

# Environmental Program

## SITE PREPARATION AND REHABILITATION

### BBA-ENP-1000-1400-0005

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## Operational Control Tables

Table OCO 5.1      Site Preparation and Rehabilitation

## 1. Purpose and Scope

This Environmental Program describes the Site Preparation and Rehabilitation controls to minimise the impact of the design and construction of the Gunns pulp mill.

This Environmental Program forms part of the Bell Bay Alliance (BBA) Construction Environmental Management Plan (CEMP) and must be read in conjunction with the CEMP.

## 2. Objectives

1. Rehabilitate and revegetate disturbed areas.

## 3. Targets

1. Disturbed areas rehabilitated and revegetated to a condition at least equivalent to the preconstruction condition, appropriate for the future land use.
2. Avoidance and minimisation of impacts to threatened flora and fauna species and remediation of sites to be converted utilising soil and materials from areas containing threatened flora species.

## 4. Regulatory and Contractual Requirements

Refer to:

- CEMP Appendix B – Environmental Legislation Register
- CEMP Appendix C – Approvals Matrix
- CEMP Appendix D - Environmental Licences Register
- CEMP Appendix F – Environmental Commitments
- CEMP Environmental Obligations Register: GNS-OBL-1000-1400-001.

In particular, the following requirements are relevant:

- Environmental Management and Pollution Control Act 1994.

## 5. Technical Documents

The following background studies, research documents and assessments have been used to identify the key environmental aspects:

Reference	Document Title
<a href="http://www.gunnspulpmill.com.au/iis/">http://www.gunnspulpmill.com.au/iis/</a>	Bell Bay Pulp Mill Draft IIS and Appendices

The following technical documents have been used to assist in identifying appropriate operational controls:

<b>Availability</b>	<b>Document Title</b>
EPA Victoria	Environment Protection Authority Publication 275 – Construction Techniques for Sediment Pollution Control
EPA Victoria	EPA Publication 480 – Environmental Guidelines for Major Construction Sites.
EPA NSW	Landcom – Managing Urban Stormwater, Soils and Construction Volume 1 (Blue Book).

## 6. Key Environmental Issues

Refer to:

- CEMP Appendix G – Environmental Risk Assessment

A primary consideration with construction is that environmental disturbances are minimised. Many types of disturbances can potentially cause environmental risk during construction activities. These include, but are not limited to weed and pathogen transfer, excessive land disturbance and disturbance to sensitive sites. Identification of any environmental issues and minimising disturbance will reduce the need for expensive rehabilitation activities to be performed.

In native vegetation areas the vegetation cover provides protection against soil erosion, habitat for fauna and public amenity values. In agricultural areas desirable vegetation provides primary production/economic value, protection against soil erosion and competition with weed growth. The minimisation of vegetation disturbance on construction sites is imperative.

The term 'topsoil' refers to the uppermost layer in a soil profile, and is also known as the 'A horizon'. It consists of integrated organic material and minerals providing an initial germination and growing medium. Topsoil also contains propagules and symbionts. Many nutrients and minerals essential for plant growth are contained within this layer and therefore, it has high conservation value for rehabilitation activities. During construction operations, the topsoil is generally removed, stockpiled and replaced upon completion of the construction activity. Note that topsoil also has a high economic value for agricultural purposes.

Site preparation for revegetation activities correlates to the level of success achieved in rehabilitation programs. Soil damage, soil compaction, and activities associated with construction can profoundly affect the establishment of vegetation. Following the cessation of construction activities, construction zones should be prepared in accordance with specified guidelines to prepare the land surface to a friable condition suitable for plant establishment.

In areas of native vegetation, the stockpiled vegetation can be respread across the easement following soil return and surface preparation. This provides an effective means of erosion protection, a native seed source, and protection from browsing animals and unauthorised access and damage.

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The success of any rehabilitation or revegetation program is dependent on many factors. A fundamental requirement is the development and implementation of appropriate monitoring and maintenance programs. The foremost consideration of the programs is to assist in the amelioration of any adverse environmental issues caused by loss of plant cover, subsidence, soil erosion and sedimentation, establishment of undesirable or weed species, and changes to hydrology. In response to monitoring programs, a remedial maintenance schedule may also be developed and implemented to address issues associated with fertiliser application, weed removal and erosion control.

The technical documents and the environmental risk assessment have identified the following key environmental issues:

- Protection of soil from erosion
- Protection of native vegetation and habitat
- Protection of waterways
- Protection of beneficial uses of land.

Environmental risks include:

- Transportation of pathogens and weeds to the area of disturbance
- Exposure of soils and the risk of subsidence, erosion and sedimentation
- Reduced fauna habitat
- Potential impacts on threatened flora species and communities
- Potential impacts on cultural heritage sites
- Increased risk of weed invasion/establishment
- Mixing of topsoil with other soil horizons, reducing soil viability
- Reduction of microbial activity in stockpiled soil
- Compaction, and structural quality reduction
- Inappropriate vegetation establishment
- Nutrient decline
- Reduced visual amenity
- Reduced agricultural capacity/production
- Disruption to landholders, third parties and other utilities.

## 7. Operational Controls

Environmental outcomes to be achieved include:

- Land disturbance minimised, including of agricultural land and pasture
- Protection of significant and environmentally sensitive sites
- Minimised vegetation clearance and risk of soil loss and sedimentation
- Return of nutrients and organic material to the soil structure
- Replacement of fauna habitat along the construction easement
- Minimised risk of weed establishment in disturbed areas

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- Rapid revegetation from seed contained in the returned vegetation and protection of germinates from animal browsing and desiccation
- Selection of appropriate species for revegetation
- Establishment of new threatened flora sites through use of soil and material from known threatened flora sites that are being destroyed
- Minimised impacts on visual amenity
- Vegetation establishment similar to, or better than, the surrounding landscape.

The operational controls for management of Site Preparation and Rehabilitation during design and construction are set out below:

<b>Table Reference</b>	<b>Title</b>
OCO 5.1	Site Preparation and Rehabilitation

The operational controls include requirements and responsibilities for:

- Consultation
- Approval requirements
- Design of temporary works
- Construction activities

## 8. Site Environmental Plans

- Refer to SEP Register.

Site Environmental Plans (SEPs) detail practical environmental management measures to be implemented at specific worksites to minimise potential impacts of construction activity on the environment and community. They are designed to provide more site specific detail than is included in the Environmental Program and Operational Control tables.

The information contained in the SEPs is presented in tabular drawing format. This is to make them easy for use by all BBA site personnel, consultants and subcontractors.

The controls set out in the SEPs are drawn from the Environmental Programs.

## 9. Contingency Management

The environmental risk assessment has identified the following circumstances which could occur outside normal operating conditions:

- Unexpected circumstances are encountered during site preparation or works.

- Potentially significant plants or cultural heritage items are encountered during site preparation or works.

If these circumstances occur, the following contingency measures will be implemented:

- The cause of the breach will be modified or stopped.
- If required, DTAE will be informed.
- The construction method and control measures will be reviewed and improved if necessary.
- The modified methods and controls will be monitored to ensure compliance has been achieved.

## 10. Evaluating Performance

The Operational Controls, together with the SEPs are used as the basis for the evaluating performance.

Refer to:

- CEMP Appendix H – Construction Monitoring Plan
- CEMP Appendix I – Internal Environmental Audit Schedule
- CEMP Appendix J – External Environmental Audit Schedule.

Environmental Checklists are used for evaluating performance.

Refer to:

- BBA-CKL-1000-1400-005**A** *Minimisation of Disturbance*
- BBA-CKL-1000-1400-005**B** *Stripping Vegetation*
- BBA-CKL-1000-1400-005**C** *Erosion and Sedimentation Management*
- BBA-CKL-1000-1400-005**D** *Stripping Soil*
- BBA-CKL-1000-1400-005**E** *Topsoil Return*
- BBA-CKL-1000-1400-005**F** *Site Preparation for Revegetation*
- BBA-CKL-1000-1400-005**G** *Return of Stripped Native Vegetation*
- BBA-CKL-1000-1400-005**H** *Replanting.*

## 11. Reporting

Refer to:

- CEMP Appendix K – Environmental Reporting Program

## 12. Attachments

Not Used.