Figure 3.2 – Excerpt from a 1965 aerial photograph of the area – the approximate study area bounded in red. DPIPWE Smithton 450-74
4. Assessment of historic heritage significance

Given the information outlined above, in order to test the possibility that the site has some form of historic cultural heritage significance, a standard benchmark for significance is used here. The following statements of significance are based on the national HERCON standard for statements of significance, based on the amount of information currently at-hand. Note that natural history values have not been assessed here, as these are beyond the scope of this assessment.

A. Importance to the course, or pattern of our cultural or natural history.
Section 3 has demonstrated that the areas was not developed until the 1960s, when the Kauri Timber Company established a sawmill within the study area. It is not considered that the site is of any importance to either state or local history.

B. Possession of uncommon, rare or endangered aspects of our cultural or natural history.
It is not considered that the place possesses any uncommon, rare or endangered aspects of cultural history.

C. Potential to yield information that will contribute to an understanding of our cultural or natural history.
Given that the place is unlikely to have been used for any cultural activities other than pastoralism until the 1960s, and that the area was not settled until the turn of the twentieth century, it is unlikely that the place would yield any information that would contribute to an understanding of either state or local historical themes.

D. Important in demonstrating the principal characteristics of a class of cultural or natural place.
From the desktop assessment undertaken here, it is not considered that the place demonstrates the principal characteristics of a type of place which is important to state or local history.

E. Importance in exhibiting particular aesthetic characteristics
The place is not considered to exhibit any important aesthetic characteristics.

F. Importance in demonstrating a high degree of creative or technical achievement at a particular period.
It is not considered that the place demonstrates any high degree of creative or technical achievement that is important to the history of the state or local area.

G. Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons. This includes the significance of a place to Indigenous peoples as part of their continuing and developing cultural traditions.
The scope of this assessment has not extended to community or social significance, however it is considered unlikely that the place would have a strong or special association with any particular group or importance to the state or local area.

An assessment of the significance of the wider place to the Aboriginal community is beyond the scope of this assessment.

H. Special association with the life or works of a person, or group of persons, of importance in our history.

The place has no known associations with the life or works of a person or groups of persons of importance to state or local history.
4. Conclusion and recommendations

Given that this report has been unable to find any evidence that the site would reach even a local threshold for historic cultural heritage significance, it is concluded that any foreseeable future development of the site not be required to consider historic cultural heritage values unless any evidence comes to hand which has been outside the scope of this assessment.