Artec Pty. Ltd. have operated a woodchip mill at Bell Bay for ten years producing hardwood woodchips for export contributing significantly to regional employment and development; the wood processing plant has been operating under a 400,000 tonne per annum permit. The company plans to expand its operations to encompass a wider scope of product to include an increase in hardwood and softwood plantation pulpwood sales; this transition to a plantation base would be progressive to ensure employment levels can remain the same; the proposal includes a second static woodchipping infrastructure which would be available for processing plantation timber providing a separate processing unit and storage area. The company proposes the transition and expansion may be possible as other companies exit the industry as the industry resource base changes; the company wishes to be proactive in changing their operations early to ensure an orderly transition that will maintain the industry employment levels where possible.
BELL BAY WOOD PROCESSING PLANT

DEVELOPMENT PROPOSAL AND

ENVIRONMENTAL MANAGEMENT PLAN

ARTEC PTY. LTD.

Prepared by

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2011

Cover photograph: Bell Bay Wood Processing Plant and local area- source Google Earth 2010.

All photographs in document by author unless stated otherwise

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This Development Proposal and Environmental Management Plan (DPEMP) has been produced with the following aims:

- to provide a comprehensive best practice management plan and actions to ensure this operation is conducted in an environmentally sustainable manner;
- to provide a source of information from which interested individuals and groups may gain an understanding of the proposal;
- to provide a basis from which decision-making agencies may consider the environmental aspects of this proposal and
- to provide a basis for the conditions under which approval may be given.

This proposal is a level two activity under schedule two of the Environmental Management and Pollution Control Act 1994 (EMPCA). As such it is a scheduled premises and must be referred to the Board of the Environment Protection Authority under Section 25 of the EMPCA by the George Town Council.

This document has been prepared in accordance with the Environmental Impact Assessment Principles as detailed in Section 74 of the EMPCA, and fulfils the requirements specified in Section 74 (3). Guiding the document are the DPEMP general guidelines and the DPEMP Project Specific Guidelines for this project as provided by the Environment Protection Authority (EPA).

Once sufficient information is available for public display, under section 57 (Applications for Discretionary Permits) (3) and (4) of the Land Use Planning and Approvals Act 1993 (LUPAA), the application for a discretionary permit must be advertised to the public. The public has the right to make representation to the planning authority for a period of 14 days or longer from the date of advertising. For a level 2 assessment, the period during which representation can be made is 28 days from the date of advertising.

The George Town Council may approve or refuse to grant a permit for this proposal under Section 57 (2) of the LUPAA. The Board of the Environment Protection Authority may direct Council to include environmental conditions in any permit which Council grants, or alternatively direct Council to refuse to grant a permit.

Individuals, local residents, local groups or other interested parties may seek details relating to this application and can obtain information following the development application being advertised in the local press. Copies of the DPEMP will be available from the Department of Primary Industries, Parks, Water and Environment and the George Town Council Chambers. Those who have made a representation may appeal any decision or permit conditions at a later stage. To undertake this action, parties need to lodge their notice of appeal to the Resource Management and Planning Appeal Tribunal no later than 14 days after notice of the George Town Council decision is served (refer to Section 61 (5) of the LUPAA).

The George Town Council will serve a notice onto any person who has made a representation under Section 57 (5) of the LUPAA within 7 days from the date of granting the permit. Appeals can be lodged to the Appeal Tribunal by any person who has made a representation within 14 days from the notice having been served (refer to Section 61 (5a) of the LUPAA).

An invitation is made to any member of the public to make comment on the proposal without lodgment of a formal representation.
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LIST OF ACRONYMS

ABO Air blast overpressure
ABS Australian Bureau of Statistics
ARI Average Recurrence Interval
AGO Australian Greenhouse Office
AHT Aboriginal Heritage Tasmania
AMSL Above mean sea level
ANZEC Australian and New Zealand Environment Council
BOM Bureau of Meteorology
CO₂ Carbon dioxide
DAFF Department of Agriculture, Fisheries and Forestry
DCCEE Department of Climate Change and Energy Efficiency
DIER Department of Infrastructure, Energy and Resources
DPEMP Development Proposal and Environmental Management Plan
DPIPWE Department of Primary Industries, Parks, Water and Environment
EMPCA Environmental Management and Pollution Control Act 1994
EPA Environment Protection Authority
EPN Environment Protection Notice
ERT Explosive Resources Tasmania
EWHA Department of Environment, Water, Heritage and the Arts
FPA Forest Practices Authority
GHG Green House Gasses
GTC George Town Council
GTPCS George Town Council Planning Scheme 1991
Lₐₚ(10min) A-weighted equivalent continuous sound pressure level measured over any 10-minute period
LUPAA Land Use Planning and Approvals Act (1993)
MRT Mineral Resources Tasmania
NVA Natural Values Atlas
PPV Vector sum peak particle velocity
RMPAT Resource Management and Planning Appeals Tribunal
t CO₂-e Emissions of greenhouse gases (carbon dioxide, methane and nitrous oxide) in tonnes of CO₂-equivalent

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GLOSSARY OF TERMS

Best Practice
Includes having due regard to:
(a) strategic planning by the person carrying out or proposing to carry out the activity;
(b) administration systems implemented by the person including staff training;
(c) public consultation carried out by the person, product and process design and
(d) waste prevention, treatment and disposal.

Best practice environmental management
The management of the activity to achieve an ongoing minimisation of the activity’s environmental harm through cost-effective measures assessed against the current international and national standards applicable to the activity.

Biodiversity
The variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity.

Bioregion
A territory defined by a combination of biological, social and geographic criteria rather than by geopolitical considerations; generally, a system of related, interconnected ecosystems.

Catchment
The land area which drains into a particular watercourse (river, stream or creek) and is a natural topographic division of the landscape. Underlying geological formations may alter the perceived catchment suggested solely by topography (limestone caves are an example of this).

Carbon dioxide equivalents (CO2-e)
Carbon dioxide equivalents (CO2-e) provide a universal standard of measurement against which the impacts of releasing (or avoiding the release of or actively sequestering) different greenhouse gases can be evaluated. Every greenhouse gas has a Global Warming Potential (GWP), a measurement of the impact that particular gas has on ‘radiative forcing’; that is, the additional heat/energy which is retained in the Earth’s atmosphere system through the addition of this gas to the atmosphere. The GWP of a given gas describes its effect on climate change relative to a similar amount of carbon dioxide. As the base unit, carbon dioxide is 1.0. This allows the greenhouse gases regulated under the Kyoto Protocol to be converted to the common unit of CO2-e.

Discharge
The volume of water passing a specific point during a particular period of time. It usually refers to water flowing in a stream or drainage channel, but can also refer to waste water from industrial activities.

Ecologically sustainable use
The use of a species or ecosystem within the capacity of the species, ecosystem and bioregion for renewal or regeneration.

Ecologically Sustainable Development
The principles of ESD consist of the following core objectives:
- to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- to provide for equity within and between generations and
- to protect biological diversity and maintain essential ecological processes and life-support systems;

and the following guiding principles:
- decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations;
- if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the global dimension of environmental impacts of actions and policy should be recognised and considered;
- the need to develop a strong, growing and diversified economy that can enhance the capacity for environmental protection should be recognised;
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised;
- cost-effective and flexible measures should be adopted and
- decisions and actions should provide for broad community involvement on issues, which affect the community.
## Glossary

**Ecosystem**
A dynamic complex of plant, animal, fungal, and microorganism communities and the associated non-living environment interacting as an ecological unit.

**Environmental harm**
Any adverse effect on the environment (of whatever degree or duration) and includes an environmental nuisance.

**Habitat**
The place or type of site in which an organism naturally occurs.

**Introduced species**
A species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities (including exotic organisms, genetically modified organisms and translocated species).

**Native vegetation**
Any local indigenous plant community containing throughout its growth the complement of native species and habitats normally associated with that vegetation type or having the potential to develop these characteristics. It includes vegetation with these characteristics that has been regenerated with human assistance following disturbance. It excludes plantations and vegetation that has been established for commercial purposes.

**Precautionary principle**
Where there are threats or potential threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

**Pulpwood**
Refers to timber grown with the principal purpose of making wood pulp for paper production.

**Riparian vegetation**
Riparian bush is vegetation found along streams, creeks, rivers and wetlands. A variety of bush types make up riparian vegetation, including rainforest, wet forest, dry forest and scrub. Riparian may have a grassy, heathy, sedgey or shrubby understorey.

**Species**
A group of organisms capable of interbreeding freely with each other but not with members of other species.

**Stormwater**
Rainwater plus anything the rain carries along with it.

**Sustainable development (LUPAA 1993)**
Managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while-

(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations;
(b) safeguarding the life-supporting capacity of air, water, soil and ecosystems and
(c) avoiding, remediying and mitigating any adverse effects of activities on the environment.

**Threatened Species**
A species or community that is vulnerable, endangered or presumed extinct.

Codes applied to threatened species are as follows:

**Endangered**
Species in danger of extinction because long-term survival is unlikely while the factors causing the species to be endangered continue operating

OR

Species presumed extinct on the ground that no occurrence of the taxon in the wild can be confirmed during the past 50 years.

**Vulnerable**
Species that are likely to become endangered while the factors causing it to be vulnerable continue operating.

**Rare**
Species with small populations in Tasmania that is not endangered or vulnerable but is at risk.
(III) EXECUTIVE SUMMARY

Artec Pty. Ltd. have operated a woodchip mill at Bell Bay for ten years producing wood chip for export contributing significantly to regional development; the woodchip mill has been operating under a 400,000 tonnes per annum permit.

The company proposes a progressive change in product processed to include a larger quantity of plantation timber as a proactive strategy to change operations to reflect changes in resource availability and product acceptability socially, environmentally and economically (market acceptance). The recent Tasmanian Forests Statement of Principles to Lead to an Agreement under the Principles in the Transition section states “Transition the commodity (non-specialty) forest industry out of public native forests into suitable plantations through a negotiated plan and timeline”. The change in resource base coupled with changes in the industry may require additional processing capacity with a second static woodchip machine and expansion of the operation to 600,000 tonnes per annum and the construction of a Dangerous Goods Store proposed.

The location of the wood processing plant will not change and the area presently utilised for wood processing and storage will also not change, however, new processing equipment and infrastructure will be added. The Bell Bay wood processing plant is located on a 9.7 hectare area of land at Bell Bay in Northern Tasmania. The woodchip mill will produce a maximum of 600,000 tonnes of woodchip per annum at full capacity and employ 18 people on the processing site consisting of 16 permanent employees and two casual employees; the increase in production would require an additional three permanent employees (R. Maher pers. comm.).

The expansion of the wood processing plant will create a considerable economic benefit to the Northern Tasmania area and in particular the George Town region. A summary of the potential impacts from the wood processing plant expansion and their prevention are as follows:

**Potential Physical Environmental Impacts**

- Erosion:
  - erosion of the landform from disturbance during wood processing plant expansion and
  - erosion from stormwater run-off.
- Noise:
  - noise from timber processing equipment and other machinery at the wood processing plant and
  - increased truck traffic off-site.
- Flood:
  - risk of flooding from stormwater run-off from hard surfaced areas at the wood processing plant site.
- Fire:
  - risk of fire on or off the site created by the operation of the wood processing plant.

**Potential Biological Environmental Impacts**

- Water:
  - effect on the Tamar river catchment area and the Tamar river from contaminated stormwater.
- Surface water contamination:
  - contamination of surface water from stormwater runoff.
- Groundwater contamination:
  - contamination of groundwater from soakage of contaminated site water.
- Air emissions:
  - effect on air from truck movements;
  - effect on air from combustion motor emissions and
  - effect on air from airborne dust from wood processing plant operations on site.
- Biodiversity and nature conservation values:
  - adverse effects on threatened species;
  - spread of weeds;
  - spread of diseases.
- Waste/by-products:
  - effect on the site and surrounding areas from litter produced at the wood processing plant operations;
  - accumulation of by-product and responsible re-use.
Executive Summary

Potential Social and Economic Impacts

Noise:
- noise at nearby residences from processing operations and vehicle movements.

Visual considerations:
- effect of vistas of the area from the wood processing plant expansion.

Disturbance to sites of scientific or cultural value:
- potential to disturb any of these sites during the wood processing plant operations or expansion activities.

Prevention of Physical Environmental Impacts

Erosion:
- rehabilitate and revegetate any areas disturbed during the wood processing plant expansion and associated infrastructure by re-using top soil stock piled during operations and monthly monitoring of these areas for the first twelve months;
- direct stormwater runoff into the water quality control pond on the site to slow the water flow rate to prevent erosion of the landform and
- sediment barriers on drainage line from wood processing plant to water quality control pond to slow water flow velocity and to trap sediment.

Noise:
- enclose the stage 2 woodchip recovery machine in a building with walls and roof providing noise reduction across walls and roof of Standard Transmission Class (STC) 45 to 50;
- line internal walls with acoustic absorption material;
- engine exhaust and cooling air for the mobile woodchip recovery machine ducted through silencers;
- chip discharge conveyed through an acoustically lined duct to the screening house providing a noise reduction of STC 35 to 40;
- in-feed area to both woodchip recovery machines will be partially enclosed with acoustically lined walls and roof;
- opening feed for the woodchip machines will face south east in direction to provide optimal shielding to sensitive locations;
- on site machinery will be fitted with high performance environmental noise control of fully enclosed engines, double muffled exhausts and engine cooling air inlet silencers;
- mobile equipment will be fitted with backing alarms during the daylight hours and flashing lights for night use;
- telephone sirens or claxons will not be used or installed on site;
- rail delivery of logs will be conducted during the hours of 8 a.m. to 5 p.m. and
- adherence to the Noise Management Plan.

Flood:
- stormwater from the impacted sites at the wood processing plant area will be directed to the water quality control pond on the site which will slow water movement and retain a percentage of runoff volume.

Fire:
- actively suppress fires on site to protect life and property on the wood processing plant site and also to protect life and property on neighbouring properties;
- no fires will be lit on the wood processing plant site by staff or contractors;
- regularly test and maintain fire suppression system at site and
- water quality control pond available as a source of fire fighting water and fire pump will be available and regularly maintained and operated.
Executive Summary

Prevention of Biological Environmental Impacts

Water:
- treatment of stormwater runoff to the standard necessary to enable safe and environmentally sustainable use and discharge to inland waterways.

Soil contamination:
- capture of pollutants by primary sediment traps and interceptors prior to redirection to water quality control pond and
- removal of sediments from interceptors and water quality control pond when the accumulation reaches 15% of the storage volume.

Surface water contamination:
- drainage at the site will be directed through interceptors and the water quality control pond to collect contaminants and sediments;
- regular monitoring of sewage and grey water treatment facilities and
- surface runoff will be directed to the water quality control pond.

Groundwater contamination:
- up to 60 litres of hazardous chemicals will be stored on the site in the Dangerous Goods Store;
- regular monitoring of sewage and grey water treatment facilities;
- hydrocarbons stored in bunded areas in the dangerous goods store and
- treatment of surface water by water quality control pond.

Biodiversity and nature conservation values:
- minimum disturbance to remnant vegetation;
- wash down procedures followed and implemented for management of Phytophthora cinnamomi and
- structured and vigilant weed monitoring schedule coupled with active management.

Waste/by-products:
- reuse of by-products of fines and wood/bark;
- continue to accept sawmill residue and
- provision of bins with lids, removed on a weekly basis and disposed of at the Council refuse site.

Site contamination:
- interceptors on the drainage lines between the wood processing plant and the water quality control pond that will capture contaminants and sediments from the hard surfaced wood processing plant areas, loading and unloading and access areas prior to the runoff being directed to a water quality control pond and
- spill kits available on site at all times.

Air emissions:
- chipper operation will be carried out with water sprays;
- outgoing loads of fines will be either covered or dampened;
- all conveyors will be covered to prevent fibre loss and
- product on conveyors when ship loading will be dampened in dry conditions to prevent fibre loss during loading.

Prevention of Social and Economic Impacts

Noise:
- an environmental noise survey will be undertaken following the completion of the proposed plant upgrade. The survey would assess/demonstrate compliance/or non-compliance against the requirements of the permit noise emission limit. The survey will be conducted to meet the requirements of the permit issued and
- any significant changes to the wood processing plant’s operations will be modelled to allow prediction of likely noise emissions resulting from the change.

Visual considerations:
- retaining the native vegetation on the site to provide a backdrop to the processing plant from the Tamar river/Beauty Point areas;
- green coloured cladding on buildings and
- highest structure will be 10.5 metres.

Disturbance to sites of scientific or cultural value:
- any sites of Aboriginal heritage seen or suspected during operations will result in an immediate cessation of works and Aboriginal Heritage Tasmania will be contacted and
- any site of archaeological significance will be treated in the same way as Aboriginal heritage and any unexpected archaeological features and/or deposits revealed during works, works will cease and the incident will be reported immediately to the Heritage Council.
1.0 INTRODUCTION

In 2010 the Environment Protection Authority (EPA) drafted an Environment Protection Notice for the Artec Pty. Ltd. Bell Bay woodchip mill. The company saw this as an opportunity to consider the future of the company in the face of likely changes in resource type and the social, environmental and economic acceptability of native forest logging and processing towards a progressive change to a plantation based product. The recent Tasmanian Forests Statement of Principles to Lead to an Agreement under the Principles in the Transition section states “Transition the commodity (non-specialty) forest industry out of public native forests into suitable plantations through a negotiated plan and timeline”. The debate continues at the time of writing and it seems the only certainty is that the forestry industry is in a major transition period and that a proactive strategy of preparing for and being a part of that transition is the best way of ensuring a continuation of a forest industry that is socially, environmentally and economically acceptable and viable.

The proposed progressive change in product output has lead the company to request an increase in the production quantity from 400,000 tonnes of woodchip to 600,000 tonnes to allow for possible expansion in the future. Despite the recent downturn in the forest industry in Tasmania the company believes that there may be opportunities for the company to expand its operation. We expect that the present situation at the processing plant will not change in the near future but levels may increase after an 18 month period.

Artec Pty. Ltd. commenced operations at the Bell Bay Mobil road site in 2001 and has operated a woodchip processing facility at the site since that time; Artec Pty. Ltd. also have a number of working sawmills in Tasmania. Sustainable principles have now been formerly and firmly embedded in the policies and practices resulting in sustainability being forefront in decisions made.

The new Policies and Standards in the company are based on the triple bottom line principles where the Sustainable Policy outlines commitments to the environmental, social and financial performance of the company. The importance of stakeholders in the overall performance of the company is also of paramount importance where the commitment is made to conduct business with suppliers and contractors who also have a commitment to responsible environmental management, as well as a commitment to review of performance and to communicate this to the relevant stakeholders, customers and staff.

The re-use of both our main by-products of fines as boiler fuel and recent infrastructure and management practice changes to allow full high value re-use of a wood/bark by-product has demonstrated Life Cycle Thinking on the part of the company (from the Managing Directors, other stakeholders receiving by-products to the workers on site). The concept of Life Cycle Management has been utilised where an integrated approach has been adopted for managing the total life cycle of the products and services towards more sustainable consumption and production patterns. Additionally the concept of Life Cycle Assessment has also been adopted where internal and external monitoring of the whole processing operation is regularly carried out by the Artec Environmental Management Team and action taken where necessary to improve environmental and social performance.

During the recent downturn in the timber industry in Tasmania Artec Pty. Ltd. have continued to operate viable operations in the timber sector (export woodchip and sawn timber) and this application demonstrates a financially secure company that perceives an opportunity to expand into the near future in the timber based industry in Tasmania.

The company considers there is an opportunity to expand its operations to encompass a wider scope of product to include hardwood and softwood plantation pulpwood sales; this change would be progressive and the proposed second static woodchip infrastructure (see Section 3.0) would be available for processing the plantation woodchip and any other different product that will require a separate processing unit and storage area. The change into processing plantation timber is not expected to change the on-site environmental impacts in any detrimental way; noise levels and water quality output as two main environmental concerns at the processing plant are expected to not change from present levels.

The wood processing plant expansion will provide an economic boost for the George Town community by producing additional direct and indirect employment, allowing expansion of the existing wood processing plant operation, latitude for further future expansion, especially into the plantation based resource, and all the related social and economic benefits that will emanate from this development and investment.
Introduction

1.1 Proponent

Artec Pty. Ltd. is a company involved in a number of business activities involving timber harvesting and wood processing plant activities. The company is based at Lilydale and the principal’s details are:

Mr. Scott Arnold-General Manager  Phone: 0363951471
Artec Pty. Ltd.  Fax: 0363951552
PO Box 74  Email: admin@artec.net.au
Lilydale
Tas., 7268.

1.2 Purpose of DPEMP

This DPEMP has been prepared to provide detailed information on the proposed wood processing plant expansion to the Environment Protection Authority Division, George Town Council and any interested group or individual; the information provided in the document contains the following information:

- description of the proposal
- description of the immediate environment
- analysis of potential environmental impacts and
- management regimes for identified impacts relating to the project.


1.3 Environmental Legislation and Approvals

The operation of a woodchip mill in Tasmania requires approvals from the Tasmanian government, as follows:

The Tasmanian and Commonwealth governments have signed a bilateral agreement relating to impact assessment under section 45 of the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 which accredits the State assessment process. The EPBC Act identifies seven matters of national environmental significance as follows:

1. World Heritage properties.
3. RAMSAR wetlands of international significance.
4. Threatened species and ecological communities.
5. Migratory species.
6. Commonwealth marine areas.
7. Nuclear actions.

This proposal is a level two activity under the Environmental Management and Pollution Control Act 1994 (EMPCA) and the following planning processes are necessary:

- Submission of a Development Application to the George Town Council, accompanied by a DPEMP as required under Section 25 of the EMPCA.

- The relevant authorities will then consider the application and the public are invited to comment and make representation on the proposal for a period of twenty-eight days.

- George Town Council may then approve or refuse to grant a permit under Section 57 (2) of the LUPAA.
Introduction

The woodchip mill is a scheduled premise and must be referred to the Board of the Environment Protection Authority under Section 25 of the EMPCA by the George Town Council. The Board of the Environment Protection Authority may direct Council to include environmental conditions in any permit which Council grants, or alternatively direct Council to refuse to grant a permit.

There is a large number of other relevant legislation governing the management of timber resources, flora and fauna, items of cultural significance, surface and ground water, health and safety and a number of other social, economic and environmental issues. The Forest Practices Code is a key document guiding the harvesting and management of timber resources in Tasmania; this document is not a statutory Act or Regulation but provides the main guidance to businesses utilising timber resources in Tasmania.

1.4 Consultation

There has been extensive consultation carried out during the DPEMP production and this has been recorded in a table of consultation/information gathering which is a record of all consultation and information gathering carried out during the preparation of this DPEMP. This information is available to the public on request to the company-please refer to Section 1.1 for contact details.

The DPEMP and associated Appendices will be available for public viewing and comment for a period of at least 28 days giving the opportunity for people to see what the proposal consists of and the opportunity to make comment on the proposal.

During the public comment period the following will occur:

- a copy of the DPEMP will be on public display and
- copies of the DPEMP will be available for purchase at a reasonable price.

Prior to or at the commencement of the public comment period, notice will be given by public advertisement of the availability of copies of the DPEMP and the opportunity for the public to provide comments.
2.0 SITE DESCRIPTION AND THE EXISTING ENVIRONMENT

2.1 Location

The existing wood processing plant site and proposed wood processing plant expansion site is on a 9.7-hectare area of land on Mobil road at Bell Bay (refer to location map, overleaf). The nearest main township is George Town; the wood processing plant is 3.8 kilometres south east of George Town; the closest residence is approximately 500 metres from the processing plant in Deceitful Cove in a low density residential area.

The site is close to the Tasmanian Electro Metallurgical Company (TEMCO) factory in an industrial setting of factories and storage yards. Other major industries close to the site are another woodchip mill to the east and wharf area to the west.

2.1.1 Topography

The area is on a gently undulating plain formed on Tertiary gravels, sands and clays. The site is situated on the lower marine bench position of the undulating plain landform at an elevation of 40 metres above sea level.

The area utilised for the Wood Processing Plant is almost flat with a small fall to the south west of the site. There is a steeper bank to the south of the flat area, which falls to the Tamar River estuary.

2.1.2 Watercourses

The site has been drained at various locations by open drain construction. These drains result in a faster drainage to the Tamar River estuary area. The original natural drainage for the site is difficult to ascertain given the disturbed nature of the site. The existing drainage paths are as follows:

- a natural watercourse on the north western side of the site area;
- a constructed drain running south west to northwest across the flat area of the site which drains into the natural watercourse on the northwestern side and
- a system of constructed underground drains with interceptors filters, which drain the processing area to the northwest of the site into a water quality control pond which then outlets into the natural watercourse on the northwestern side of the site and then after about two kilometres outflows into the Tamar river at the Bell Bay wharf area (see Drainage and fire Plan).
The Existing Environment

Map 1: Location Map of Bell Bay Wood Processing Plant – Mobil road, Bell Bay.
2.1.3 Roads and traffic

The main access to the site is on Mobil Road, which has no weight restrictions (Department of Infrastructure, Energy and Resources – Transport Division). The section of Mobil road managed by the George Town Council is sealed and the remaining section to the Artec and Smart Fibre woodchip sites are gravel surface and maintained by both companies on a cooperative share basis.

General access from the plantation and forest areas around the State to the processing plant is via the main road system and has also in the past by Tasrail.

There is an easement to the north west of the site, which has been used as rail access. A rail spur has been constructed from the existing rail line (refer to Map 1 which shows the main rail line) and this enables transport of product to the wood processing site. Rail transport has been suspended in recent years and the company is presently pursuing resumption in rail delivery of logs.

All transport of logs to the site presently is via the main system of roads by log trucks. The truck movements per day for six days a week are approximately 76 trucks per day for a production rate of 2,600 tonnes per day. A full discussion of projected average and maximum truck and other vehicle movements is given in Section 3.8 Traffic movements.

There is a hard surfaced access road to the site from Mobil road, which leads to the processing plant with a group of sheds, office and weighbridge in the southern side of the site. Woodchip storage is in the western section of the site. The main truck access route on site is shown in Site Plan 2 on page 43, as are other minor access tracks.

2.1.4 Structures

Existing structures on the site are associated with its present use as a wood processing plant and past industrial use and consist of the following:

- site office and workshop;
- access road from Bell Bay Road to the western boundary of the site;
- fencing around the north, and part of the south and northeastern areas of the site;
- weighbridge;
- stage 1 static wood processing equipment;
- main office and weighbridge;
- water quality control pond.

This proposal includes the construction of the following additional infrastructure:

- stage 2 static wood processing equipment and
- dangerous goods store.

2.2 Physical Characteristics and the Planning Context

2.2.1 Land tenure

The main area of land is privately owned by the General Manager and not the company. The land title details from the Titles Office are appended as Appendix 1 (also refer to Map 2 overleaf).
The Existing Environment

Map 2: Title map of property

Source: The LIST

2.2.2 Land zonings

The George Town Council under the George Town Council Planning Scheme 1991 (GTPS) zones the area as heavy industrial. The surrounding land is also heavy industrial zoning and utilised for industrial and storage purposes.

The GTPS defines the industrial zone purpose as follows:

- to provide land for large-scale manufacturing, refining and other port related industrial uses or developments which require large areas of flat land and which, because of their nature tend to be unsightly, and/or generate noise pollution.
- to provide accommodation for existing large-scale uses and developments and also provide an extensive area for future similar uses or development, particularly for industries which make extensive use of the nearby port facilities.

The permitted uses for development in the Heavy Industrial zone under the GTPS include a timber mill and heavy industry.

The proposed expansion of activities is consistent with the Heavy Industrial zone purposes under the GTPS.
2.2.3 Special areas/other zonings

The area on the western side of the site has been identified as a landslip area in 2005 resulting in the re-siting of the water quality control pond from the proposed north west corner to the north east corner (C. Martin pers. comm.). The sloping area and foreshore areas to the south west of the site are designated as a Maritime zone under the GTPS, which has the following purpose:

- to provide primarily for the uses associated with the port activities on and adjacent the Tamar River.

The skyline to the south of the flat area of the site is being retained by the Port of Launceston Pty. Ltd. to protect the aesthetic qualities of the land as viewed from the River.

Plate 1: Aerial Photograph of Bell Bay Wood Processing Plant
Source: Google earth 2010.
The Existing Environment

2.2.4 Surrounding areas

Land use in the immediate vicinity of the wood processing plant is heavy industrial. The closest residence is approximately 500 metres from the processing plant in Deceitful Cove in the low density residential area (refer to Plates 2 and 3). The land around the processing plant is a mix of classifications under the George Town Planning Scheme 1991, namely: heavy industrial, maritime, utility services, agricultural, Bell Bay major industrial, private recreation, low density residential, urban residential, general industrial and closed residential.

Plate 2: Planning zones surrounding processing plant

Source: The List.
2.2.5 Present condition and use of the site

At present, the site is used as a woodchip mill with associated processing infrastructure, vehicle access and water quality control infrastructure.

The site has been subject to a high degree of disturbance by past and present activities. Other areas on the property are used for log storage with a small area of native vegetation on the west side and along the main watercourse on the northern side of the property.
The Existing Environment

2.2.6 Meteorology

The Northern Tasmanian region has been subject to a number of environmental changes over the past 20,000 years\(^1\). A number of temperature and wind speed variations, along with sea level changes have shaped the landscape and biota to what it is today.

Mild conditions in the North are the effect of heat absorption and storage by the ocean, and they are lessened by increases in both distance from the coast and in altitude. The Bell Bay area is on the coast and this results in a strong influence from the oceans and in mild winters and a rainfall of around 670mm per annum on average.

The area experiences a typical temperate climate for its altitude that is subject to strong winds, which are predominantly south easterly in the early morning (29%) and north westerly in the afternoon (39%) as the site lies in the path of the “Roaring Forties” wind stream (refer to Appendix 2). The site is exposed to these winds as the area to the west is Port Dalrymple, although the vegetation on the north and north western side of the site area provides some wind protection. Average 9 a.m. and 3 p.m. wind roses from the Low Head weather station are shown in Appendix 2-Climate averages.

The average annual rainfall for the sites closest meteorological record station is Low Head at 677.4 mm (124 years of records). The Low Head meteorological observation site is 10 kilometres from Bell Bay and at a similar elevation and this makes the data particularly appropriate, especially given the long term nature of the data from Low head. The mean maximum temperature is 16.2 °C and the mean minimum is 9.5 °C (106 years of records). Rainfall is winter dominant and averages 680mm annually (refer to Appendix 2). Temperature is much influenced by the situation of the site and this means mild winters with low average maximum temperatures in the summer months (refer to Appendix 2). Tasmania lies within the belt of prevailing westerly winds known as the ‘roaring forties’. The prevailing winds are north-westerly to south westerly. Evaporation rates have been gained from the Launceston Airport weather station and show an average evaporation rate of 3.5 mm per month (36 years of records); the lowest rate occur in June and July (1 mm) and the highest in January (6.7 mm). Information on meteorology has been gained from observations from the following observation stations:

- George Town between 1968 and 1978 (observation station opened 1968, closed 1978);
- Launceston airport 1966-2009 and
- Low Head Lighthouse between 1877 and 2001.


**Plate 4: Average annual rainfall – Tasmania**

Source: BOM
2.2.7 Geology

The North/Northeast of Tasmania is founded on marine turbidite rocks (referred to as the Mathinna Group) intruded by granitic rocks. Much of the region has been relatively uplifted during long periods of its subsequent history, with only thin sequences of younger Permian sedimentary rocks being deposited in the present highland areas (Sharples, 1996).

Block faulting during the Cretaceous to early Tertiary times resulted in the development of increased landscape relief. Fluvial (the effects of liquid water in the terrestrial environment) processes have shaped the landscape during most of its subsequent development, although basaltic lavas filled some valleys and altered drainage patterns during the Tertiary.

The main deposits are from the Quaternary to Devonian geological ages. The major portions of the region’s geology consist of Quaternary deposits, Triassic Mathinna Beds, Devonian Granite and Granodiorite and Jurassic Dolerite (Kee, 1987).

2.2.7 (a) Processing site geology

The site area consists of Tertiary gravels, sands and clays in the Tamar Graben. The Tertiary deposits consist of interbedded clay, sandstone, conglomerate, lignite and basalt. All the Tertiary deposits in the Launceston Tertiary Basin originated from the same river catchments with Dolerite, Basalt, Permian mudstones and Triassic sandstones as parent materials (Taylor and Pickering in Pinkard, 1980).

The surface is an old erosion area from past higher sea levels. From surface geological mapping and foundation investigations, this surface is underlain by sand, gravel and sandy clay, with Basalt occurring at deeper levels. The Basalt is underlain by sediments of Tertiary age; clay, sand and occasional sandy bands with Jurassic Dolerite at greater depth (M. Latinovic pers. comm.).

<table>
<thead>
<tr>
<th>Ts</th>
<th>Dominantly non-marine sequences of gravel, sand, silt, clay and regolith.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qpt</td>
<td>Talus, vegetated and active.</td>
</tr>
<tr>
<td>Tb</td>
<td>Basalt (tholeiitic to alkalic) and related pyroclastic rocks.</td>
</tr>
</tbody>
</table>

**Plate 5: Geology**

Source: NVA
The Existing Environment

2.2.8 Soils and land systems

Analysis of soils and land systems in the Northern region can be achieved using land system classifications based on evaluating a range of resource information. Land capability assessment has been made for parts of Tasmania. Land capability assessment is an interpretive and somewhat subjective system for evaluating a range of resource information. It provides a ranking of the ability of an area to support a range of agricultural activities on a sustainable basis. The classification system comprises seven classes ranked in order of increasing degree of limitation in relation to agricultural use, and decreasing order of agricultural versatility. Class 1 is the best land and Class 7 the poorest. Class 5 is considered marginal for cropping activities. Please refer to 2.2.9 (a) below for more detail.

A number of land systems have been identified for the Northern region based on zones with significant differences in one or more major environmental features, such as topography, parent material and vegetation (Pinkard, 1980). The wood processing plant is situated on the Badger Head road Land System which is on gently undulating plains formed on Tertiary gravels, sands and clays (Pinkard, 1980). This land system occurs in the York Town-Greens Beach area with small areas at Nawrantapu National Park and Bell Bay. A characteristic of this system is the highly leached sub-angular siliceous gravels and water-worn gravel and grit which are found on the surfaces of the sand and duplex soils of the dissected ridges and upper plain. The mottled duplex soils on the marine benches (which are where the wood processing plant site is situated) are comparatively deep.

Coastal acid sulfate soil searches (NVA March 2011) show that there are no acid sulfate soils on the site and one extremely low site to the southwest of the site. Potential landslip searches (NVA March 2011) have not found any vulnerable areas on or near the site despite an engineer’s report recommending an alternative location for the water quality control pond on the basis of landslip hazard (refer to Section 2.2.3 Special areas).

2.2.9 Geomorphology and soils

The site is on gently undulating plains formed on Tertiary gravels, sands and clays. The dissected broad ridges are composed of partially consolidated conglomerate (quartzite or quartz). The site is situated on the lower marine bench position of the undulating plain landform (Pinkard, 1980) at an elevation of 40 metres above sea level.

2.2.9 (a) Land use and capability

The surrounding land use is heavy industrial and wharf area. The other industries in the industrial precinct are a variety of businesses with heavy industrial sites such as TEMCO and COMALCO. The wood processing plant site is located in Land Capability 4 and 6 (refer to Plate 6 for Land Capability map of the area). The western area is located on Land Capability 5 which is land unsuited to cropping and with slight to moderate limitations to pastoral use. The Land Capability 6 occurs in the coastal strip and this classification is land marginally suited to grazing due to severe limitations. Adjoining Land Capabilities are a mixture of classifications 4, 5 and 6 with classification 4 dominating adjoining areas; Land Capability 4 is land well suited to grazing but which is limited to occasional cropping or a very restricted range of crops.

The wood processing plant area is in a Land Capability classification that has limited pastoral use and unsuited for cropping activities.

Plate 6: Land capability

Source: NVA
2.2.10 Hydrology

2.2.10 (a) Surface water

The Northern region has a varying rainfall from the coast to the upper mountainous area, typically twice the rainfall in the mountainous headwater areas than the coastal region. Rainfall varies with time of year due to the latitude of the region (41°) with a highly seasonal weather pattern resulting in low summer rainfall and high winter rainfall. The highest rainfall totals occur in July and the lowest in February/March (please refer to section 2.2.6 Meteorology).

Surface water in the Northern region emanates from a range of land cover types that influence the amount (quantity) of runoff and the quality of runoff that eventually flows to the main rivers in the region and ultimately Bass Strait.

The rates of runoff can be expressed as a runoff coefficient. These coefficients vary from the type of land use in each area. The more vegetation the lower the runoff coefficient and the harder and more barren the higher the runoff coefficients. The amount of rainfall at a particular time can be expressed as an average recurrence interval or ARI. Data is available for ARI’s from 1 year to 100 years at varying durations (refer to Appendix 3-Design Rainfall Intensity). This data has been utilised to calculate the storm events that can be reasonably expected at the wood processing plant. For example, planning for a one in twenty year storm event can be projected from the expected rainfall in a particular duration and over an area (refer to Appendix 4-Water Quality Control Pond).

The site is on a relatively flat bench. Natural drainage of the majority of the site runs to the south where a slope falls to the Tamar estuary; constructed drains now drain the majority of the site to the water quality control pond which then outflows to the Tamar river. Surrounding areas have been drained in the past and this can be seen on Site Plan 4, page 45.

2.2.10 (b) Groundwater

Groundwater refers to water occupying all the voids within a geological stratum (Todd, 1959 in Matthews, 1983). These voids include the intergranular spaces between mineral grains making up a sedimentary rock and fissures, which includes joints, bedding planes and other fractures in compacted metamorphosed and igneous rocks. Vesicles in volcanic rocks are also capable of storing groundwater.

Water rarely occurs as underground streams, although streams can occur in limestone country where solution channels have developed. Little limestone or similar rock occurs in this region. Groundwater in the region is mainly stored as intergranular water in the younger rocks and in fissures in the older rocks.

Groundwater hydrology consists of two aquifers. The surface is underlain by sand, gravel and sandy clay (first aquifer), with Basalt (second aquifer) at deeper levels (M. Latinovic pers. comm.).

The groundwater resources in the region are an extremely important component of the water system that contributes to the environmental flows in the surface water system, especially during the summer months.

Results from drilled boreholes in the nearest locations available (Starwood’s development area – 1 kilometre north from the site area) indicate a water quality of the following:

- slightly acidic-pH of 6.2;
- total sulphur concentrations exceeding the Australian and New Zealand Guidelines for the Assessment and Management of the Contaminated Sites in all samples and
- total salt content of 5080 mg/l.

Three shallow aquifer bore holes were installed at the wood processing plant on 4.2.2005 to allow monitoring of the groundwater at three strategic locations on the site.
The Existing Environment

2.2.11 Vegetation

The TASVEG communities on and surrounding the 9.7 hectare property is shown below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPU</td>
<td>Unverified plantation for silviculture</td>
</tr>
<tr>
<td>FPL</td>
<td>Plantations for silviculture</td>
</tr>
<tr>
<td>DAD</td>
<td>Eucalyptus amygdalina forest and woodland on dolerite</td>
</tr>
<tr>
<td>SLW</td>
<td>Leptospermum scrub</td>
</tr>
<tr>
<td>FRG</td>
<td>Regenerating cleared land</td>
</tr>
<tr>
<td>SSC</td>
<td>Coastal scrub</td>
</tr>
<tr>
<td>FUR</td>
<td>Urban areas</td>
</tr>
<tr>
<td>FAG</td>
<td>Agricultural land (group-Agricultural, urban and exotic vegetation)</td>
</tr>
<tr>
<td>QAQ</td>
<td>Water, sea</td>
</tr>
<tr>
<td>DAC</td>
<td>Eucalyptus amygdalina coastal forest and woodland</td>
</tr>
<tr>
<td>FUM</td>
<td>Extra-urban miscellaneous</td>
</tr>
<tr>
<td>FAG</td>
<td>Agricultural land (group-Agricultural, urban and exotic vegetation)</td>
</tr>
<tr>
<td>GHC</td>
<td>Coastal grass and herbfield</td>
</tr>
</tbody>
</table>

Plate 7: Vegetation

Surveys were carried out on the wood processing plant area and on the rest of the 9.7 hectare property for the initial DPEMP (completed in May 2000 for the establishment of the processing plant); enquiries to the Environment Protection Authority resulted in the opinion that an additional flora and fauna survey was not necessary. The majority of the wood processing plant area is highly disturbed and contains only regrowth in some areas and growth of planted native vegetation around the water quality control pond and a small area of native vegetation on the western section of the property.

There are a number of weed species on the site which are regularly controlled by staff and licensed contractors, as necessary. Weeds are monitored on a regular basis, that is, during the six monthly monitoring schedules. The main weeds are Patterson’s curse, pampas and blackberry.
The Existing Environment

Table 1: Commonwealth GIS habitat mapping flora species within area- 1 km buffer

<table>
<thead>
<tr>
<th>Plants</th>
<th>1 km buffer</th>
<th>Species or species habitat likely to occur within area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caladenia caudata</td>
<td>v</td>
<td>Tailed Spider-orchid</td>
</tr>
<tr>
<td>Glycine latrobeana</td>
<td>v</td>
<td>Purple Clover, Clover Glycine</td>
</tr>
<tr>
<td>Prasophyllum apoxychilum</td>
<td>e</td>
<td>Tapered Leek-orchid</td>
</tr>
<tr>
<td>Xanthorrhoea arenaria</td>
<td>v</td>
<td>Sand Grasstree</td>
</tr>
<tr>
<td>Xanthorrhoea bracteata</td>
<td>e</td>
<td>Shiny Grasstree</td>
</tr>
</tbody>
</table>

Table 2: Tasmanian NVA GIS observed flora species- 1000 m buffer

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Common Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoxis vaginata</td>
<td>sheathing yellowstar</td>
</tr>
</tbody>
</table>

The site consists of a very disturbed area where the processing activities are carried out. The area to the southwest of the site consists of relatively intact native vegetation. The dominant species is Black Peppermint (Eucalyptus amygdalina). The vegetation classification is open and the main native species observed on site apart from the dominant Black peppermint were as follows:

- Bracken fern (Pteridium esculentum);
- Manuka (Leptospermum scoparium);
- Silver Wattle (Acacia dealbata);
- Buzzy (Acaena novaezollandiae);
- Swamp Paper-bark (Melaleuca ericifolia);
- Sagg (Lomandra longifolia);
- Blackwood (Acacia melanoxylon);
- Native Cherry (Exocarpis cupressiformis);
- White Gum (Eucalyptus viminalis);
- Native willow (Acacia mucronata);
- Boobyalla (Acacia sophorae);
- Bull Oak (Allocasuarina littoralis);
- Dogwood (Pomaderris apetala) and
- Black wattle (Acacia mearnsii).

Plate 8: Native vegetation on southern side of site area
The Existing Environment

2.2.12 Fauna

The Natural Values Atlas fauna species recorded were as follows:

**Table 3: Tasmanian NVA GIS observed fauna species- 1 km buffer**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Common Names</th>
<th>State Schedule Code</th>
<th>National Schedule Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulpes vulpes</td>
<td>Red fox</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coturnix australis subsp. ypsilophorus</td>
<td>Swamp quail</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Eudyptula minor</td>
<td>Little penguin</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Table 4: Tasmanian NVA GIS habitat mapping fauna species- 1km buffer**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Common Name</th>
<th>State Schedule Code</th>
<th>National Schedule Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accipiter novaehollandiae</td>
<td>Grey goshawk</td>
<td>e</td>
<td>-</td>
</tr>
<tr>
<td>Haliaeetus leucogaster</td>
<td>White bellied sea eagle</td>
<td>v</td>
<td>-</td>
</tr>
<tr>
<td>Aquila audax subsp. fleayi</td>
<td>Wedge-tailed eagle</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>Litoria raniformis</td>
<td>Green and gold bell frog</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Tyto novaehollandiae castenops</td>
<td>Masked owl</td>
<td>e</td>
<td>-</td>
</tr>
<tr>
<td>Perameles gunnii gunnii</td>
<td>Eastern barred bandicoot</td>
<td>-</td>
<td>v</td>
</tr>
<tr>
<td>Pseudomys novaehollandiae</td>
<td>New Holland Mouse</td>
<td>e</td>
<td>-</td>
</tr>
<tr>
<td>Galaxiella pusilla</td>
<td>Eastern dwarf galaxias</td>
<td>r</td>
<td>v</td>
</tr>
</tbody>
</table>

The Commonwealth Environment Reporting pertinent fauna species recorded were as follows:

**Table 5: Commonwealth GIS habitat mapping listed fauna species-1 km buffer**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Common Name</th>
<th>State Schedule Code</th>
<th>National Schedule Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haliaeetus leucogaster</td>
<td>White bellied sea eagle</td>
<td>v</td>
<td>-</td>
</tr>
<tr>
<td>Aquila audax subsp. fleayi</td>
<td>Wedge-tailed eagle</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>Litoria raniformis</td>
<td>Green and gold bell frog</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Sarcophilus harrisii</td>
<td>Tasmanian devil</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>Prototroctes maraen</td>
<td>Australian grayling</td>
<td>-</td>
<td>v</td>
</tr>
<tr>
<td>Dasyurus maculatus maculatus</td>
<td>Spotted-tailed quoll</td>
<td>r</td>
<td>v</td>
</tr>
<tr>
<td>Lathamus discolor</td>
<td>Swift parrot</td>
<td>-</td>
<td>e</td>
</tr>
<tr>
<td>Arctocephalus forsteri</td>
<td>New Zealand Fur-seal</td>
<td>r</td>
<td>-</td>
</tr>
</tbody>
</table>
Fauna species seen on site in 2000 survey were the following:

- Bennetts Wallaby (*Macropus rufogriseus*);
- Wedge-tailed eagle (*Aquila audax susp. Fleayi*);
- Little Wattlebird (*Anthochaera lunulata*);
- Swallow (*Hirundo neoxena*);
- Silver Gull (*Larus novaehollandiae*);
- Silvereye (*Zosterops lateralis*);
- Cormorants (*Phalacrocorax sp.*) and
- Green Rosella (*Platycercus caledonicus*).

There were no species of listed fauna found during initial survey in 2000, however; the Commonwealth GIS habitat mapping data for the area and the Tasmanian NVA GIS observed and habitat mapping GIS data showed that there are a number of species that are likely to occur in the area. Wedge-tailed eagles are often seen in the native vegetation area to the west of the processing site and they also often sit on the woodchip storage pile; there are no nests in the immediate area that are known.

Another interesting sighting over the last three years was a platypus in the water quality control pond, this pond now has a variety of waterfowl feeding and nesting along with a frog population.

**Table 6: Listed species likely to occur in area**

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>COMMON NAME</th>
<th>STATE SCHEDULE</th>
<th>NATIONAL SCHEDULE</th>
<th>TASMANIAN GIS DATA (observed and habitat mapping)</th>
<th>NATIONAL GIS DATA (habitat mapping)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sarcophilus harrisii</em></td>
<td>Tasmanian devil</td>
<td>endangered</td>
<td>endangered</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td><em>Dasyurus maculatus</em></td>
<td>Spotted-tailed quoll</td>
<td>rare</td>
<td>vulnerable</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Pseudomys novaehollandiae</em></td>
<td>New Holland mouse</td>
<td>endangered</td>
<td>none</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td><em>Perameles gunnii</em></td>
<td>Eastern barred bandicoot</td>
<td>none</td>
<td>vulnerable</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Accipiter novaehollandiae</em></td>
<td>Grey goshawk</td>
<td>endangered</td>
<td>endangered</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td><em>Aquila audax susp. Fleayi</em></td>
<td>Wedge-tailed eagle</td>
<td>endangered</td>
<td>endangered</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Litoria raniformis</em></td>
<td>Green and gold bell frog</td>
<td>vulnerable</td>
<td>vulnerable</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Prototroctes maraen</em></td>
<td>Australian grayling</td>
<td>vulnerable</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Lathamus discolor</em></td>
<td>Swift parrot</td>
<td>endangered</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Haliaeetus leucogaster</em></td>
<td>White-bellied sea eagle</td>
<td>vulnerable</td>
<td>none</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Myiagra cyanoleuca</em></td>
<td>Satin flycatcher</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><em>Tyto novaehollandiae</em></td>
<td>Masked owl</td>
<td>endangered</td>
<td>-</td>
<td>✓</td>
<td>-</td>
</tr>
</tbody>
</table>
The Existing Environment

2.3 The Social and Economic Environment

2.3.1 Population

The approximate population of George Town municipality is 6,527 (2006 census). This population is predominantly based in the main township of George Town (4,000-4,500). Specialist industries are the industrial companies of Tasmanian Electro Metallurgical Company (TEMCO) and Comalco and the tourism industry is important. Small business that services the community and industries is a major employer in the municipality.

2.3.2 Employment

The population of the George Town municipal area has a high percentage of employed people (ABS 2006 census). The Plate below shows the percentage of the labour force employed across the region.

Plate 9: Employed people-George Town municipality

Source: ABS, 2006 census
2.3.3 Community support

Community attitude to this proposal is difficult to gauge as the woodchip mill expansion proposal is not well known in the district; although a Development Application was advertised to increase production at the processing plant to 500,000 tonnes in July 2010-this was later withdrawn and a new production increase and infrastructure change proposed by the company in August 2010-no representations were made to the George Town Council for the original Development Application (Kate Guinane pers. comm.). This DPEMP represents the new production increase and infrastructure change proposal; a new Development Application will be advertised and supported by this DPEMP. Through the production of this DPEMP and the opportunity for the community to comment on the proposal an indication of community support or otherwise will be gained.

2.3.4 Public consultation

Consultation to this stage has concentrated on the key stakeholders in the local community and government.

This document will be made available to the public for written or oral comment or to make representation on the proposal for a period of 28 days.

2.3.5 Existing infrastructure

Infrastructure, facilities and social services existing in the George Town area that are pertinent to the operation of a woodchip mill and proposed expansion on the site are as follows:

2.3.5 (a) Facilities

- a good system of roads servicing the main Bell Bay area and Mobil Road services the site;
- electrical power services the area and lines run into the site;
- council water is available at the site;
- service stations for fuel and vehicle maintenance and
- waste disposal is available by waste transfer site at George Town and is operated by the George Town Council.

2.3.5 (b) Social services

- health needs are met by the Launceston General hospital and the George Town medical centers in George Town;
- recreation needs are well catered for in the municipality with a range of reserves and clubs (including a town swimming pool) and
- school from infant to high school.

The existing infrastructure is comprehensive with a range of stores and services in George Town and in the Bell Bay industrial area.
The Existing Environment

2.4 Alternative Sites

2.4.1 Present Site at Bell Bay

The existing wood processing plant site is the preferred site for the woodchip mill expansion. This area has already been established to allow for the processing of up to 400,000 tonnes per annum with associated infrastructure for environmental management, access and loading facilities for ships. The fact that the Bell Bay Wood Processing Plant has operated for a long period of time enables a clear understanding of the environmental impacts from the processing operations. This understanding relates to the general environmental impacts and also the specific issues that relate to the particular site.

The preferred site is situated at the existing wood processing plant site (refer to Plate 1 and Site Plans 1-3). The site is an area of 9.7 hectares, consisting of the existing woodchip mill area, associated access and water treatment facilities and surrounded mainly by other industrial companies. The advantages of this site over any other alternative are as follows:

- situated in a heavy industrial zone;
- serviced by main arterial roads that are designated B double routes;
- area large enough to cater for environmental management of the development;
- site has rail access for log transport;
- suitable distances from residences and public roads for noise, air and visual environmental considerations;
- next to shipping for export, alleviating the need for vehicle transport of finished product;
- serviced by main arterial roads that are suitable for log truck traffic;
- area large enough to cater for expansion, log and woodchip storage facilities;
- only a small area will be required to cater for the proposed expansion;
- suitable distances from residences and public roads for noise, air and visual environmental considerations and
- through this DPEMP process the woodchip mill expansion will be managed and constructed with best environmental practice management plans and actions.

In a regional context the existing wood processing plant location is significant as it has direct access to ship loading conveyors and wharf area. The location of the processing plant within a heavy industrial zone is appropriate for the use.

2.4.2 Alternative sites

In the original DPEMP which was completed in May 2000, and was completed to establish the Bell Bay processing plant, the argument was forwarded to shift the main Artec wood processing from the Lilydale sawmill site (also owned by Artec Pty. Ltd) to the Bell Bay site and approval was given for the change.

Shortcomings of any alternative site are seen as follows:

- access construction costs;
- large area would need to be disturbed for access, wood processing plant and environmental management;
- access to shipping area and loading facilities;
- possible clearing of vegetation and
- wood processing plant establishment costs generally.

The present processing site has operated for ten years and shown to be able to operate in an environmentally, socially and economically responsible and viable manner.
2.5 Archaeology and heritage

2.5.1 Aboriginal heritage

An Aboriginal Heritage assessment was carried out on the processing site by an Aboriginal Heritage Assessment Officer on the 28.2.2000 for the original DPEMP. The results from that survey were that no Aboriginal sites were found during the survey and the evaluation and recommendations were: “This yard is not considered to be of high Aboriginal or archaeological significance and therefore no further cultural resource management action is recommended in this coupe (sic).”

Any sites of Aboriginal heritage seen or suspected during operations will result in an immediate cessation of works and Aboriginal Heritage Tasmania will be contacted. All Aboriginal heritage is protected under the Aboriginal Relics Act 1975.

2.5.2 Non Aboriginal heritage

The wood processing plant is not entered on the Tasmanian Heritage Register and is not subject to provision of the Historic Cultural Heritage Act 1995.

Heritage Tasmania generally recommend that any archaeological features and/or deposits revealed during excavations be dealt with in accordance with Part 7 of the Heritage Council’s Practice Note 2-Managing Historical Archaeological Significance in the Work’s Application Process.

In line with the Tasmanian Heritage Councils Practice Note 2 the following will be implemented if any archaeological item is found:

Any unexpected archaeological features and/or deposits revealed during works will be reported to the Heritage Council. Works will cease and advice will be sought from the Heritage Council or the Aboriginal Heritage Office, as appropriate, on how best to proceed.
3.0 PROJECT DESCRIPTION

The company have operated under a permit to produce 400,000 tonnes of woodchip per annum since 2001 and now propose to progressively change resource type processed to include a greater percentage of plantation timber and to have scope to increase the output to a maximum of 600,000 tonnes. The impetus for the increase has mainly come from the drafting of an Environment Protection Notice (7947/1) for the Artec Pty. Ltd. Bell Bay Woodchip mill by the EPA.

The company considers that the scope for the increase is a proactive strategy for resource type change and a subsequent possible future expansion in output. The increase in production would change the present activities on site to include a second static woodchip machine and would require more production during the existing operating hours (R. Maher pers. comm. 31.5.10); to this end it is proposed to install an additional static woodchip machine at the Bell Bay site (we presently operate one static woodchip machine and one mobile woodchip machine). The proposed new static woodchip machine would have its own system of screens and conveyors for sizing and transporting wood chips to the stockpile area (please refer to proposed location of second static chipper, screens and conveyor location on Site plan 1 on page 42). Both static woodchip machines will operate on electricity and the mobile chipper is powered by diesel, the mobile chipper is utilised when either static machine is being maintained.

The storage of woodchip at maximum capacity would be in the same area as shown in the Site plan; the existing storage area would not change but an increase in output would require more frequent ships to take product (R. Maher pers. comm. 3.6.10). The activity effectively utilises approximately eight hectares of the property for infrastructure such as existing wood processing area, woodchip storage, water treatment (drainage lines and water quality control pond), access, loading areas and parking, weighbridge, offices and workshops.

3.1 Resource

Timber for processing into woodchip is sourced from private land and crown land across the State of Tasmania; recent percentages (November 2010) of resource source are as follows (R. Maher pers. comm.):

- public forests
- sawmill residue
- private property forests

The type of trees taken will vary from plantation timber to native forest depending on the area of operation at the time and also depending on the timeline for the cessation of native forest logging. Royalties are paid for the timber to the owner/s.

The company considers there is an opportunity to expand its operations to encompass a wider scope of product to include hardwood and softwood plantation pulpwood sales; this change would be progressive and the proposed second static woodchip infrastructure would initially be utilised for the present operations and be available for processing the plantation woodchip and any other different product that will require a separate processing unit and storage area. The actual percentages of timber types, for example plantation versus native forest trees and hardwood/softwood percentages are unknown at this stage and would depend on resource availability, market demand and a number of other factors including social and economic forces.

3.2 Wood processing plant methods

The wood processing plant will operate as it has since original establishment using conventional wood processing methods. Annual rates of production are anticipated to be between 400,000 and 600,000 tonnes depending upon supply of resource and demand. The process details for the Bell Bay site are as follows:

- raw material in log form arrives on site via road transport or rail;
- logs are removed from trucks\(^2\) by wheel loader which either places the logs on the woodchip machine platform and immediately processed by woodchip machines or stored on cement apron around woodchip machine or placed in log storage areas;
- woodchips go into a receiving hopper;
- receiving hopper empties to an elevator belt;
- elevator belt feeds to fibre size classifier (screen);
- woodchips are screened in fibre size classifier;
- woodchips are transported on conveyor belt to wood chip pile;
- oversize woodchips are sorted by screen and re-chipped which reduces the woodchip size suitable for export;
- fines are sorted by the screen and fall to a conveyor belt which transports this byproduct to the overhead storage bin prior to collection for a variety of reuses;

\(^2\) Log trucks are not permitted on site until 5 a.m. on any operating day.
Project description

- woodchips in storage pile are loaded into a receiving hopper prior to transport by conveyor belt to link with TasPorts conveyor belt and
- TasPorts conveyor loads woodchips into ship holds prior to export.

3.3 Boundary

The boundary of the wood processing plant area and associated infrastructure encompasses the northern and eastern areas of the site; however, the main impact area is around the woodchip mill (refer to Site Plan). All processing operations occur in the 9.7 hectare area with the exception of loading woodchips onto ships via conveyors and treated stormwater outflow. This proposal will not require additional land area or further changes to present land use on the site.

Stormwater from the processing plant buildings and hard surfaced areas is redirected to the water quality control pond on the site. The stormwater from the hard surfaced areas is treated prior to discharge into the water quality control pond through screens, interceptors and trash racks.

3.4 Wood processing plant operations

There are a number of activities carried out from the arrival of timber at the site and transport by conveyor to ships for export, as follows.

3.4.1 Log storage/processing

As logs arrive at the processing plant either by log truck or by rail the logs are offloaded from the vehicles/carriages and either stored on available areas at the site or placed on a cement apron surrounding the static and mobile woodchip machines. Loaders then place logs on a platform where the woodchip machine operator can access the logs for placing through the woodchip machine.

Plate 10: Log unloading area
Project description

3.4.2 Chipping and screening

The chipping and screening of the majority of production from the processing plant is carried out by the static woodchip machine. This machine has associated screening infrastructure and conveyors that size woodchips and remove fines by-product for later reuse. The company operates a mobile woodchip machine as necessary and this machine is linked to the same screening and conveyor system as the main static woodchip machine. This proposal for a production increase will necessitate the addition of another static woodchip machine and associated screens and conveyors.

Plate 11: Processing operations

The mobile chipper is used principally when static is being serviced or during a breakdown of the static machine.
3.4.3 Stockpiling and ship loading

The processed and sized woodchips are then transported to the hard surfaced (cement) woodchip storage area by conveyor where they are spread by bulldozers. The woodchip storage area where the new static woodchip machine is proposed is presently not used for woodchip storage and will be available for storage of different product as required. When a ship is ready for loading the receiver and conveyor system is engaged and the ship holds are loaded through this receiver, conveyor and hold loading infrastructure. The number of ships is presently about twelve per year, so at maximum output of 600,000 tonnes there would be up to two ships per month.

Plate 12: Ship loading Bell Bay wharf and vessel hold
Project description

3.5 Hours of Operation

The operating capacity will fluctuate slightly throughout the year; however, the hours of operation will be from 0500 hours to 1700 hours for the majority of the time as they are currently. The addition of another static woodchip machine would not change the normal operating hours. Under the EPN (7947/1) the processing plant has the capacity to operate 24 hours per day for six days a week if necessary. The wood processing plant does not operate on Sundays or public holidays.

3.6 Production Capacity

The maximum output will be 600,000 dry tonnes per annum. The output rates will fluctuate throughout the year according to demand. Generally the expected production rate from the woodchip mill will be 400,000-500,000 tonnes per annum (S. Arnold pers. comm.). At the time of writing the processing plant was producing approximately 210,000 dry tonnes per annum-company presently has a permitted production of 400,000 dry tonnes per annum.

The projected production capacity for the financial years 2011/12 to 2014/15 is as follows:

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Projected production capacity (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12</td>
<td>400,000</td>
</tr>
<tr>
<td>2012/13</td>
<td>500,000</td>
</tr>
<tr>
<td>2013/14</td>
<td>500,000</td>
</tr>
<tr>
<td>2014/15</td>
<td>600,000</td>
</tr>
</tbody>
</table>

3.7 On Site Storage, Transport and Emission Points

The storage, transport and emission points on the site are illustrated in the following plans:

*Site Plan 1, which illustrates the following:*

- floor plan showing the location of all major buildings, car parks and access, and future expansion area relative to the property boundaries and
- boundary of the activity.

*Location of all major buildings:*

- office/amenities;
- Fuel storage bund and dangerous goods store;
- enclosures for static woodchip recovery machines (stage 1 and stage 2) and
- enclosures for fibre size classifiers (screens).

*Floor plans, illustrating the following:*

- office/amenities area;
- receiving hopper and conveyor detail (inset 2);
- existing woodchip recovery machine enclosure and
- woodchip size classifier enclosure.

*Site plan 2 illustrates the following:*

*Location of storage areas:*

- proposed diesel fuel and lubricant oil container bunded area;
- loading decks at stage 1 & 2 woodchip recovery machines;
- woodchips storage area and retaining walls;
- log storage areas;
- areas of hard surfacing and internal roads;
- loading and unloading areas;
- waste fines/bark storage area and
- litterbin storage areas.
Project description

Hard surfaced areas and internal roads:
- internal roads/tracks (divided into main truck access route and minor access tracks);
- access from rail spur to log storage area;
- road access for truck off-loading;
- main log unloading apron/storage area to woodchip recovery machine and
- staff/visitor car parking areas (office and workshop areas).

Future expansion areas:
- stage 2 static woodchip recovery machine.

Other:
- location of conveyors from woodchip storage to ship and associated infrastructure.

Site Plan 3 Water quality control systems and monitoring points illustrates the following:

Areas for the discharge of liquid wastes:
- drainage system from site area to water quality control pond with general drainage direction;
- water quality control pond;
- discharge from water quality control pond.

Other:
- location of groundwater boreholes and
- location of monitoring points.

Site Plan 4 Drainage and fire hydrant plan illustrates the following:
- location of fire hydrants;
- fire hydrant spray coverage areas;
- location of fire booster pump at water quality control pond;
- hardstand at fire pump for fire truck access;
- stormwater collection points (also location of interceptor filters);
- stormwater underground piping system locations, lengths and grades and
- location of Ben Lomond water meter.
Project description

Site Plan 1: Location of existing and proposed static woodchip machines and infrastructure
Site Plan 2: Overall site plan
Project description

Site Plan 3: Water quality control systems and monitoring points
Site Plan 4: Drainage and fire hydrant plan
Project description

3.8 Traffic Movements

The traffic movements at full capacity will consist of staff cars (employees and contractors) at a maximum of 30 cars per day and heavy vehicles consisting of log trucks to deliver logs at 77 trucks per day at full capacity (this figure is without any rail transport), trucks to collect fines and waste wood/bark for reuse (at approximately two trucks every day at full capacity) and trucks delivering sawmill waste woodchips (at approximately eight trucks per day at full capacity). The total maximum vehicle movements per day at full capacity would be 77 log trucks, two fines and wood/bark removal trucks, eight trucks delivering sawmill residue woodchips and 30 staff and contractors vehicles giving maximum total vehicle movements at full capacity of 117. The expected average vehicle movements is given in the Table below and gives a total average vehicle movements per day at full capacity of 59 log trucks, one fines truck and 25 staff and contractors vehicles giving average total vehicle movements at full capacity of 85. The figures given are one way only and therefore to get both way vehicle movements the figures are doubled.

Traffic patterns are projected to follow a pattern of the main movements between 7 a.m. and 6 p.m. with low volume truck and car movements after that time.

Rail transport has ceased at the processing plant and it is unknown if the rail transport of logs will recommence. Truck movements for fines product removal will depend on the amount of fines available at any time. However, it is envisaged that these movements will be approximately twice weekly dependent on production capacity.

The projected traffic movements are shown below:

Table 8: Projected average truck and other vehicle movements at Bell Bay site 2011 to 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (tonnes)</th>
<th>Average log truck movements$^4$ / day</th>
<th>Rail transport / year</th>
<th>Trucks delivering sawmill woodchips / day</th>
<th>Waste fines/bark movements / day</th>
<th>Staff and contractors vehicles / year / day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>400,000</td>
<td>11,700</td>
<td>39</td>
<td>0</td>
<td>86</td>
<td>0.33</td>
</tr>
<tr>
<td>2012</td>
<td>500,000</td>
<td>14,700</td>
<td>Unknown</td>
<td>2,400</td>
<td>8</td>
<td>129</td>
</tr>
<tr>
<td>2013</td>
<td>500,000</td>
<td>14,700</td>
<td>49</td>
<td>2,400</td>
<td>8</td>
<td>129</td>
</tr>
<tr>
<td>2014</td>
<td>600,000</td>
<td>17,700</td>
<td>59</td>
<td>2,400</td>
<td>8</td>
<td>172</td>
</tr>
</tbody>
</table>

3.8.1 Transport methods and networks

Transport of logs to the wood processing plant will be by log trucks from the plantation/forest clearing areas around the State to the processing plant on the main roads servicing the State. Heavy traffic movement will operate outside the main town area of George Town.

Transport of the finished product will be by conveyor belt from the processing plant to the shipping area at the Bell Bay wharf. Transport of fines from the area will be by 27 tonne truck on the main road system to reuse sites as necessary.

$^4$ Based on an average truck load of 34 tonnes and the processing plant operating for 300 days per annum.
3.9 Key Items of Equipment

The key items of equipment and their uses are listed below (refer also to Appendix 7: Typical Equipment Specifications). All equipment listed is presently used on site with the exception of the proposed second static woodchip machine.

Table 9: Key items of equipment and use

<table>
<thead>
<tr>
<th>Key Equipment</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static chipper-Mor bark 96 inch 6 pocket</td>
<td>Existing static woodchip machine</td>
</tr>
<tr>
<td>Second proposed static chipper-Mor bark 96 inch 4 pocket</td>
<td>Second proposed static woodchip machine</td>
</tr>
<tr>
<td>Mobile woodchip machine-Mor bark model 30 with V12 CAT motor (diesel)</td>
<td>Mobile woodchip machine-predominantly utilised as back-up to static chippers</td>
</tr>
<tr>
<td>Excavators-CAT Model: 322C x 2</td>
<td>Log moving/earth moving</td>
</tr>
<tr>
<td>Excavator-Kobelco SK 200</td>
<td>Log moving/earth moving</td>
</tr>
<tr>
<td>Excavator-Kobelco SK 210</td>
<td>Log moving/earth moving</td>
</tr>
<tr>
<td>Wheel loader-Komatsu Model: WA600</td>
<td>Log unloading and moving</td>
</tr>
<tr>
<td>Wheel loaders-CAT 950G x 2</td>
<td>Log unloading and moving</td>
</tr>
<tr>
<td>Wheel loader-CAT 966</td>
<td>Log unloading and moving</td>
</tr>
<tr>
<td>Bobcat-CAT 216</td>
<td>Waste bark and wood moving/earth moving</td>
</tr>
<tr>
<td>Bulldozers-CAT D7 H x 2</td>
<td>Woodchip moving</td>
</tr>
<tr>
<td>Bulldozer-CAT D7 G</td>
<td>Woodchip moving</td>
</tr>
</tbody>
</table>

Plate 13: Main processing area and equipment
3.10 Site History

The site has been utilised by other industries in the past, as follows:

Information from George Town Council (refer to Map 2 for appropriate lot numbers), title search of all lots and discussions with TasPorts and George Town Council personnel:

- saw milling operation permit issued in 1974;
- permit for extension to sawmill (a saw shop) was issued in 1975;
- saw mill was destroyed by fire 20-25 years ago;
- after the sawmill fire, mill waste was chipped on the site and provided to TEMCO for use at their Bell Bay plant and
- log storage area by Forestry Tasmania from approximately 1997 to 2001 when Artec purchased the site;

The site history illustrates that the site area has been used for the following activities:
- sawmill site;
- wood chipping site;
- woodchip storage site and
- log storage site.

From 2001 the site has been utilised for the wood processing operations by Artec Pty. Ltd. as outlined in this DPEMP. One event in this period was a fire in a bark/wood by-product pile on the northern side of the site. The fire started from heat produced inside the pile. The fire was extinguished by moving the burning material by machines and by dowsing with water. Contaminated water was directed to the water quality control pond and samples were taken at the time and analysed by accredited laboratory for a number of parameters. The water quality control pond was successful in containing the contaminated water and also in treating pollutants to a suitable standard for release.

3.11 Capital Investment

The capital investment required for the project is estimated to be at least 3.5 million dollars (S. Arnold pers. comm.), consisting of:

- DPEMP document;
- various surveys as necessary for DPEMP;
- infrastructure purchase and development for second static woodchip machine, screens and conveyors and
- licenses and approval processes.

3.12 Employment Details

The projected employment levels will be an extra three full time employees on site directly from the increase in production at the wood processing plant at Bell Bay. The entire operations of Artec Pty. Ltd. employ about ninety full and part time employees at present capacity (S. Brown pers. comm.). The staff compliment consists of the following:

On site staff:
- manager;
- office manager;
- foreman;
- static woodchip machine operators;
- woodchip recovery machine operator;
- bulldozer, loader and excavator operators;
- weighbridge operator and
- log movement operators.

Off site staff:
- forest operators (fallers, skidder/excavator operators);
- log truck and by-product removal drivers;
- office managers.

The projected employment levels will be similar to what they are now off-site with a further three FTE’s at the Bell Bay processing plant and with longer employment periods for part time employees.
There are currently 15 logging contracting companies providing logs to the processing plant. Each of these companies employ varying numbers of people involved in forest operations and log delivery. There are also other sub-contractors employed for the operation of the wood processing plant such as tradespeople including builders, electricians, plumbers, chip analysing and other contractors as required.

The processing plant purchases sawmill residue in a chipped form; this enables not only the reuse of a sawmill by-product but also gives these businesses an outlet for this by-product and an extra source of income for operations and employment.

3.12.1 Occupational health and safety


In order to operate a safe and profitable business all personnel on site are required to hold all appropriate licenses, permits and training necessary to operate in a safe manner. Persons in charge of operators in the wood processing plant area supervise and direct these employees or contractors with the appropriate supervisory competencies under the appropriate industry standards.

3.13 Timetable for wood processing plant transition and expansion commissioning

Upon acceptance of approvals the woodchip mill expansion activities will begin as demand dictates. It is projected that the woodchip mill will increase the present production rates by early 2012 with the possibility for full capacity operation by 2014. This will depend on a number of variables including the timeline of the cessation of logging public native forest, available plantation resource, movement of other companies in the timber industry and demand for product.

The area for the new static woodchip machine and infrastructure has been constructed and this includes the cement slab area for the static machine, screens and other infrastructure and also the drainage input interceptor and underground drainage system back to the water quality control pond which was completed as a water reticulation upgrade of the site-please refer to Site Plan 4: Drainage and fire hydrant plan.

The commissioning of the additional static woodchip machine will entail the following:

1. Construction of sound proof building for static machine.
2. Construction of loading and operating deck for logs and feeding excavator.
3. Conveyor feed into screens (screens already in place).
4. Conveyor from screen outlet to woodchip storage area.
5. Construction of power house (electricity).
6. Construction of fines conveyor and storage area.

These works will not require the use of any TEMCO slag (R. Maher pers. comm.) or any other raw materials. Machinery required to lift walls and equipment largely exists on site (excavators and wheel loaders-refer to Appendix 7: Typical equipment specifications) and therefore only minor additional equipment such as a cherry picker will be required to commission the proposed additional static woodchip machine and infrastructure (R. Maher pers. comm.).

An important additional infrastructure is the construction of the new fuel storage bund and dangerous goods store; presently cleaning fluids are stored in the workshop and fuel in a fuel truck. The construction of this storage area will ensure that hydrocarbons and hazardous/dangerous materials are safely and securely stored (refer to Appendix 10: Fuel storage bund and dangerous goods store).

All construction activities will be conducted during weekdays in the hours from 8 am to 4.30 pm. The additional output from the processing plant will not require any new or altered port facilities as the existing facilities and system will be sufficient to cope with the proposed increase in production (R. Maher pers. comm.).
4.0 ENVIRONMENTAL IMPACTS AND MANAGEMENT

The potential environmental impacts and their management to minimise or alleviate these impacts are discussed in this section.

The fact that the Bell Bay Wood Processing Plant has operated for a long period of time enables a clear understanding of the environmental impacts from the wood processing plant operations. This understanding relates to the general environmental impacts and also the specific issues that relate to the particular site.

The development of this new DPEMP will enable additional environmental controls and additional understanding of these issues and their management in the best manner available, including the latest environmental management methods and technologies developed and refined in the past ten years since the original DPEMP was completed.

The principal environmental issues surrounding the operation of the processing operations and proposed expansion are considered to be as follows:

1. Noise impacts from the additional static woodchip machine and associated screens and conveyor including on site vehicle and processing equipment use, noise from vehicle movements to and from the site and additional ship loadings and associated activity.
2. Increased process water requirements for the additional static woodchip machine and associated water quality (surface and ground) management issues.

4.1 Noise from wood processing plant operations

This has been identified as one of the main environmental impacts from the wood processing plant operation and the increase in wood processing plant capacity will increase the period and quantity of operations in the area. A noise assessment was carried out by VIPAC Engineers and Scientists Ltd. on the major noise sources for the wood processing plant operations, noise surveys were carried out between the 23rd and 25th of October 2010 coinciding with a ship loading and equipment operating and the findings are outlined in Appendix 8.

4.1.1 Noise Sources

The major noise sources identified are on site machinery, static woodchip machines, screens and re-chipper infrastructure and other machinery associated with the wood processing plant operations and truck movements on and off site.

The major noise sources have been identified as follows:

- woodchip recovery machines;
- log loaders;
- bulldozers;
- log trucks;
- fibre size classifying machine and oversize rechipping blower and
- other on-site use of ancillary equipment; excavators, loaders and truck movements.

The overall sound power levels for the major machinery operating at the wood processing plant are given in the Table overleaf. The full noise analysis and assessment for the wood processing plant operations is given in Appendix 8.
Table 10: Sound power levels for wood processing plant equipment

<table>
<thead>
<tr>
<th>Area</th>
<th>PWL&lt;sub&gt;A&lt;/sub&gt;</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static chipper</td>
<td>116.8</td>
<td>Total PWL&lt;sub&gt;A&lt;/sub&gt; for all enclosure openings and log deck</td>
</tr>
<tr>
<td>Re-chipper</td>
<td>116.2</td>
<td>Total PWL&lt;sub&gt;A&lt;/sub&gt; for casing, inlet and discharge cyclone</td>
</tr>
<tr>
<td>Screen house</td>
<td>101.3</td>
<td></td>
</tr>
<tr>
<td>Primary chip conveyor</td>
<td>79.8</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Chip stockpile conveyor</td>
<td>86.2</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Cleated conveyor</td>
<td>77.5</td>
<td>Vipac Library data, PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Saw mill chip conveyor</td>
<td>85.2</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Dozer – CAT D7H</td>
<td>112.4</td>
<td>Measured on three sides at 7 m</td>
</tr>
<tr>
<td>Log Loader – CAT 966G</td>
<td>105.5</td>
<td>Measured on three sides at 7 m, operating at new chipper</td>
</tr>
<tr>
<td>Log Loader – CAT 950G</td>
<td>106.5</td>
<td>Measured on three sides at 7 m, operating at existing chipper</td>
</tr>
<tr>
<td>Log Loader – Komatsu WA600</td>
<td>103.1</td>
<td>Measured on three sides at 7 m, operating at existing chipper</td>
</tr>
<tr>
<td>Bobcat – CAT 216</td>
<td>113.3</td>
<td>Measured on three sides at 7 m, operating at existing chipper</td>
</tr>
<tr>
<td>Excavator – Kobelco SK200</td>
<td>101.4</td>
<td>Measured on three sides at 7 m, operating at both chippers</td>
</tr>
<tr>
<td>Truck – IVECO with CAT 650 engine</td>
<td>97.0</td>
<td>Measured on three sides at 7 m, operating at both chippers</td>
</tr>
<tr>
<td>Chip stockpile reclaim conveyor</td>
<td>80.3</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Chip stockpile to wharf conveyor</td>
<td>74.2</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Wharf front conveyor</td>
<td>75.2</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Ship conveyor</td>
<td>76.4</td>
<td>PWL&lt;sub&gt;A&lt;/sub&gt;/m</td>
</tr>
<tr>
<td>Typical conveyor drive</td>
<td>94.4</td>
<td>Typical PWL&lt;sub&gt;A&lt;/sub&gt; of modelled conveyor drives</td>
</tr>
<tr>
<td>Ship hold chip sling reverberant noise</td>
<td>111.3</td>
<td></td>
</tr>
</tbody>
</table>

4.1.2 Noise assessment

VIPAC Engineers and Scientists Ltd. were engaged to monitor noise from wood processing plant operations under usual working conditions. All major equipment was assessed and a number of measurements were taken in the surrounding area away from the wood processing plant. The noise assessment included modelling for future wood processing plant operations and considered neutral and worst case scenario weather conditions for noise transmission. The following Plate shows a noise contour map for the wood processing plant proposed development in worst case weather conditions without any woodchip pile to mitigate noise transmission to sensitive locations, the eight environmental noise model receivers are as follows:-

1. Site Boundary
2. Deceifful Cove
3. Clarence Point
4. Beauty Point
5. Georgetown
6. East Tamar Hwy
7. Golf Course
8. Wilmores Bluff

Table 11 shows the predicted noise levels at four locations under worst case weather conditions.
Environmental impacts and management

Plate 14: Noise modelling contours for worst-case scenario weather-absence of two woodchip piles

Table 11: Received levels for all modeled scenario under worst-case weather conditions

<table>
<thead>
<tr>
<th>Receiver No.</th>
<th>Overall received levels (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scenario a)</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
</tr>
<tr>
<td>1</td>
<td>64.0</td>
</tr>
<tr>
<td>2</td>
<td>33.5</td>
</tr>
<tr>
<td>3</td>
<td>31.7</td>
</tr>
<tr>
<td>4</td>
<td>28.2</td>
</tr>
<tr>
<td>5</td>
<td>23.3</td>
</tr>
<tr>
<td>6</td>
<td>27.1</td>
</tr>
<tr>
<td>7</td>
<td>30.3</td>
</tr>
<tr>
<td>8</td>
<td>24.6</td>
</tr>
</tbody>
</table>

- Indicates received level above EPN (7947/1) noise limit of 40 dBA at noise sensitive receivers.
- Indicates a receiver that is not noise sensitive.

Scenarios:

a) **All sources with woodchip stockpiles**: Under this scenario both the existing and new static chippers are operational. All mobile equipment is operating on-site including log and chip transport trucks. All noise sources associated with loading woodchip onto the ship are operating as well as three dozers across the two woodchip stockpiles.

b) **All sources without woodchip stockpiles**: This scenario is identical to scenario a) except for the absence of the two woodchip stockpiles.

c) **Night ship loading**: Under this scenario the chip reclaim and wharf conveyors and the woodchip sling reverberant noise from the ship hold are modelled. Within the Artec site two dozers are operating on the woodchip stockpiles.
4.1.3 Noise summary

The summary, conclusions and recommendations from the VIPAC report were as follows:

1. An environmental noise survey of existing operations and environmental noise modelling of a proposed upgrade to the Artec Bell Bay Wood Processing Plant were conducted by Vipac to meet the general requirements for a DPEMP environmental noise impact assessment, as per the ‘Request for Quote’ document provided to Vipac by TEC.

2. Noise emissions from the existing operations at the Artec plant didn’t generate any potential breaches of the plants EPN (7947/1) noise emission limit of 40 dBA. Day time noise levels at the three noise sensitive locations were typically controlled by noise sources in the immediate vicinity of each position. Night time noise levels were typically controlled by emissions from an industrial site located to the north of the Artec plant and/or locally generated noise. The only source identified as originating from the Artec site was dozer track slap. This source was only audible at night at positions 2 and 3 and had little or no affect on overall measured levels.

3. Predicted noise emissions of post upgrade operations at the Artec plant were below the EPN (7947/1) noise emission limit of 40 dBA. Night time noise emission levels were below 30 dBA for both weather conditions that were modelled. The highest predicted noise levels occur under modelling scenario b), (due to a lack of shielding from the woodchip stockpiles) with worst case weather conditions, at receiver positions 2, 3 and 4. Predicted noise levels varied by 10 – 15 dB between worst case weather conditions and typical day weather conditions.

4. The major noise sources within the Artec plant that controlled predicted noise emission levels at receivers 2, 3 and 4 were as follows:-
   - Komatsu WA6000 log loader;
   - Existing and new re-chipper casings and cyclones;
   - Existing and new static chipper enclosure openings (southern side of enclosures).

5. 1/1-octave band predicted spectra at receivers 2, 3 and 4 indicate potential tonality at 125 Hz and 500 Hz. The major sources that contribute to this potential tonality are as follows:-
   - Komatsu WA6000 log loader;
   - Existing and new re-chipper casings and cyclones;
   - Existing and new static chipper enclosure openings (southern side of enclosures).

The predicted 1/1-octave band tonality identified in this assessment doesn’t provide evidence of the presence of tonal energy from the Artec plant within the surrounding environment. The assessment of tonality under the Tasmanian Noise Measurement Procedures Manual is based on a 1/3-octave band data and the 1/1-octave band predictions presented here don’t provide the required data accuracy. The presence of tones in the community form the sources listed above would need to be confirmed via measurement. Should tones from these sources be identified then the following noise controls may be required to remove the tonal energy:-
   - **Komatsu WA6000 log loader**: Source a quieter log loader; or upgrade the exhaust muffler, upgrade the engine enclosures transmission loss and install a radiator silencer.
   - **Re-chippers**: Enclose the re-chippers in an adequate acoustic enclosure and install a discharge silencer.
   - **Static chipper enclosures**: Close-off the southern openings in the static chipper enclosure with a material that provides an adequate transmission loss. These openings include the primary chip conveyor opening, clean out door and upper equipment door.

6. The major noise sources outlined above also have the potential to be impulsive as defined under TNMPM, in particular noise emissions associated with the static chippers and re-chippers. Impulsiveness is considered to be an intrusive characteristic and adjustment to measured levels is required under the condition N2 of plants EPN (adjustment for tonality is also required under this condition). Assessment of impulsive noise can’t be undertaken from the modelled results and would need to be confirmed via measurement. Impulsive noise emissions from the site were not observed during the environmental noise survey conducted for this DPEMP. Should they be in the future then noise controls outlined above for potential tonality may need to be implemented.

7. Vipac recommends that an environmental noise survey of the Artec Bell Bay Wood Processing Plant be undertaken following the completion of the proposed plant upgrade. The survey would demonstrate compliance/or non-compliance with the plants EPN (7947/1) noise emission limit. The survey should be conducted to meet the requirements of conditions contained in the permit issued.

8. During the construction phase of the proposed upgrades it is highly unlikely that noise emission levels from the Artec Bell Bay Wood Processing Plant would exceed the plants EPN (7947/1) noise emission limit of 40 dBA. The major noise sources that are likely to be on-site during the construction phase would be cranes and associated mobile equipment. Provided the total sound power level of the cranes and mobile equipment associated with construction doesn’t exceed 110 dBA noise emissions from the plant are unlikely to increase significantly. Construction should also be limited to the day period. Ambient noise levels are generally lower during the night and construction activity during this period could be audible within the community.
Environmental impacts and management

4.1.4 Noise management

The strategies to mitigate noise pollution emanating from the operation of the wood processing plant have been derived from tests carried out on major noise producing machinery and modelling of a number of weather and operational scenarios. The recommendations have taken into account the following factors:

1. Source type (point, line, plane).
2. Relative source and receiver height.
3. Topography and barriers.
4. Industrial buildings as sources and/or barriers.
5. Ground absorption.
6. Distance attenuation.
7. Atmospheric conditions including pasquil stability, temperature, humidity and vector wind speed.
8. Reflecting surfaces.

The general strategies that will be employed to mitigate noise pollution from the operation of the wood processing plant are as follows:

- adherence to the Noise Management Plan;
- on site machinery will be fitted with high performance environmental noise control of fully enclosed engines, double muffled exhausts and engine cooling air inlet silencers;
- mobile equipment will be fitted with backing alarms conforming with appropriate standards and
- telephone sirens or claxons will not be used or installed on site.

Traffic movements after 6 p.m. will involve a low volume and any rail delivery will be between the hours 8 am to 5 pm., these factors will minimise noise pollution from traffic and other transport movements.

The register of complaints will be maintained and acted upon if noise from the wood processing plant is adversely affecting the community.

4.1.5 Noise management plan

As part of the environmental noise impact assessment the company also commissioned VIPAC to provide a management plan for the management of these impacts. The following management plan for noise is largely based on management advice provided in that assessment.

4.1.5 (a) Aim

To minimise and control environmental noise emissions from the Artec Bell Bay Wood Processing Plant and meet Environment Protection Notice (EPN) conditions.

4.1.5 (b) Background

Noise sensitive residential areas are located to the north at Deceitful Cove and George Town; to the east and south-east across the Tamar River at Clarence Point and Beauty Point; and to the south in the Rowella area. A single dwelling located on the East Tamar Hwy and a residential apartment block at George Town Golf Course also have the potential to be influenced by noise emission from the Artec plant. A number of other industrial sites in the Bell Bay area also contribute to immission levels in these residential locations. Noise emissions from the Artec plant to these locations are also heavily influenced by atmospheric conditions with potential variations of up to 15 dB with changes in weather.

Artec have undertaken to understand, monitor, and manage noise emissions from operations at their Bell Bay Wood Processing Plant to meet the relevant EPN conditions.

A hierarchy of controls will be used to manage environmental noise emissions and engineering noise control will be the first priority.
4.1.5 (c) Roles and responsibilities

**Wood processing plant manager**

Plant Managers (or their designated representatives) will be responsible for:-

- Meeting the relevant EPN/permit conditions.
- Ensure that the Noise Management Plan is fully implemented.
- Facilitate conditions to allow out performance of the relevant EPN/permit conditions whenever possible.
- Actively support a ‘buy quiet’ policy for the operations.
- Monitor operational performance to ensure compliance with relevant EPN/permit conditions.
- Update the Noise Management Plan as required.
- Prepare environmental reports to meet all legislated requirements.
- Manage investigations of, and response to, environmental incidents or complaints.
- Facilitate training for all employees and contractors as appropriate on environmental noise management and control.

**Staff and contractors**

All personnel are responsible for:-

- Their own actions, and have a duty of care to the environment and each other.
- Must comply with all Artec’s requirements for, reporting, managing and rectification of environmental noise issues at their Bell Bay Wood Processing Plant.
- Carry out all work, or work related activities, to minimise environmental noise emissions.
- Provide advice or suggestions on noise control options where appropriate.

4.1.5 (d) Procedures

Artec undertake to develop an Environmental Noise Management Plan to comply with any relevant EPN conditions for their Bell Bay Wood Processing Plant.

- Conduct an annual review of plant’s environmental noise model and where equipment usage and/or operations have changed significantly upgrade the model to reflect these changes.
- Prior to any future plant upgrade review and upgrade the environmental noise model to assess likely compliance with the relevant EPN conditions following the upgrade.
- Conduct periodic environmental noise monitoring of the plant’s operations as follows:-
  - Tri-annually to meet the requirements of condition N3 of the EPN (7947/1).
  - Within 3 months of commissioning of the new static chipper and associated equipment.
  - Within 3 months of changing the operating methods and/or equipment used on site.
- Establish procedures for recording, reporting, investigating and acting on any noise complaints.

4.2 Surface and Ground Waters

4.2.1 Surface water

Stormwater from the site area is diverted to a water quality control pond constructed on the site. The water quality control pond is a sedimentation pond designed for the treatment of pollutants emanating from stormwater runoff from the site area—refer to Appendix 4: Water quality control pond for details on pollutants and target outflow quality.

Stormwater from the areas around the processing plant are directed through interceptors to collect sediments and pollutants prior to release to the water quality control pond.

The surface area of runoff is 97,670 square metres. This area will potentially produce 66.41 megalitres of run-off in an average rainfall year (680 mm per year at a runoff coefficient of 1.0). The water quality control pond captures stormwater from the processing area which includes the woodchipping and processing area, workshops, access, unloading and loading aprons, log storage and product storage areas. This area of processing infrastructure and activity covers an area of about 4.1 hectares and includes the area of the proposed new static woodchip machine and associated infrastructure.

The discharge from the water quality control pond is directed to a natural water channel on the northwest of the site through a stabilised drain with some sections rock filled drain to prevent erosion.
Environmental impacts and management

4.2.2 Ground water

Information for the wood processing plant area on groundwater resource depth, quantity and quality has been obtained from the three groundwater bores installed in early 2005 and subsequent sampling and testing for a number of parameters—see Appendix 6: Monitoring procedures, parameters and frequency.

The groundwater resources in the region are an extremely important component of the water system that contributes to the environmental flows in the surface water system, especially during the summer months. The aquifers in the region are mainly replenished by infiltration of rainwater into the soils and sediments.

The impacts of the wood processing plant operations and proposed expansion on the groundwater resource will be managed by ensuring pollutants do not enter the water system (surface and ground) and the proper treatment of waters emanating from the site by interceptors and water quality control pond.

The monitoring regime outlined in the Table of Monitoring for the water quality control pond could be an important indicator of any potential damage to the groundwater resource resulting from pollutants on site. The regular monitoring of the four values of Biochemical oxygen demand, Suspended solids, Oil and grease and pH can give an indication of the quality of surface water treated in the water quality control system. This demonstrates the importance of regular water quality monitoring and baseline value collation. Early monitoring of groundwater was largely in response to the use of TEMCO slag for hardstand on the site; this proposal is not expected to have any detrimental effect on groundwater quality or quantity.

4.2.3 Water management

Stormwater from the areas around the wood processing plant will be directed along drainage lines and through sediment and pollutant traps to collect sediment and other coarse fibres and contaminants prior to release to the water quality control pond.

Sediment trapped by the sediment barriers will be cleaned out either on a six monthly basis, at 15% storage volume and after high rainfall events. The sediment trapped will be extracted by licensed contractor. All fuels and oils will be stored in fully bunded areas to prevent loss of contaminants to the storm water system.

Drainage lines at the wood processing plant directing water through the sediment and pollutant interceptors and to the water quality control pond will be maintained and constructed to ensure all water flows through this system and not elsewhere on or off the property. Regular water quality monitoring will be carried out on the water in the water quality control pond, and on the shallow aquifer groundwater bores as outlined in the Table of Monitoring. Timing and procedures for water sampling are given in Appendix 6: Monitoring procedures, parameters and frequency. The location of surface and ground water monitoring points and bores are given in Site Plan 3: Water quality control system and monitoring points. The Australian Guidelines for Water Quality Monitoring and Reporting 2000 (ANZECC, 2000) are used for the water quality monitoring and reporting on the basis that:

“Water quality must be measured (monitored) regularly and the results analysed, interpreted, reported and acted upon to achieve effective concerted management. Water quality monitoring is necessary to:

- reinforce environment protection policies and programs, and help control pollution;
- underpin the State of the Environment reporting and National Audit reporting and
- develop water quality standards and guidelines against which to assess monitoring data sampling.”

The remnant vegetation in the natural water course from the water quality control pond where the water outflows will be maintained as an important natural water treatment asset.
4.2.3 (a) Water quality control pond

The design for the water quality control pond to treat pollutants from runoff has been derived from an urban stormwater treatment design. Calculations for the existing water quality control pond for the site area are shown in Appendix 4.

The water quality control pond dimensions are as follows:
- catchment area = 4.1 hectares\(^5\);
- surface area = 0.93 hectares;
- depth = 4.5 metres average;
- detention time = 47.5 days;
- capacity = 4,212 m\(^3\) (4.2 megalitres) and
- dimensions = 38 metres x 9 metres x 4.5 metres (main westerly section) and 15 metres x 39 metres x 4.5 metres (smaller easterly section-divided to make calculations).

Site details for stormwater runoff:
- area for stormwater runoff treatment = 4.1 hectares;
- one in twenty year storm event = 3.5 mm per hour per 24 hours or 1,102.08 litres (at a runoff coefficient of 0.32\(^6\));
- average rainfall year = 678 mm and
decile 9 rainfall average per year = 881.3 mm (from Low Head statistics and which gives a 90\% chance of rainfall being equal to or less than the 9\(^{th}\) decile average).

The stormwater treatment that will be in place to treat runoff from the site will improve the present water quality by the following:
- capture of coarse fibre s and sediments;
- intercepting contaminants and
- a water quality control pond that will serve to trap any sediment, breakdown organic material and contain first flush contaminates\(^7\).

Total water quality control pond water volume is derived from the foregoing calculations, as follows:

- annual runoff and retention time required = 1,131 m\(^3\);
- addition for sedimentation = 226 m\(^3\);
- addition for the 72 hour 1 in 20 year storm event = 1,700 m\(^3\) and
- addition for process water = 351 m\(^3\).

Total water volume of water quality control pond required = 3,408 m\(^3\).

Actual volume of water quality control pond = 4,212 m\(^3\).

The present situation on the site for the treatment of stormwater runoff is the facilities existing are adequate for the present operation and with the proposed additional static woodchip machine the existing water quality control pond is adequate to treat the surface water quality discharging from the site.

The quality of the water discharging from the water quality control pond will be monitored to ensure the quality complies with the discharge limits contained in the processing plant EPN (7947/1). Monitoring will be necessary to ensure that erosion of the rock filled outflow from the water quality control pond does not occur and to ensure that water quality is to a standard for outflow to an inland waterway. The water quality is monitored every six months and tested for ph; suspended solids; biochemical oxygen demand and oil and grease. The outlet zone is monitored on an annual basis and after high rainfall events—refer to Appendix 6: Monitoring procedures, parameters and frequency.

The calculations for the size of the drainage system have been derived using the Design Rainfall Intensity Diagram from the Hydrometeorological Advisory Service for the site area (refer to Appendix 3). The calculations are based on a one in twenty year rainfall intensity event at a one hourly interval, which is the average recurrence interval (ARI). The storm event for this location is 29 mm. To enable the drainage system to have sufficient capacity to cope with a storm event of this type it has been constructed to take a rainfall event of 29 mm in a 1 hour period.

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\(^5\) Approximately 42\% of the land area of the processing site (9.7 ha) is captured by the water quality control pond system and this area represents the high impact area of processing infrastructure, main access, loading and unloading areas and product storage.

\(^6\) The processing plant land use class has been placed under type 5 which is bare loam, suburban residential with gardens; this type is seen as similar to the processing plant catchment area with some buildings, bare earth and woodchip stockpile.

\(^7\) Environment Protection Authority, New South Wales. Stormwater First Flush Pollution.
Environmental impacts and management

4.2.3 (b) Hazardous materials

The hazardous materials that will be used on site are petroleum and cleaning products as follows:

- diesel fuel for the Processing Plant and associated machinery (5000 litres);
- lubricating oils for motors and waste oils for recycling (200 litres);
- heavy duty caustic degreaser (20 litres);
- cleaning agent-truck wash (20 litres) and
- domestic cleaning agents for office (up to 20 litres).

Hazardous chemicals will be stored on the site in the Dangerous Goods Store.
No petrol will be used or stored on the site.
Vehicle servicing will not be carried out on site.

These hazardous materials will be stored in a fully bunded and enclosed area of 14,500 litres capacity—refer to Appendix 10-Fuel storage bund and dangerous goods store. When refueling or oil changing is carried out at the wood processing plant the works will be either carried out in the bunded areas or a mobile bund utilised to catch any spillage. Additionally spill kits will be kept and maintained on site.

4.2.3 (c) Fire fighting water

The water quality control pond will be utilised as a source of fire fighting water in the case of a bush or infrastructure fire on the land area. The water quality control pond could also act as a source of fire fighting water for off-site fire fighting.

4.2.3 (d) Inland water contamination

Contamination of the inland waterways by sediment from wood processing plant operations is a consideration. High quantities of sediment can potentially cause harm to the environmental sustainability of the inland waterways and the aquatic life if they enter the water.

Aquatic threatened species that may occur in the region are the Australian Grayling (Prototroctes maraena) and the Green and gold bell frog (Litoria raniformis). Any impact on these species from sediment release into the waterways would be unacceptable; these species do not occur on the site.

The water from the wood processing plant will be intercepted along the drainage line by sediment and pollutant traps prior to discharge into the water quality control pond. The water quality will be monitored at the discharge point from the water quality control pond to the inland waterway to ensure sediment loads are suitably treated by the systems prior to discharge (see Table 13 Program of monitoring).

4.2.3 (e) Contaminated fire water management

Internal drainage runs to the water quality control pond that will contain any contamination.
Further removal of this effluent will depend on its contents and would need to be assessed by a senior staff member in conjunction with the Environment Protection Division of the Department of Primary Industries, Parks, Water and Environment as necessary under Section 32 (2) of the EMPCA, in the event of such an occurrence. A previous fire on site in a pile of bark and wood by-product demonstrated that the existing water quality control system was able to contain fire suppression water and to treat the additional water prior to outflow. Amounts of water used on any fire event depends on the size and intensity of the event.

4.2.3 (f) Sewage and grey water

There are two sewage and grey water treatment facilities on the site. The oldest is an existing system of two septic tanks and French drain that treats sewage and grey water from the crib room and toilets (refer to Site Plan 2: Overall site plan for location). The other system was installed to treat sewage and grey water from the weighbridge and office areas (refer to Site Plan 2). These septic tanks are regularly pumped out and monitored by the Environmental Management Team as per the monitoring schedule outlined in the overall site monitoring Table in Appendix 6: Monitoring procedures, parameters and frequency.
As required the septic tanks are pumped out by licensed contractor. Outflow from both systems is into absorption drains.
Environmental impacts and management

4.3 Dust

4.3.1 Dust impacts and sources

The main risk of dust emanating from the wood processing plant site will come from the following:

- processing operations on site from log to woodchip and associated fines produced and
- truck movements on sites internal roads and movements to and from the wood processing plant site.

The main risk of dust emanating from the wood processing plant site could potentially come from the waste fines storage. The storage of this material prior to removal for various reuses is now in a fully enclosed overhead bin, when the processing plant commenced activities the fines were stored in an area with a concrete base and three walls to mitigate the blowing of dust from the stockpile. The enclosed area was of sufficient size to contain two truck loads (54 tonne), allowing time for removal arrangements.

Logs are barked before arrival on site and the waste fines and bark come from general waste, which is screened after chipping. The potential for fugitive chips and dust from the chip storage area is considered minimal given that fines and bark are removed from this product by screening prior to storage. The size of the woodchips minimizes the risk of them becoming airborne.

Transport of woodchips and waste fines and bark are by conveyor belts that are covered to prevent them becoming airborne.

4.3.2 Dust management

The source of highest risk of airborne dust from the site area is from the sizing screens, vehicle movements (excavators, loaders and log trucks) and from transport of finished product and by-product to safe storage areas. Dust can cause a nuisance to neighbours and also wood processing plant employees and contractors. Internal tracks and roads will be dampened down in periods of dry and windy weather or when dust escapes property boundaries.

The accepted practice is to retain dust emissions to the wood processing plant site area. The type of material produced at the Bell Bay Woodchip mill is a large woodchip with no dust producing potential; the by-product from processing of fines has potential for becoming airborne if not transported and stored correctly.

One of the main dust emission issues that affect off site areas is the movement of log trucks to and from the site on unsealed roads. The other source of dust from the truck movements is fines loaded trucks leaving the site and the potential loss of dust from the load. Transport of all fines from the site will be either by dampened load or covered load to prevent them becoming airborne.
Environmental impacts and management

4.4 Landform Disturbance

The site is vulnerable to water and wind erosion after disturbance and active management is necessary to prevent this from occurring at the wood processing plant site, access roads, car parking facilities and drainage lines and water quality control pond walls and outflow.

Risk of erosion from processing activities is mitigated by the following methods:

- no bluffs or embankments after disturbance;
- end of disturbance area cuts of an angle of less than 30 degrees to avoid wind/water erosion;
- revegetation of disturbed areas;
- monitoring of disturbed areas, especially in the initial period after disturbance;
- access roads to follow contours to avoid large cut batters and
- stockpiling of topsoil during construction for later use in rehabilitation.

Erosion from stormwater run-off from the hard surfaced areas will be directed to the water quality control pond at the northern side of the site to slow the water flow rate and facilitate slow filtering and treatment of the stormwater.

As this is an existing wood processing plant most of the disturbance for infrastructure such as access roads, loading areas, material stockpiling areas, drainage lines and water quality control pond has been completed. The proposed expansion will necessitate no further disturbance, management of erosion will continue as described above.

4.4.1 Access road and car parking

The existing access will be utilised for the processing of product, storage of final product and access for vehicles. The woodchip mill expansion will not require additional access road construction or car parking areas.

4.4.2 Landform management

Measures and circumstances that combine to minimise the visual impact of the wood processing plant site and expansion proposed are as follows:

- highest infrastructure of 10.5 metres;
- green coloured exterior of the processing plant buildings;
- retention of native vegetation backdrop when viewed from the Tamar Estuary and Beauty Point area;
- appropriate landscaping and tree planting in the front and northern and eastern side of the Processing Plant area;
- processing plant is not visible from the main Launceston to George Town Road (East Tamar Highway).
4.5 Wastes and by-products

The fuels, oils and other hydrocarbon liquid waste on site will all be stored in the bunded fuel storage area—refer to Appendix 10. All refueling and maintenance operations on site will be carried out with bunding to capture any spillage. Solid waste from meal packaging and other personal and work related items will be managed as outlined below. All waste oil is recycled through a licensed company.

4.5.1 Liquid emissions

There will be one main source of liquid emissions from the wood processing plant operations, as follows:

4.5.1 (a) Stormwater

Stormwater from the wood processing plant hard surfaced areas is redirected to the water quality control pond on the site. The stormwater from the hard surfaced areas is treated prior to discharge into the water quality control pond through primary interceptors.

Stormwater from the surfaces impacted by the operation of the wood processing plant is captured by appropriate drainage and gutter systems and filtered by sediment interceptors to capture coarse suspended pollutants, contaminants and sediments from the site area, vehicles and machinery, prior to dispersal towards the water quality control pond. Sediment barriers capture sediment and coarse fibres for collection by accredited contractor for disposal. These interceptors are regularly cleaned out by registered waste collection and disposal companies—refer to Appendix 6: Monitoring Procedures, Parameters and Frequency. Irrigation of the woodchip machines by sprays at the log chipping throat flows into the drainage system to the water quality control pond.

4.5.2 By-product Management

Artec Pty. Ltd. have demonstrated that a wood/bark/fines by-product can be re-used for a number of important environmental works and that through the adoption of environmentally sustainable management policies, principles and actions a by-product can be managed in an environmentally, socially and financially responsible manner.

A large stockpile of wood/bark by-product that was contaminated with rocks and soil was re-used to rehabilitate a 58 hectare quarry and in rehabilitation and covering of closed refuse sites. The issue of how to deal with the by-product in the long term was addressed with changed management practices and infrastructure installation resulting in 75% of the by-product being uncontaminated. This uncontaminated product is now re-used in cattle feed lots where it is used as a base in the feed lot yards for a period of about a month and then sold-on as organic fertiliser/soil conditioner to farmers, nurseries and the general public.

Artec Pty. Ltd. has turned a by-product that was a liability into an environmental, social and financial asset. Artec produce 38,400 cubic metres of by-product wood and bark each year from the processing of logs into woodchips at the processing plant at Bell Bay. The preferred avenue of dealing with this by-product was to re-use and the company tried a number of avenues to enable the re-use of this product, as follows:

- private company mulching the product for re-sale to gardeners;
- as a boiler fuel for producing electricity and
- as a covering for refuse sites (operating refuse sites interfaces and for rehabilitation of closed refuse sites).

The George Town Council approached the company after we had meetings and communications with the Council over road access to an area where the by-product was to be transported for mulching by a private contractor. The Council had completed use of a gravel quarry at Lefroy which required rehabilitation. The company agreed to rehabilitate the quarry as the quarry is close to the Bell Bay operation and it enabled full re-use of the by-product. The company have provided all funds for the quarry rehabilitation (cost greater than $500,000) including the production of a Rehabilitation Plan (a comprehensive 41 page document with Works Plan), all loading and cartage, operations at the quarry for spreading the by-product revegetation works and continued comprehensive monitoring and weed control.

The rehabilitation of the quarry has cost the company considerable time and money and is in keeping with the company’s new direction of environmental sustainability. The spreading of wood/bark on the quarry was completed in August 2007 and the rehabilitation is now officially completed. The issue of how to deal with the by-product has now been addressed with a cement apron at the log off-loading area which was completed by July 2007 in conjunction with changed management practices to minimise contamination of the wood/bark with rock or other materials. The result has been 75% of the by-product being uncontaminated and now re-used in cattle feed lots where the product is used as a base in the feed lot yards and then sold-on as organic fertiliser/soil conditioner. The aim of stockpiled by-product on site prior to removal is for it to not exceed 120 cubic metres.
Environmental impacts and management

Fines are stored in a fully enclosed overhead bin, collected on a regular basis and reused at a number of industry sites in northern Tasmania as boiler fuel, including McCain’s Smithton and Top Centre Laundry in Devonport (L. Walkden Enterprises Pty. Ltd pers. comm.). In the past most of the fines by-product was utilised in boiler at Burnie’s APPM paper mill; this mill closed in mid 2010 and now most of the fines are utilised by the McCain’s factory at Smithton.

Sawmill operations chip their sawmill residue at source, the residue is then purchased by Artec and sold; this reuses sawmill residue and the Artec processing plant provides an outlet and economic benefit for sawmills by-product.

A full discussion of the reuse of by-product is given in Appendix 5.

4.5.3 Litter

Litter from the operation of the wood processing plant site, staff, and visitors will need to be managed so it does not impact locally, especially on the quality of water runoff from the site through contamination of stormwater runoff. Litter will consist of general personal waste from staff and waste from the wood processing plant operations.

George Town Council operates a waste transfer site at the George Town Waste Transfer Station on Mount George road. Litterbins with closing lids will be utilised on the site to prevent litter scattering.

4.5.4 Waste and by-product management

Environmental impact from litter on site will be minimal given the following will be in place:

- litter bins with lids and
- removal of litter to the George Town Council refuse site weekly.

Oil spill kits will be kept on site and all oils and fuels will be removed from the site for proper reuse/recycling or disposal as appropriate. The company already has a system of used oil storage at the site and collection by licensed contractor. Tyres are disposed of correctly and removed on a regular basis.

All by-products of fines and wood/bark will be reused for a variety of purposes and the company continues to pursue avenues of reuse for these products.

Litter from the wood processing plant operation, staff and visitors will be held in a bin with a secure lid and litter removal will be once a week to the Council refuse site.

Trapped sediment from the interceptors is collected on a regular basis (see Appendix 6-Table 1 Date triggers for environmental management tasks and actions) by licensed contractor.

4.5.4 (a) Waste reduction

The key strategies to minimise waste products from the operation of the wood processing plant and the proposed expansion are as follows:

4.5.4 (b) Stormwater runoff

Stormwater runoff will be treated for contaminants and sediments and these will be captured by interceptors prior to directing to the water quality control pond. This sediment resource will be disposed of by licensed contractor.

Any excess stormwater runoff from the water quality control pond will then be redirected to the natural watercourse on the northwestern side of the site.
4.5.4 (c) Recycling of general waste stream

Recyclable materials from the operation will be separated and recycled through the George Town Council recycling system at the Mount George road Waste Transfer Station.

4.5.4 (d) Oil recycling

Oils and hydraulic fluids will be emptied as necessary and recycled. Tasmania has facilities to recycle engine oil, oily waters, lubricating oil, hydraulic oil, bilge water, ship oil and gearbox oil (Waste Recovery and Recycling Directory 1999).

The company uses a 1,000 litre storage tank at the site for all used oil storage and then removal on a regular basis by licensed contractor.

4.5.4 (e) By-products

The reuse of the by-products will continue and the company is continually pursuing avenues for the reuse of these products; presently the by-products are reused for the following purposes:

Fines: Boiler fuel; mulching.

Wood/bark: base at cattle feed lots and then converted to soil conditioner; clean cover for refuse sites.

The company will also continue to accept by-product from sawmills of off cuts which are chipped.

4.6 Air

The main air emission issues are from two sources; dust from wood processing plant activities and carbon dioxide from diesel motor burning and a percentage of electricity use sourced from the Latrobe Valley brown coal power station, as follows:

4.6.1 Air emissions

4.6.1 (a) Greenhouse emissions

Greenhouse gas emissions have been calculated for the Bell Bay wood processing plant operation using the best available information—please refer to Appendix 9 for a full discussion of greenhouse gas emissions. The main greenhouse gas emissions from the processing plant operations comes from diesel fuel usage for various on and off site operations; electricity use on site and land clearing. The Department of Climate Change and Energy Efficiency has produced a new calculation publication in July 2010 to enable the calculation of GHG emissions from various operations in Australia (DCCEE, 2010 (c)) and this calculation publication has formed the basis for the calculations made for the processing plant operations.

The four main greenhouse gas emissions are as follows:

**Machinery on site**

This results in a total greenhouse emission per annum for the processing plant at present capacity at 12,316 tonnes of CO2-equivalent (CO2-e). This includes the global warming effect of the CH₄ and N₂O emitted. The use of the full fuel cycle includes emissions associated with the production and transport of the fuel.

The fuel usage at 600,000 tonnes would be 65% greater than the present figure of 34,000 litres per month. The present emissions of 12,315.561 t CO₂-e at full capacity would be 20,320.675 t CO₂-e. The relationship between a straight one to one increase in fuel usage with production increase is the maximum as the relationship is most likely less than 100% (R. Maher pers. comm.) but this has been used as a conservative factor.
Environmental impacts and management

Transport

At the present production rate the green house emissions per annum are 27,537.23 t CO2-e. The estimated total greenhouse gas emissions per annum at the proposed full capacity production rate relating to the processing plant operations and transport of logs is 78,677.8 tonnes of CO2-equivalent (CO2-e).

Electricity use at processing plant

The annual power consumption at the processing plant at the present operating level of 210,000 dry tonnes is 9,300 Kwh per day x 365 = 3,394,500 Kwh. The scope 2 indirect factor for Tasmania is 0.32 (DCCEE 2010 (c)).

Emissions of greenhouse gases (scope 2) in tonnes of CO2-e are estimated at present capacity as 3,394,500 x (0.32/1000) = 1,086.24 tonnes. Considering all things are equal then adding 65% will give the electricity use at the proposed full production rate (including additional static woodchip machine) of 600,000 tonnes or 1,792.30 t CO2-e.

The total greenhouse gas emissions from the above uses are shown in the Table below.

<table>
<thead>
<tr>
<th></th>
<th>GHG emissions at present production rate (210,000 DT) in t CO2-e</th>
<th>GHG emissions at maximum production rate (600,000 DT) in t CO2-e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery at processing site</td>
<td>12,315.561</td>
<td>20,320.675</td>
</tr>
<tr>
<td>Transport</td>
<td>27,537.23</td>
<td>78,677.8</td>
</tr>
<tr>
<td>Electricity</td>
<td>1,086.24</td>
<td>1,792.30</td>
</tr>
<tr>
<td>Totals</td>
<td>40,939.03</td>
<td>100,790.77</td>
</tr>
</tbody>
</table>

Timber resource and emissions

The majority of the timber resources utilised by the company come from forests that are left to regenerate back to the same forest type. The present estimate of timber sources is approximately 2.5% private property (R. Maher pers. comm.) and the remainder from public forests managed by Forestry Tasmania. The conversion of native forest to plantation by Forestry Tasmania has ceased. Forestry Tasmania has not initiated any clearing of native forests for plantations since December 31, 2006 in accordance with the Australian Forestry Standard. Approximately 2% of the present timber resource is from areas that are not replaced by native forest or plantation (S. Arnold pers. comm.).

There is much research and debate surrounding the carbon sequestration provided by the timber industry and it has been stated that: “The forest and wood products industry is one of the few industries that are carbon positive. The combination of carbon sequestration in growing trees and the long term carbon storage in wood products represents a significant net store of carbon…” (DAFF, 2007, p. 64).

4.6.1 (b) Dust

Covered as a main issue of its own in section 4.3.

4.6.1 (c) Odours

Odours from the wood processing plant site are considered to be a minimal risk. The frequent removal of any rubbish from the site will eliminate any odours through the rotting / composting of this material, this aspect is only minimal and the nearest residence to the site is at Deceitful cove which is approximately 2.1 kilometres in a west north west direction (112 degrees) which is on the prevailing wind side of the processing plant.

Mitigators in this instance to prevent odours will be as follows:

- remove litter to George Town Council refuse site at Mount George road Waste Transfer Station weekly and
- treat surface water in water quality control pond to a high standard.
4.6.2 Energy

There will be three main types of energy used in the processes, electricity, diesel and unleaded fuel.

A diesel motor will power the mobile chipper and on site machinery (refer to Table 6: Key items of equipment and use). Other vehicles such as staff and contractors cars and log trucks are internal combustion engines. For calculations of total greenhouse gas emissions see Section 4.7.1 (a).

4.6.3 Air management

The potential for fugitive dust from crossing the boundary of the site is minimised by the infrastructure and management listed above. A further mitigator to prevent fugitive dust from crossing the boundary of the site is the location of the woodchip and fines storage areas internally in the wood processing plant area. This placement will assist with the prevention of airborne materials from crossing the boundaries. The fines storage is in enclosed overhead bin.

If monitoring identifies that fugitive dust is becoming airborne and crossing boundaries then the offending source areas can be dampened by spraying water from the water quality control pond. Monitoring of dust is carried out daily by the Manager and another potential trigger would be any complaints from neighbours about dust.

The internal roads will be dampened during dry and windy conditions to prevent fugitive dust crossing property boundaries. Water is available from the water quality control pond and an electric water pump is located at the water quality control pond for on site for water movement. The company has recently converted an old fuel truck into a water cart which is available for dampening internal roads as necessary.

4.7 Fire Hazard

4.7.1 Processing operations

The main risk of fire on the wood processing plant site will come from the processing operations on site. The site has a full system of fire hydrants strategically placed around the site which are regularly tested-please refer to Site Plan 4: Drainage and fire hydrant plan.

4.7.2 Litter

Litter will be removed on a regular basis to prevent the risk of combustion from long-term storage.

4.7.3 Oil and fuel storage

The risk of fire hazard from diesel fuel storage (in fuel storage bund and vehicles on site) will be mitigated by storage in locked buildings and vehicles.

The access road into the wood processing plant is also locked when staff or contractors are not on site which reduces unlawful access and reduces the risk of arson. There is also security fencing on the eastern boundary of the site near the main road access. No fires will be lit on the wood processing plant site by staff or contractors. Access to the site from the Bell Bay wharf area is also accessed by TasPorts permit holders and the area is heavily regulated and monitored.
Environmental impacts and management

4.8 Biodiversity and nature conservation values

It will not be necessary to remove any vegetation for the wood processing plant expansion as the site for the additional static woodchip machine and storage area is already cleared and has a cement slab base, the area is free of any vegetation. Advice from the Environment Protection Authority was that a flora and fauna survey was not necessary; the Project Specific Guidelines did not require a survey.

4.8.1 Native vegetation and wildlife

There will be no new, previously undisturbed land affected by the proposed increase in production and associated infrastructure. The general operations of the processing plant consider the local flora and fauna by ensuring that stormwater is treated to a standard that ensures no detrimental effect on flora and fauna-terrestrial and aquatic (fresh and marine). In the past few years it has been common to have Wedge-tailed eagles at the site on a regular basis. No other listed species have been observed on the site.

4.8.2 Landforms

The wood processing plant is situated on the Badger Head road Land System which is on gently undulating plains formed on Tertiary gravels, sands and clays (Pinkard, 1980). Protection of this landform on site will entail the minimal disturbance to the ground surface outside the wood processing plant site and the rehabilitation of areas after disturbance to prevent erosion.

4.9 Social and economic

4.9.1 Economic values

It is envisaged that the woodchip mill expansion will have some positive inputs into the local community in the following ways:

- increasing employment opportunities;
- increased market capacity and
- increased investment in the George Town Council municipality.

4.9.2 Lifestyle

The increased employment and investment should improve lifestyle in the region and the municipality given that the community has a capacity to expand financially and is given greater choice in employment opportunities. Additional financial capacity of the community will also emanate from this proposal.

Any projected decrease in lifestyle would come from negative impacts from the wood processing plant expansion and its operation, such as:

- increased traffic flow and noise levels;
- noise from wood processing;
- dust from the wood processing plant activities and vehicle movements and
- environmental degradation.
4.9.3 Sites of scientific or cultural value

The potential exists for items or areas of archaeological significance being disturbed during the wood processing plant operations. In particular, care should be taken to ensure that there is no potential for disturbance to Aboriginal sites, or other sites of archaeological or scientific value.

The original DPEMP of 2000 had an Aboriginal Heritage survey completed; the conclusion of that report was as follows: “This yard is not considered to be of high Aboriginal or archaeological significance and therefore no further cultural resource management action is recommended in this coupe (sic).”

Consultation with the Aboriginal community was carried out for this DPEMP and the assessment was made by Aboriginal Heritage Tasmania that an Aboriginal heritage survey was not required due to the following: “I can advise that Aboriginal Heritage Tasmania have no further Aboriginal heritage management requirements for this project. This is due to the fact that the assessment by D.West in 2000 indentified that the area was not considered to be of high Aboriginal cultural heritage significance, and because the increase in production will not impact on any undisturbed areas. Accordingly we do not require an on ground assessment, and have no objections to the project proceeding.” (E. Tew pers. comm.).

Heritage Tasmania recommends that any archaeological features and/or deposits revealed during excavations be dealt with in accordance with Part 7 of the Heritage Council’s Practice Note 2-Managing Historical Archaeological Significance in the Work’s Application Process.

In line with the Tasmanian Heritage Councils Practice Note 2 the following will be implemented if any archaeological item is found:
Any unexpected archaeological features and/or deposits revealed during works will be reported to the Heritage Council. Works will cease and advice will be sought from the Heritage Council or the Aboriginal Heritage Office, as appropriate, on how best to proceed.

4.9.4 Public health

Provided proper infrastructure and methods are in place there should be minimal risk to public health from this proposal.

Appropriate infrastructure needs to be provided for the following:
- stormwater runoff treatment;
- litter disposal;
- fuel and oil storage and transport;
- fire risk;
- noise management to a safe level-on and off the site area and
- potable water for staff and visitors.

The water quality control pond on the site potentially increases the risk of arboviral diseases from increased breeding habitat for mosquitoes. The practical management steps in this instance are to be aware of the potential risk to staff and visitors from diseases such as Ross River Virus.

4.9.5 Social and economic issue management

4.9.5 (a) Economic values

The wood processing plant expansion would have a positive economic input into the local community through additional employment and increased economic investment in the local community.

4.9.5 (b) Lifestyle

The lifestyle of the community should be unaffected from its present level if the wood processing plant operations are carried out in a sensitive and environmentally sustainable manner.

The management regime outlined in this DPEMP will seek to minimise effects on the lifestyle of the community and should improve the present environmental performance of the wood processing plant operation.
Environmental impacts and management

4.9.5 (c) Public health

Any potential public health issues known to be associated with this development have been analysed and management measures taken to minimise any impacts. The main issues that could affect public health are seen as water quality treatment on site prior to discharge (surface and ground), noise, dust and waste management.

4.9.5 (d) Socio-economic benefits

The proposed woodchip mill expansion will generate benefits to the community, as listed below.

The projected benefits are:
- employment during expansion activities;
- additional employment direct from the operation of the wood processing plant and
- flow-on employment in the community from added investment.

The measures that need to be taken to protect the community from any detrimental effects arising from the project are principally the following:
- ensure that any activity associated with this project, internally or externally, is operated in such a manner that the impact of infrastructure, processing and transport of materials on the general community is minimised and
- ensure that the public consultation period is sufficient for all members of the community to effectively comment, make representations (written or oral) to the proponent on any aspects of the proposal.

4.10 Infrastructure

4.10.1 Transport

The route taken for transporting logs to the processing plant will be via the main road systems, but not via the main township of George Town.

The East Tamar Highway is open to full log truck operation from Launceston to the site area, that is; B double\(^8\) and truck and dog trailer\(^9\) (Transport Tasmania pers. comm.). Trucks fitted with road friendly suspension can operate at higher mass limits on approved roads in Tasmania; the approved roads include the East Tamar Highway and the Bell Bay Road, including Mobil Road\(^10\).

General access Statewide is available to semi trailer or trucks with dog trailers up to a length of 19 metres, and if tri-axle up to a weight of 42.5 tonnes. The exception for general access is signed roads where load limits are placed (for example, bridge weight limits). The majority of the truck fleet transporting logs to the processing plant is mini B’s (R. Maher pers. comm.) which has general access across the State. A small percentage of logs are carried using the larger B doubles where the suitable routes are available (R. Maher pers. comm.).

Tasmania agreed to the use of quad axle groups in semi-trailers and B-doubles through the Australian Transport Council’s (ATC) endorsement of the *Adoption of More General Use of Quad Axle Groups in Semi-Trailers and B-Doubles Policy Paper* released in March 2007, subject to the identification of suitable routes\(^11\). The use of B doubles and super dog with trailers on non-designated roads can be gained from the Department of Infrastructure, Energy and Resources – Transport Division under permit if approved by that department and subject to permit conditions (Transport Tasmania pers. comm.).

The George Town Council has upgraded Mobil Road and this has improved the capacity of this road to take log trucks and fines/bark removal trucks.

For a full discussion on traffic movements see section 3.8 Traffic movements.

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\(^11\) Tasmanian Department of Infrastructure, Energy and Resources – Transport Division. 2010. *Implementation Statement Adoption of Quad Axle Groups (Semi-Trailers and B-doubles) in Tasmania.*
4.10.2 Water supply

Water on site is used for lubricating the woodchip machine at the log input area. Water is presently available from the water quality control pond and the town water supply (Ben Lomond Water supply).

4.10.3 Fire risk

Methods proposed to reduce and manage fire risk on the site are as follows:

4.10.3 (a) Fire fighting water supply

Maintain electric fire pump at the water quality control pond in good working condition by testing every six months and ensure continued access to water quality control pond. Regularly maintain and test the fire hydrant system that covers the site area-this system is fed by the Eskwater supply.

4.10.3 (b) Bushfire and water source

Use the water quality control pond as a water resource in the case of a wildfire. Utilise the fire hydrant system on the outer edges of the site for fire suppression on and off site. The active wood processing plant area itself will have no vegetation.

Actively suppress fires on site to protect life and property on the wood processing plant site and also to protect life and property on neighbouring properties.

4.10.3 (c) Litter

Any litter or rubbish generated from the wood processing plant operations will be stored in bins with lids and removed when necessary. Litter will not be incinerated on site.

4.10.4 External Risks

The major risks posed to the external environment from the operation of the wood processing plant have been identified as flood, bushfire and erosion. The methods of managing these external risks are discussed below.

4.10.4 (a) Flood

Flood risk from the operations of the wood processing plant and proposed expansion are considered to be minimal given that the following mitigators are in place:

- storage of storm water from site area in water quality control pond;
- retention of native vegetation on water quality control pond outflow creek and
- stormwater volume capture system calculated on the basis of a 1 in 20 year worst case storm event scenario.

4.10.4 (b) Bushfire

The risk of bushfire emanating from the site is minimal given that the following measures will be taken:

- full fire hydrant system over site area and
- fire pump maintained for water for firefighting purposes at water quality control pond.
Environmental impacts and management

4.10.4 (c) Erosion

There will be no additional disturbance to the land area of the site from the proposed expansion activities.

Risk of erosion from general processing activities is managed by the following methods:

- rehabilitation and revegetation of disturbed areas;
- monitoring of disturbed areas, especially in the initial period after disturbance and
- stockpiling of topsoil disturbance for later use in rehabilitation.

Erosion from stormwater run-off from the hard surfaced processing and materials storage, parking and access areas at the wood processing plant site will be directed to the water quality control pond at the northern side of the site to slow the water flow rate and facilitate slow filtering and treatment of the stormwater.

4.10.4 (d) Landslip

The area on the western side of the site has been identified as doubtful land stability. In the original DPEMP the water quality control pond was to be located in the northwestern corner of the site. Following the identification of this area as potential landslip the water quality control pond was relocated to the northeastern section of the site.

4.11 Traffic impacts

Wood processing plant operations and transport of materials to and from the site will be carried out strictly within the allowable operating hours and days— at full working capacity the wood processing plant will operate 24 hours a day Monday to Saturday, the wood processing plant will not operate on Sundays or public holidays. Trucks are not permitted on the site until 5 a.m. and the majority of log trucks deliveries are finished by 6 p.m.

4.12 Health and safety

4.12.1 Public health management

Potential public health risks identified as a result of this proposal are:

- fuel and oil storage and use;
- litter;
- noise pollution;
- dust pollution;
- fire and
- staff and visitor hygiene.

4.12.2 Fuel and oil storage and use

The correct storage and use of diesel fuel and oils on site and the safe transport of these diesel fuel and oils to the site will ensure public and environmental safety. Please refer to Appendix 10 for fuel storage facility.
Environmental impacts and management

4.12.3 Litter

Proper disposal of litter on site and off site in Council land fill areas.

4.12.4 Noise

Noise reduction will be achieved by adherence to the recommendations made by the noise consultants-see Appendix 8 for further information.

Machinery on site will have reduced noise equipment to ensure acceptable levels from these sources under worst case scenario conditions for on site and off site areas; hearing protection will be used for personnel on site.

Along with management and proper maintenance of the on-site machinery there will be the exclusion of telephone alarms on site.

The adherence to the Noise Management Plans is essential for community health and safety.

4.12.5 Fire

Provision of hydrant system and fire pump and equipment for use in the wood processing plant area as required.

4.12.6 Staff and visitor hygiene

Provision of potable water on site and toilet facilities.
5.0 MONITORING AND REVIEW

Monitoring of the ambient environment and emissions will be carried out on the following:

1. Noise from wood processing plant operations on and off site.

2. Erosion of areas disturbed during wood processing plant operations, as follows:
   - water quality control pond;
   - outlet from water quality control pond to natural watercourse on site;
   - drainage lines;
   - access roads;
   - car parking/loading and storage areas and
   - any other disturbed ground.

3. To monitor the impact on the social and economic environment a complaint register will be kept by the company, with the following protocols:
   - name, address and contact details of complainant;
   - time and date of complaint;
   - nature of the complaint;
   - list of action or actions taken by the company, including feed back to the complainant and
   - notification to the Director of Environment Protection Authority, Environment Protection Division.

4. Monitor water quality in the water quality control pond and groundwater bores to ensure no adverse impacts from stormwater runoff or any other substances associated with the wood processing plant operations.

5. Dust emissions to the air from the wood processing plant operations on and off site.

6. Monitor level of sediment traps/interceptors on drainage lines to water quality control pond.

7. Monitor sediment levels in water quality control pond.
Monitoring and review

The following table shows the system of monitoring that will be carried out to investigate and regulate the sustainability of the environmental systems in place. Refer also to Appendix 6: Monitoring procedures, parameters and frequency.

**Table 13: Program of monitoring**

<table>
<thead>
<tr>
<th>MONITOR</th>
<th>PARAMETERS</th>
<th>BASELINE</th>
<th>FREQUENCY</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airborne dust</td>
<td>Excess airborne dust from the site area.</td>
<td>Existing situation prior to wood processing plant expansion.</td>
<td>As required.</td>
<td>If airborne dust crosses boundaries of the site area then spray source area with water from water quality control pond or using town water supply.</td>
</tr>
<tr>
<td>Noise</td>
<td>Excessive noise emanating from on and off site activities associated with wood processing plant operations.</td>
<td>Existing situation prior to wood processing plant expansion.</td>
<td>Quarterly monitoring environmental noise for first year. Tri-yearly monitoring of environmental noise after first year.</td>
<td>Reduce noise emissions as outlined in this DPEMP. Respond quickly and effectively to complaints. Adherence to Noise Management Plan.</td>
</tr>
<tr>
<td>Water quality control pond water quality</td>
<td>pH; Suspended solids; Biochemical oxygen demand; Oil and grease; Water level</td>
<td>Quality guidelines for emission into inland waters. Monitoring is currently in accordance with EPN 794/1 but will be in accordance with any permit issued.</td>
<td>Six monthly.</td>
<td>Results reported to the Director of Environment Protection Authority of EPA. Company has opted for direct reporting to the EPA from laboratory.</td>
</tr>
<tr>
<td>Sewage and grey water treatment systems</td>
<td>Land disposal requirements: Faecal coliforms; Free chlorine; Biological oxygen and Non-filterable residue</td>
<td>Three monthly for the first twelve months. Six monthly in overall site monitoring.</td>
<td>Report to George Town Council Environmental Health Officer as necessary.</td>
<td>In line with the new EPN (7947/1) for the site groundwater monitoring will be carried out by taking representative samples from groundwater bores 1, 2 and 3 upon written request by the Director, and be analysed for the parameters specified in the written notice.</td>
</tr>
<tr>
<td>Groundwater quality</td>
<td>As directed by EPA</td>
<td>Tests taken since 2005 in three groundwater bores provide baseline data for groundwater at the site.</td>
<td>As directed by the EPA.</td>
<td></td>
</tr>
</tbody>
</table>
### Monitoring and review

<table>
<thead>
<tr>
<th>MONITOR</th>
<th>PARAMETERS</th>
<th>BASELINE</th>
<th>FREQUENCY</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment in water quality control pond.</td>
<td>Excessive sedimentation of the water quality control pond.</td>
<td>Depth of 2.4 metres minimum depth for open water zone.</td>
<td>Every twelve months.</td>
<td>Removal of excess sediments from pond floor and removal to an appropriate site to prevent any environmental impact from sediments if contaminated and reused for site rehabilitation if required and deemed suitable.</td>
</tr>
<tr>
<td>Condition of vegetation on outflow from water quality control pond.</td>
<td>Erosion of outflow area from water quality control pond and drainage line; Flooding; Weeds and diseases; Condition of native vegetation in and immediately surrounding drainage line; Maintain photo points.</td>
<td>Surrounding undisturbed vegetation</td>
<td>Yearly.</td>
<td>Carry out regular monitoring as outlined in monitoring sheet for this area-see Appendix 6-Table 4.</td>
</tr>
<tr>
<td>Erosion of disturbed areas</td>
<td>Check for any wind or water erosion on any areas disturbed by wood processing plant operations.</td>
<td>Surrounding undisturbed landform</td>
<td>Six monthly in line with overall monitoring activities-see Appendix 6-Table 2.</td>
<td>Remedial action taken to prevent further erosion. Any erosion problems reported to the EPA.</td>
</tr>
<tr>
<td>Flooding</td>
<td>None.</td>
<td>Existing hydrology and erosion areas.</td>
<td>During high rainfall events.</td>
<td>Check sediment traps and outflow of pond for erosion.</td>
</tr>
<tr>
<td>Sediment interceptors</td>
<td>Sedimentation.</td>
<td>Empty at 15% volume.</td>
<td>Inspect quarterly. Clean out at six months, 15% volume or after high rainfall events.</td>
<td>Inspect every three months and remove sediments by local licensed contractor.</td>
</tr>
<tr>
<td>Odours from litter and bark storage</td>
<td>None.</td>
<td>Existing situation prior to wood processing plant expansion.</td>
<td>As required</td>
<td>Removal of organic waste and bark/wood by-product on a regular basis.</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Minimise fuel loads; maintain fire equipment.</td>
<td>Existing vegetation loads.</td>
<td>Annually inspect fuel loads.</td>
<td>Inspect fuel loads every twelve months. Maintain and check fire hydrants and fire pump equipment operation and condition every six months.</td>
</tr>
<tr>
<td>Weeds-Bell Bay site</td>
<td>Introduced plants and especially listed weeds and Weeds of National Significance. Main weeds at site are Patterson’s curse, Pampas grass and blackberry.</td>
<td>Weed free site area.</td>
<td>Quarterly.</td>
<td>Check all areas disturbed by wood processing plant operations. Check outside areas for significant weed infestations. Remove weeds and use professional contractors where appropriate.</td>
</tr>
</tbody>
</table>
Monitoring and review

<table>
<thead>
<tr>
<th>MONITOR</th>
<th>PARAMETERS</th>
<th>BASELINE</th>
<th>FREQUENCY</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weeds-Cox’s quarry</td>
<td>Introduced plants and especially listed weeds and Weeds of National Significance. Main weeds at rehabilitated quarry site are thistle, gorse and periwinkle.</td>
<td>Weed free rehabilitated quarry site.</td>
<td>Yearly-in spring.</td>
<td>Check all rehabilitated areas each spring, especially the areas in stage 1 with thistle and periwinkle site between stage 2 and 3 areas.</td>
</tr>
<tr>
<td>Wastes</td>
<td>None.</td>
<td>Hazardous waste free site area.</td>
<td>Quarterly.</td>
<td>Check spill kits are intact. Remove oils for recycling as soon as possible after changing.</td>
</tr>
</tbody>
</table>

5.1 Review

Review of this management plan will be conducted as a post-commissioning review of the operations and associated management plans, with subsequent reviews at three yearly intervals thereafter or sooner if deemed necessary by the Director of the Environment Protection Authority.

The reviews will take the following general form:

- review the main commitments made to ensure the activity is performing as stated in the DPEMP;
- review environmental performance standards and
- subsequent reviews at five yearly intervals or sooner if deemed necessary.

5.2 Responsibilities

The Site Manager will carry out responsibilities for the overall site management of the wood processing plant operations and activities.

Wood processing plant operations and woodchip mill expansion activities will be the overall responsibility of the owner/s in conjunction with the Site Manager.

The environmental monitoring on a daily basis will be the responsibility of the Site Manager. The Environmental Management team will consist of the wood processing plant Manager and the companies Environmental Consultant.
6.0 DECOMMISSIONING

6.1 Decommissioning of the Site

In the event of closure of the premises at any stage the issue of decommissioning in an environmentally and socially appropriate manner needs to be carefully considered.

The removal of all infrastructures would pose an erosion hazard if not carried out appropriately, the issues need considering are:

- rehabilitation of exposed areas left after wood processing plant operations by leveling and replanting with appropriate native vegetation mixes for this area;
- removal of all fuel and oils, wastes and materials from the site and
- any concrete slabs and other building materials.

The issues of stabilising the landform and revegetating to ensure public safety and a return to as near as possible native vegetation are key in the decommissioning process and planning.

The stabilisation of the landform prior to revegetation serves to ensure landform stability and revegetation on an ongoing basis.

In the event of the premature closure of the wood processing plant the Plan of Works listed below will be implemented for the whole site.

The implementation of the Plan of Works for the whole site will entail the following:

1. Equipment hygiene practices.
2. Removal of all infrastructure;
3. Removal of all hazardous materials and wastes;
4. Monitoring of surface and ground water during decommissioning period and for at least three years after rehabilitation.
5. Shape the wood processing plant area to blend with the surrounding landscape as much as possible including filling pits and leveling piles.
6. Rip any hard surfaces to allow moisture and vegetation roots to penetrate.
7. Leave naturally regenerated native vegetation undisturbed where possible.
8. Spread substrate mix over prepared landform to a minimum depth of 300mm.
9. Use local native vegetation in the revegetation.
10. Monitor revegetation for at least three years.

It is envisaged that the main guiding documents for the proper decommissioning of the wood processing plant will be the following:

1. Environmental Permit Conditions-EPN7947/1: Conditions R1, R2, R3 and R4.
2. Section 5.0 DPEMP-Monitoring and Review.
3. Section 6.0 DPEMP-Decommissioning.
4. Section 7.0 DPEMP-Commitments.

Given the zoning of the area any future usage is likely to be industrial.
7.0 COMMITMENTS

The wood processing plant has in the past, and will into the future, be operated in compliance with all Codes of Practice, legislation, policies and statutory requirements for the proper operation of a woodchip mill of this nature.

The overall commitments outlined in this DPEMP are summarised in the Executive Summary under the sections Prevention of Physical, Biological, Social and Economic impacts, however; some of the more important issues associated with the operation of the woodchip mill, as identified in the project specific guidelines by the EPA as key issues that should be the principal focus of this DPEMP, require a specific written commitment from the owners to ensure these major issues are dealt with in an appropriate and timely manner. The commitments made by the company are listed in the Table below.

Table 14: Table of commitments

<table>
<thead>
<tr>
<th>ACTION REQUIRED</th>
<th>POTENTIAL IMPACT</th>
<th>TIMEFRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. An environmental noise survey of the Artec Bell Bay Wood Processing Plant will be undertaken.</td>
<td>Noise</td>
<td>Within 12 months of the completion of the proposed plant upgrade.</td>
</tr>
<tr>
<td>2. Construction activities will be limited to 0800-1630 hours.</td>
<td>Noise</td>
<td>Construction phase</td>
</tr>
<tr>
<td>3. If any significant changes to operations occur, noise modeling will be undertaken.</td>
<td>Noise</td>
<td>Ongoing.</td>
</tr>
<tr>
<td>5. On site machinery will be fitted with high performance environmental noise control of fully enclosed engines, double muffled exhausts and engine cooling air inlet silencers.</td>
<td>Noise</td>
<td>Ongoing</td>
</tr>
<tr>
<td>6. Telephone sirens or claxons will not be used or installed on site.</td>
<td>Noise</td>
<td>Ongoing</td>
</tr>
<tr>
<td>7. All drainage lines between the wood chipping area and water quality control pond will be directed through interceptors to capture contaminants and sediments.</td>
<td>Surface Water quality, site contamination</td>
<td>Ongoing</td>
</tr>
<tr>
<td>8. Sediments will be removed from interceptors when the accumulation reaches 15% of the storage volume, every three months or every third ship loaded, whichever occurs first.</td>
<td>Surface water quality, soil contamination</td>
<td>Ongoing.</td>
</tr>
<tr>
<td>9. Rehabilitate and revegetate any areas disturbed during the wood processing plant general operations and monitor six monthly to prevent sediment loss to water quality control system.</td>
<td>Surface water quality, soil contamination</td>
<td>Ongoing.</td>
</tr>
<tr>
<td>10. Direct stormwater runoff into the water quality control pond on the site to slow the water flow rate to prevent erosion of the landform.</td>
<td>Surface water quality, soil contamination</td>
<td>Ongoing.</td>
</tr>
</tbody>
</table>
## Committments

<table>
<thead>
<tr>
<th>ACTION REQUIRED</th>
<th>POTENTIAL IMPACT</th>
<th>TIMEFRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Sediment and pollutant barriers (interceptors) on drainage line from wood</td>
<td>Surface water quality, soil contamination</td>
<td>Maintain interceptors in good order and monitor six monthly for any damage or problems.</td>
</tr>
<tr>
<td>processing area to water quality control pond to slow water flow velocity and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to trap sediment prior to discharge to the water quality control pond.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Drainage at the site is directed through interceptors to collect contaminants</td>
<td>Surface water quality, soil contamination</td>
<td>Ongoing</td>
</tr>
<tr>
<td>and sediments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Hydrocarbons stored on site in fully bunded and covered area.</td>
<td>Surface and ground water quality, soil</td>
<td>Ongoing</td>
</tr>
<tr>
<td>contamination</td>
<td>contamination</td>
<td></td>
</tr>
<tr>
<td>14. Spill kits available on site at all times.</td>
<td>Surface and ground water quality, soil</td>
<td>Ongoing</td>
</tr>
<tr>
<td>contamination</td>
<td>contamination</td>
<td></td>
</tr>
<tr>
<td>15. Regular monitoring and removal by licensed contractor of septic tank</td>
<td>Surface and ground water quality, soil</td>
<td>Monitor six monthly in line with overall monitoring activities.</td>
</tr>
<tr>
<td>contents.</td>
<td>contamination</td>
<td></td>
</tr>
<tr>
<td>16. Consider materials used as hard surfacing or any other use on site potential</td>
<td>Surface and ground water quality, soil</td>
<td>Ongoing</td>
</tr>
<tr>
<td>for leaching pollutants to surface water system.</td>
<td>contamination</td>
<td></td>
</tr>
<tr>
<td>17. Monitor surface waters from neighbouring properties that impact on the site</td>
<td>Surface water quality, soil contamination</td>
<td>Ongoing</td>
</tr>
<tr>
<td>18. Treatment of stormwater runoff to the standard necessary to enable safe and</td>
<td>Surface and ground water quality, soil</td>
<td>Ongoing</td>
</tr>
<tr>
<td>environmentally sustainable use and discharge to inland waterways</td>
<td>contamination</td>
<td></td>
</tr>
<tr>
<td>19. Regular maintenance of the whole water quality control system to maximise</td>
<td>Surface and ground water quality, soil</td>
<td>Monitor six monthly on a formal basis but monitor daily and respond immediately to any infrastructure</td>
</tr>
<tr>
<td>water treatment prior to discharge.</td>
<td>contamination</td>
<td>or maintenance issues.</td>
</tr>
<tr>
<td>20. Regular sampling of water quality and testing by accredited laboratory</td>
<td>Surface water quality, soil contamination</td>
<td>Six monthly or as directed by the EPA.</td>
</tr>
<tr>
<td>and reporting to EPA within 30 days of receipt of results.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. All hazardous chemicals will be stored in the Dangerous Goods Store on the</td>
<td>Groundwater quality, soil contamination</td>
<td>Ongoing</td>
</tr>
<tr>
<td>site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Sampling of three shallow aquifer groundwater bores as directed by the EPA</td>
<td>Groundwater quality, soil contamination</td>
<td>Collection of representative samples upon written notice by the Director and to be analysed for the</td>
</tr>
<tr>
<td>testing by accredited laboratory and reported to EPA within 30 days of receipt</td>
<td></td>
<td>parameters specified in the written notice.</td>
</tr>
<tr>
<td>of results.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Maintain three shallow aquifer groundwater bores casings and caps in good</td>
<td>Groundwater quality, soil contamination</td>
<td>Check three groundwater bores six monthly in line with overall monitoring activities.</td>
</tr>
<tr>
<td>order to exclude rainwater and surface water from infiltrating bores.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Rehabilitate and revegetate any areas disturbed during the wood processing</td>
<td>Erosion</td>
<td>Ongoing</td>
</tr>
<tr>
<td>plant general operations and monitor six monthly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTION REQUIRED</td>
<td>POTENTIAL IMPACT</td>
<td>TIMEFRAME</td>
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<tr>
<td>----------------</td>
<td>-----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>25. Direct stormwater runoff into the water quality control pond on the site to slow the water flow rate to prevent erosion of the landform.</td>
<td>Erosion</td>
<td>Ongoing</td>
</tr>
<tr>
<td>26. Sediment and pollutant barriers (interceptors) on drainage line from wood processing area to water quality control pond to slow water flow velocity and to trap sediment.</td>
<td>Erosion</td>
<td>Ongoing</td>
</tr>
<tr>
<td>27. Loaded trucks leaving the site with loads of fines will have their load either covered or moistened to prevent fines loss during transportation.</td>
<td>Dust emissions off site from truck and car movements/Air emissions</td>
<td>Ongoing</td>
</tr>
<tr>
<td>28. Dampening of internal access roads during dry and windy conditions.</td>
<td>Dust emissions off site from truck and car movements</td>
<td>Ongoing</td>
</tr>
<tr>
<td>29. Improved road conditions to minimise dust emissions.</td>
<td>Dust emissions off site from truck and car movements</td>
<td>Ongoing</td>
</tr>
<tr>
<td>30. Stormwater from the impacted sites at the wood processing plant area will be directed to the water quality control pond on the site which will slow water movement and retain a percentage of runoff volume.</td>
<td>Flood</td>
<td>Ongoing</td>
</tr>
<tr>
<td>31. Actively suppress fires on site to protect life and property on the wood processing plant site and also to protect life and property on neighbouring properties.</td>
<td>Fire</td>
<td>Ongoing</td>
</tr>
<tr>
<td>32. No fires will be lit on the wood processing plant site by staff or contractors.</td>
<td>Fire</td>
<td>Ongoing</td>
</tr>
<tr>
<td>33. Water quality control pond and town water supply available as a source of fire fighting water.</td>
<td>Fire</td>
<td>Ongoing</td>
</tr>
<tr>
<td>34. Fire pump and fire hydrants will be available and regularly maintained and operated.</td>
<td>Fire</td>
<td>Ongoing</td>
</tr>
<tr>
<td>35. Minimum disturbance to remnant vegetation to west of site and riparian corridor on outflow from water quality control pond to Tamar river.</td>
<td>Biodiversity and nature conservation values</td>
<td>Ongoing</td>
</tr>
<tr>
<td>36. Wash down procedures followed and implemented for management of <em>Phytophthora cinnamomi</em>.</td>
<td>Biodiversity and nature conservation values</td>
<td>Ongoing</td>
</tr>
<tr>
<td>37. Structured and vigilant weed monitoring schedule coupled with active management.</td>
<td>Biodiversity and nature conservation values</td>
<td>Ongoing</td>
</tr>
<tr>
<td>38. Reuse of by-products of fines and wood/bark.</td>
<td>Waste/by-products</td>
<td>Ongoing</td>
</tr>
<tr>
<td>39. Continue to accept sawmill residue.</td>
<td>Waste/by-products</td>
<td>Ongoing</td>
</tr>
<tr>
<td>40. Provision of bins with lids, removed on a weekly basis and disposed of at the Council refuse site.</td>
<td>Waste/by-products</td>
<td>Ongoing</td>
</tr>
<tr>
<td>41. Internal speed limit of 15 km/h.</td>
<td>Air emissions</td>
<td>Ongoing</td>
</tr>
<tr>
<td>ACTION REQUIRED</td>
<td>POTENTIAL IMPACT</td>
<td>TIMEFRAME</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>42. Retaining the native vegetation on the western side of the site to provide a backdrop to the Beauty Point area.</td>
<td>Visual considerations</td>
<td>Ongoing</td>
</tr>
<tr>
<td>43. An assessment was made by Aboriginal Heritage Tasmania that an Aboriginal Heritage investigation was not required for the wood processing plant expansion proposal. Any sites of Aboriginal heritage seen or suspected during operations will result in an immediate cessation of works and Aboriginal Heritage Tasmania will be contacted.</td>
<td>Sites of scientific or cultural value</td>
<td>Ongoing</td>
</tr>
<tr>
<td>44. The wood processing plant is not entered on the Tasmanian Heritage Register. Any site of archaeological significance will be treated in the same way as Aboriginal heritage and any unexpected archaeological features and/or deposits revealed during works, works will cease and the incident will be reported immediately to the Heritage Council.</td>
<td>Sites of scientific or cultural value</td>
<td>Ongoing</td>
</tr>
<tr>
<td>45. Decommissioning of wood processing plant upon closure.</td>
<td>Wood processing plant closure and rehabilitation</td>
<td>Closure of processing plant</td>
</tr>
<tr>
<td>46. Implement Plan of Works upon wood processing plant closure.</td>
<td>Wood processing plant closure and rehabilitation</td>
<td>Closure of processing plant</td>
</tr>
</tbody>
</table>
8.0 CONCLUSION

The transition of the existing woodchip mill activities at the Bell Bay wood processing plant to expand its operations to encompass a wider scope of product to include hardwood and softwood plantation pulpwood sales will be of benefit to the community, economically and socially, given that best practice management strategies have been utilised for the environmental management of the site through the development and implementation of this DPEMP.

An original DPEMP was completed prior to the commissioning of the processing plant in 2000 and this DPEMP replaces that document. The fact that the Bell Bay wood processing plant has operated for a period of ten years enables a clear understanding of the environmental impacts from the wood processing plant operations. This understanding relates to the general environmental impacts and also the specific issues that relate to the particular site.

The timber industry is changing rapidly and an orderly transition into a plantation based industry is essential to retain employment levels and add financial investment. This DPEMP is a major step in the management of this transition and will result in the expansion of the wood processing plant that will benefit the whole community.

The environmental aspects of this proposed wood processing plant expansion have been closely analysed in light of the latest technological advances and techniques to minimise environmental impacts and with careful management and monitoring there should be minimal adverse impacts on the community or physical and biological environment.

The latest waste management strategies, water quality guidelines (surface and ground water) have been consulted, along with key agencies with responsibilities in various environmental areas to arrive at an environmental management system that will be sustainable in the short and long term.

The contemporary principles of sustainable development have been adopted for this DPEMP, as defined by the United Nations Environment Program, as follows:

“development which improves people’s quality of life, within the carrying capacity of the earth’s life-support system.”
9.0 REFERENCES

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