Department of
Sustainability and
Environment

Code of Practice for Timber Production

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Explanatory Notes

Background

Timber and fibre harvested from Victoria's native forests and plantations are integral to our way of life, providing a renewable, adaptable resource with a wide variety of uses. Timber production activities are an important component of regional economies across Victoria, creating jobs and wealth that are a cornerstone of the State's prosperity.

Timber has long been harvested from our native forests. Over the past several decades, the native forest industry has increasingly responded to the need to provide for other uses and users of forests, such as biodiversity protection, yielding clean water and providing recreation opportunities. National parks and other conservation reserves have been declared in areas that were once harvested, and public scrutiny of forest operations is now acknowledged as a necessary part of the right to use public resources.

Plantations are increasingly providing replacement timber resources, as they have demonstrated they can provide good commercial returns while potentially improving the health of catchments, either as part of a farming operation or stand-alone.

Victoria has benefited significantly from a long period of scientific research and field based forest management experience. As knowledge of Australia's ecosystems develops, forest managers continue to improve their management of forests within sound ecological limits to ensure a long-term sustainable path for this industry.

In 1989, the Victorian Parliament ratified the first *Code of Forest Practices for Timber Production*. The Code set out appropriate, responsible standards for timber production in State forests, to better manage the potential impacts of forestry. The Code was revised in 1996 to take account of new research information and field experience over the previous six years, and from the implementation of the Code on private land which occurred in late 1993.

This 2006 revision of the Code incorporates advances in scientific knowledge, the substantial change in legislation and regulation governing forest management in Victoria and improvements in operational practices over the last ten years.

Why a Code of Practice for Timber Production?

Maintaining the benefits provided by forests to society depends on careful stewardship and responsible management. The successful implementation of a Code of Practice helps to ensure that timber growing and harvesting are compatible with the conservation of the wide range of values associated with forests.

Purpose of the Code

The purpose of this Code of Practice is to provide direction to forest managers and operators to improve environmental performance when undertaking commercial timber growing and timber harvesting operations in such a way that:

- permits a viable, internationally competitive, sustainable forest industry;
- is compatible with the conservation of the wide range of environmental and social values associated with timber production forests;
- promotes the ecologically sustainable management of native forests proposed for continuous timber production;

- enhances public confidence in the management of native forests and plantations for timber production.

The Code relates to forest management planning and operations on land available for timber production. Broader land management decisions, such as which forest areas are reserved for timber production, are dealt with by other processes and are not covered by the Code.

Organisation of the Code

The Code has been developed to apply to the control of timber production on both public and private land. Although most of the operational goals and mandatory actions contained in the Code apply equally to forests on public and private land, there are instances where the application on private land and public land varies, principally due to different regulatory requirements. Such instances are clearly identified in the Code.

Contents of the Code

The Code sets out Principles for sustainable forest management, Operational Goals and Mandatory Actions that apply to timber harvesting, timber extraction roading, regeneration in native forests, as well as the establishment and management of softwood and hardwood plantations to ensure:

- native forest managed for timber production is adequately regenerated and managed following timber harvesting;
- impacts on environmental values (including soil, water, biodiversity) are minimised or avoided; and
- social and cultural values (Aboriginal cultural heritage sites and places, historic places and landscapes) are maintained, protected and respected.

Some of the relevant legislation and regulations that must be adhered to are listed in Appendix A.

All specific terms referred to in the Code rely on the definition provided in the Glossary.

The Code also provides Guidance for forest managers on how to meet the requirements of the Code. Additional documents that provide guidance for forest managers and operators to meet the requirements of the Code are listed in Appendix B.

Forest management in Victoria is governed by a wide range of Commonwealth and State legislation, regulations, policies and codes as listed in Appendix A.

Fire management is a broad and complex subject and this Code deals with it only in its direct relationship to timber production. Other aspects of fire management are dealt with under the *Code of Practice for Fire Management on Public Land* 2006 [*] and the *Country Fire Authority Act* 1958 and related regulations.

Application of the Code

This *Code of Practice for Timber Production* refers to specific legislation, regulations and codes where applicable to specify the environmental outcomes, operational goals and mandatory actions related to forest management for timber production. Forest practices must be conducted in accordance with all applicable laws and regulations.

[*] To be adopted in 2006.

Description of Land to which Code Applies

This Code applies to all land in the State of Victoria that is either being used or is intended to be used for commercial timber production. Within this Code, individual sections may only apply to public or private land, as identified in the following manner:

Public Land

Compliance with this Code on public land is required under the conditions of licences and authorities issued under the provisions of the *Conservation, Forests and Lands Act* 1987, the *Forests Act* 1958 and the *Sustainable Forests (Timber) Act* 2004.

Private Land

All commercial timber production on private land and leased Crown land must comply with this Code, as specified under Clause 17.07 of the Victorian Planning Provisions (made under the *Planning and Environment Act* 1987).

The Code does not apply to agroforestry, windbreaks or other amenity plantings, or to the occasional felling of trees for local uses. Small plantations or woodlots of less than five hectares are exempt from the Code, as are plantings established for non-commercial purposes such as fence posts, poles or firewood. The Code does not apply to revegetation operations conducted for the purposes of erosion or salinity control.

The Secretary of the Department of Sustainability and Environment is specified in the State section of Planning schemes as a referral authority in relation to certain matters concerning private forests, and a developer of private land for commercial forestry purposes must comply with the Code to the satisfaction of the Responsible Authority.

This Code is consistent with the Victorian Planning Provisions in recognising that plantations are established primarily for timber production. Thus, planning controls concerned with the development of plantations allow their subsequent management and harvesting.

Monitoring and Compliance

Public Land

Under the *Timber Harvesting Regulations* 2000 [*], penalties for non-compliance may apply if operations on public land are not in accordance with the Code.

Victoria will progressively refine methods for monitoring the effectiveness of the Code in achieving environmental care. Monitoring results for public land will be reported publicly.

Compliance by forest operators with the requirements of this Code on public land will be monitored by authorised officers appointed pursuant to the *Conservation, Forests and Lands Act* 1987. Compliance with the Code is subject to independent audit.

Private Land

The Responsible Authority under the *Planning and Environment Act* 1987 is responsible for ensuring compliance with the planning scheme (including this Code if applied in accordance with the scheme or with a permit issued under a scheme) on private land.

[*] Note that these regulations are due to be replaced by new regulations (with a different title) before this Code is finalised.

Terminology

The following terms are used in the Code to describe the Code's intended environmental outcomes and the mechanisms within the Code to achieve these.

A Code Principle is a broad outcome that expresses the intent of the Code for each aspect of sustainable forest management.

An Operational Goal states the desired outcome or goal for each of the specific areas of timber production operations, to meet the Code Principles.

Mandatory Actions are actions to be conducted in order to achieve each operational goal. Forest managers must undertake all relevant mandatory actions to meet the objectives of the Code. Mandatory actions are focussed on practices or activities. Failure to undertake a relevant Mandatory Action would result in non-compliance with this Code.

Guidance provides possible means for achieving Operational Goals or Mandatory Actions, including reference to documents that may assist forest managers. Forest managers are not obliged to conduct any of the actions covered under Guidance. This allows for innovation and advances in technology to provide continual improvement in addressing the requirements of the Code. Failure to undertake any Guidance action would not in itself constitute a breach of the Code, however it should be noted that Guidance generally supports or expands upon Mandatory Actions.

DSE has prepared Management Procedures for application on public land, providing practical, detailed operational instructions for specific forest and land types across Victoria. These Management Procedures are consistent with the Operational Goals and Mandatory Actions of this Code. Similar documents may be prepared for private land operations, translating the requirements of this Code into specific rules and requirements, however these must always be consistent with this Code.

Note: The Code of Practice refers to various laws and policies. These laws and policies will be subject to change in the future and the reader should not rely on this Code for an accurate statement of the current laws and policies that may be in force.

DSE maintains a website for this Code of Practice. Current legislative requirements, new State policies and other relevant information, including links to referenced documents, are available there. Refer to www.dse.vic.gov.au/forestry/code/

1. General

1.1 Approval of Plans or Practices

Where this Code refers to an “Approved” plan this means a plan or practice which is (a) in the case of public land, approved by the Secretary of DSE; or (b) in the case of private land, authorised by the Responsible Authority in accordance with a planning scheme or a permit issued under a planning scheme.

1.2 Code Principles

Forest practices for timber production on all native forest and plantations in Victoria are guided by the Code Principles described in Table 1-1. The Code Principles express the broad outcomes of the intent of the Code for each aspect of sustainable forest management.

The seven Code Principles are developed from the internationally recognised Montreal Process criteria and indicators. This allows an integrated approach with reporting mechanisms such as the Victorian Government's *State of the Forests* reporting, and demonstrates Victoria's commitment to being an international leader in sustainable forest management.

Timber growing and harvesting must be planned and conducted according to knowledge developed from research and management experience so as to achieve the intent of the Code Principles. Application of this knowledge will allow timber to be utilised while ensuring impacts are minimised or avoided on water catchments and streams, biodiversity, forested landscapes and significant archaeological, historic and other cultural heritage sites.

In Table 1-1, the Operational Goals of the Code are aligned with each of the seven Code Principles. These Operational Goals are replicated in the body of the Code, with a variety of Mandatory Actions to achieve each Goal. This develops a hierarchy that translates high level Principles into on-the-ground action.

Table 1 - 1 Relationship between Code Principles and Operational Goals

Aspect of Sustainable Forest Management	Code Principles	Operational Goals	Section
Planning	Forest management planning is conducted in a way that meets all legal obligations and operational requirements.	Forest management operations are planned and conducted in accordance with all relevant Commonwealth and State legislation, regulations, government policies and local government regulations. Timber harvesting operations are planned to ensure achievement of all relevant requirements of this *Code of Practice for Timber Production*. Sites and places of conservation or Aboriginal and non-Aboriginal cultural heritage significance are protected as required by the relevant State and/or Commonwealth legislation.	2.1 Forest Planning
		<u>Public Land</u> Forest Management Plans are prepared to cover all Forest Management Areas. Wood Utilisation Plans are prepared in accordance with the *Conservation, Forests and Lands Act* 1987 and approved by DSE Regional Directors prior to the release of coupes for DSE managed operations. Timber Release Plans are prepared in accordance with the *Sustainable Forest (Timber) Act* 2004 and approved in accordance with that Act prior to the release of coupes for VicForests managed operations. Forest Coupe Plans, which specify operational requirements, are prepared and approved in advance of the commencement of each operation.	2.1.1 Public Native Forests
		<u>Native Forest on Private Land</u> Approval for timber production activities in native forests is obtained through relevant planning schemes. A Timber Harvesting Plan is prepared and submitted to the relevant responsible authority prior to the commencement of harvesting operations. It applies to a single coupe or to an area in which a number of coupes are harvested.	2.1.2 Private Native Forests

Aspect of Sustainable Forest Management	Code Principles	Operational Goals	Section
		Plantations Plantations are designed, management measures are taken and operations are conducted in accordance with all relevant legal requirements. Plantation Development Notices are lodged to the satisfaction of the responsible authority prior to the commencement of operations.	3.1 Plantation Planning and Design
Timber Production	The ecologically sustainable long-term timber production capacity of forests managed for timber production is maintained or enhanced.	Timber harvesting is conducted in a manner appropriate to the site, to manage the impact on water and other environmental attributes.	2.4 Timber Harvesting (native forest) 3.4 Timber Harvesting (plantations)
		Regeneration of harvested native forest is conducted to ensure the native forest is perpetuated.	2.2.1 Regeneration
		The local species mixes and representative gene pools are maintained when regenerating native forests by using appropriate seed sources and mixes of dominant species.	2.2.2 Tree Species and Seed Source for Regeneration
		Stocking and early growth is monitored and remedial action is taken to successfully regenerate harvested areas of native forests.	2.2.3 Stocking and Early Growth
		The productive capacity and other values of the forest are maintained or enhanced by appropriate tending of stands.	2.2.4 Tending
Soil and water	Soil and water assets within forests are conserved. River health is maintained or improved.	Measures are taken to control timber harvesting operations in the vicinity of all classes of waterway to protect waterways from disturbance and exposure.	2.4.1 Water Quality and Aquatic Habitat Protection 3.4.1 Water Quality and Aquatic Habitat Protection

Aspect of Sustainable Forest Management	Code Principles	Operational Goals	Section	
		The planning and management of all roads that are part of commercial timber operations takes account of environmental values, the safety of road users and the intended use of the road.	2.3	Roading for Timber Production (native forest)
			3.3	Plantation Roading
		Site preparation activities are appropriate for successful tree establishment and growth, and minimise potential adverse environmental impacts.	3.2.1	Site preparation
		Chemical use is appropriate to the site conditions and is conducted with due consideration given to the maintenance of water quality.	2.2.5	Forest Health
			3.2.2	Fertiliser Use
		Surface water and groundwater availability in catchments used for water supply, and in locations where water resources are recognised as already being highly committed, are protected by maintaining an appropriate age class distribution and through appropriate silvicultural techniques.	2.1.1	Public Native Forests (planning)
			2.1.2	Private Native Forests (planning)
Native Biodiversity	Biological diversity and ecological characteristics of native flora and fauna within forests is maintained.	Planning, harvesting and silvicultural operations in native forests specifically address the conservation of biodiversity, in accordance with relevant legislation and regulations.	2.1	Native Forests
		Planning, harvesting and silvicultural operations in plantations consider the conservation of biodiversity, in accordance with relevant legislation, regulations and planning provisions.	2.4.2	Conservation of Biodiversity (native forest)
		Regeneration of harvested native forest is conducted to ensure the native forest is perpetuated.	3.4.2	Conservation of Flora and Fauna (plantations)
		The planning and management of all roads that are part of commercial timber operations takes account of environmental values, the safety of road users and the intended use of the road.	2.3	Roading for Timber Production (native forest)
			3.3	Plantation Roading

Forest Health	Monitoring and management of forest ecosystem health and vitality is conducted to reduce the impact of pests and weeds.	Forest health is monitored and maintained by employing appropriate preventative, protective and remedial measures. Plantation health is monitored and maintained by employing appropriate preventative, protective and remedial measures.	2.2.5 Forest Health 3.2.3 Plantation Health
Socio-economic	A safe working environment is provided for all forest workers.	All operations are conducted in a manner that meets all safety and duty of care requirements.	2.4.5 Safety (native forests) 3.4.6 Safety (plantations)
		The planning and management of all roads that are part of commercial timber operations takes account of environmental values, the safety of road users and the intended use of the road.	2.3 Roading for Timber Production (native forest) 3.3 Plantation Roading
Heritage	Aboriginal and non-Aboriginal cultural heritage within forests are protected and respected.	Sites and places of conservation or Aboriginal and non-Aboriginal cultural heritage significance are protected as required by the relevant State and/or Commonwealth legislation.	2.1 Native Forests 3.1 Plantation Planning and Design

2. Application of the Code – Native Forests

The Operational Goals, Mandatory Actions and Guidance contained in this Section apply to the planning, regenerating, tending, harvesting and roading of native forests managed for timber production.

2.1 Forest Planning

Planning of forest operations for timber production is critical to achieving the environmental outcomes encompassed by the Code. Forest management planning provides clear documentation of intended reservation of areas, measures to protect the environment and proposed forestry operations such as regeneration, tending, harvesting and roading within forested areas managed for timber production.

Forest Management planning is a continuing process, responsive to changing community expectations, expanding knowledge of forest ecosystems and techniques to improve planning approaches.

Operational Goals

Forest management operations are planned and conducted in accordance with all relevant Commonwealth and State legislation, regulations, government policies and local government regulations.

Timber harvesting operations are planned to meet all relevant requirements of this *Code of Practice for Timber Production*.

Sites and places of conservation or Aboriginal and non-Aboriginal cultural heritage significance are protected as required by the relevant State and/or Commonwealth legislation.

2.1.1 Public Native Forests

Forest management planning for State forests ensures forests are managed in a sustainable manner. Commercial and non-commercial values of forests are integrated so that both the material and non-material welfare of society is improved, whilst ensuring the values of forests, both as a resource for commercial use and for conservation, are not lost or degraded for current and future generations. These values include biological diversity, Aboriginal and other cultural values, landscape, provision of recreation and educational opportunities as well as a range of forest products.

Figure 2- 1 Forest Management Areas in Victoria

Operational Goals

Forest Management Plans are prepared to cover all Forest Management Areas.

Wood Utilisation Plans are prepared in accordance with the *Conservation, Forests and Lands Act* 1987 and approved by DSE Regional Directors prior to the release of coupes for harvesting for DSE managed operations.

Timber Release Plans are prepared in accordance with the *Sustainable Forest (Timber) Act* 2004 and approved in accordance with that Act prior to the release of coupes for harvesting for VicForests managed operations.

Forest Coupe Plans, which specify operational requirements, are prepared and approved prior to each operation.

Forest Management Plans

Forest Management Plans are prepared, or in preparation, for all Forest Management Areas in Victoria (refer Figure 2-1). Forest Management Plans are the fundamental plan for the management of environmental, cultural and resource values within a region.

Forest Management Plans divide State forest into three zones: the Special Protection Zone (SPZ); the Special Management Zone (SMZ); and the General Management Zone (GMZ).

SPZs are managed for conservation, forming a network designed to complement conservation reserves. Timber harvesting is excluded from these zones. SMZs are managed to conserve specific features, while catering for timber production under certain conditions. GMZs are managed for a range of uses, but timber production will have a high priority.

Mandatory Actions

Forest Management Plans for each Forest Management Area must:

- be consistent with this Code of Practice and with all relevant Acts, agreements and policies of the Victorian Government;
- strategically assess and address the management and protection of environmental, cultural and resource values at the regional level and for the long-term;
- recognise the contribution of forest and forest resource use to the economic and social wellbeing of Victorians;
- be planned and implemented to ensure the forest provides continued opportunities for public recreation, scientific study and education;
- aim to achieve ecologically sustainable management, which includes the maintenance of environmental and cultural values and the sustainable use of natural resources;
- provide for the protection of regional biodiversity;
- provide for the protection of water quality and quantity and river health;
- provide a basis for monitoring and reviewing management performance; and
- include public participation in their development process.

Further prescriptions may be developed to provide practical, detailed operational instructions that are applicable in a particular region, in recognition of the variety of forest and land types across Victoria. Any prescriptions that are developed must be consistent with all relevant Operational Goals and Mandatory Actions of this Code.

Wood Utilisation Plans or Timber Release Plans

Wood Utilisation Plans are prepared annually for all commercial DSE forestry operations in State forests. DSE has prepared Guidelines for the preparation of these Plans, which are publicly available and provide more detail than available in this Code.

Timber Release Plans are prepared by VicForests under Part 5 of the *Sustainable Forests (Timber) Act* 2005. A Timber Release Plan includes: schedule of coupes selected for timber harvesting and associated access road requirements; details of the location and approximate timing of timber harvesting in the proposed coupes; and details of the location of any associated access roads.

Mandatory Actions

Schedules of coupes selected for timber harvesting and associated access roading must be described in Wood Utilisation Plans or Timber Release Plans. Coupes must be selected for harvesting to supply the required quantities and mix of wood products using sound silvicultural practices and considering all environmental care requirements.

Special plans must be prepared and approved where major salvage operations of timber are undertaken following wildfire, storms or other events, and must address recovery strategies for other forest values. Minor salvage operations may require modification of the existing Wood Utilisation or Timber Release Plan. Salvage harvesting must take as much account of environmental care as any other harvesting operation.

Wood Utilisation Plans or Timber Release Plans must:

- be consistent with this Code of Practice and with the relevant Forest Management Plan;
- minimise impact on biodiversity and provide for the maintenance of a range of forest age classes and structures;

- identify any need for an Aboriginal cultural heritage assessment, in collaboration with the relevant Traditional Owners;
- minimise the impact of harvesting on water quality and quantity over a period of time within any particular catchment;
- permit the effective and efficient utilisation of felled trees;
- take account of forest type, the silvicultural system to be employed, and the needs of the regeneration program;
- consider adverse effects on areas of landscape sensitivity;
- meet legal timber supply obligations;
- specify the location of coupes;
- show the location of major access roading, including extensions or upgrading of the permanent road network; and
- be available for public scrutiny.

Guidance

Coupe location and dispersion of coupes within the forest will be consistent with Forest Management Plan strategies.

The Wood Utilisation Plan or Timber Release Plan is normally prepared for a multi-year period (three or five years) and is prepared using appropriate expertise.

The removal of timber as part of road construction will be considered within each Plan.

Each Plan will generally identify areas where forest stands can be managed more intensively through stand management practices such as thinning and/or fertilising, salvage fellings, pest control and other silvicultural methods to increase production of timber.

Where selection or thinning silvicultural systems is proposed, the area of forest to be harvested by any individual operation can be determined by the forest type, its stand condition and other relevant environmental factors.

Cultural heritage assessment, in consultation with the relevant Traditional Owners where appropriate, will be consistent with cultural heritage legislation and the Burra Charter.

Forest Coupe Plans

Forest Coupe Plans are prepared for each separate operation identified in the Wood Utilisation Plan or Timber Release Plan.

Mandatory Actions

Forest Coupe Plans must be prepared in accordance with this Code of Practice, the relevant Forest Management Plan and any other relevant prescriptions or procedures.

The size of clear-felled, seed tree or shelterwood one coupes must not exceed 40 hectares net harvested area. Where appropriate, such coupes may be aggregated up to 120 hectares net harvested area over a period of up to five years. Salvage coupes harvested under special plans may exceed these area limits.

Thinning coupes may not exceed 120 hectares net harvested area. In single tree selection coupes, coupe size may exceed 120 hectares if it will not impact on landscape or environmental values.

Coupe boundaries must take advantage of topographic and artificial features where they exist, with due regard to safety, operational requirements, landscape values and environmental values. Where coupe boundaries do not follow obvious natural or artificial features, they must be clearly marked on site.

Exclusion areas must be protected from timber harvesting operations and associated activities in accordance with relevant *Flora and Fauna Guarantee Act* Action Statements, the relevant Forest Management Plan and relevant legislation.

The Forest Coupe Plan must:

- include a map on which the area to be harvested and adjacent exclusion zones are shown and labelled;
- identify conditions applying to operations on the coupe;
- show the coupe location and cutting area boundaries;
- document any authorisations, such as the removal of tree(s) from buffers for safety purposes;
- calculate the area to be harvested;
- state the period during which operations are to occur;
- identify the silvicultural systems to be employed;
- map the soil erosion hazard class (or classes) and slope of the coupe area and associated operational restrictions;
- identify requirements for the location[*], design, construction, maintenance and closure of temporary roads;
- identify requirements for the design, siting[*], construction, use, and rehabilitation of log landings and dumps and, where necessary, siting and rehabilitation measures for major snig tracks;
- describe regeneration procedures to be applied;
- map areas within a coupe that are to be excluded from harvesting, or to which special prescriptions apply (including biodiversity protection or habitat enhancement, water quality and aquatic habitat protection, landscape protection, or cultural heritage sites and places);
- detail any special conditions or prescriptions appropriate to protecting those sites; and
- describe measures to be employed to protect and rehabilitate soils and to maintain water quality.

A copy of the Forest Coupe Plan and any supporting prescriptions must be provided to the harvesting team leader. The Plan's implementation, including specific prescriptions to be applied to the coupe, must be discussed with him/her. These documents must be available on site while operations are in progress. Boundaries and exclusion areas must be identified in the field through ground observation and specified on the Forest Coupe Plan. Where there is a potential for timber harvesting operations to affect adjacent exclusion areas, these exclusion areas must be shown on coupe plans.

Guidance

Forest Coupe Plans may also include, and specify where necessary the:

[*] The location of temporary roads and coupe infrastructure do not need to be identified on the Forest Coupe Plan as they may need to be specified in the field.

- methods of marking;
- expected timber volumes to be removed;
- seasonal restrictions;
- fire protection restrictions; and
- procedures for approving amendments to the Plan.

Landscape values will generally be considered in the preparation of the Forest Management Plan. Appropriate coupe design and distribution may minimise adverse visual impact. The objective is to blend harvesting scenes with natural features of the landscape and particularly to minimise skyline impact.

Salvage operations in coupes affected by wildfire may need to consider any requirements of a rehabilitation plan prepared under the *Code of Practice for Fire Management on Public Land (2006)*.

2.1.2 Private Native Forests

The fundamental document controlling timber production on private land is the Victorian Planning Provisions. The Responsible Authority may consider the Operational Goals and Mandatory Actions in this Code when issuing permits in respect of specific forest operations.

Private native forest landowners are encouraged to consider both on-site and off-site environmental values when managing native forest for timber production. Environmental values considered include impacts on water quality, aquatic habitat, water yield, conservation of flora and fauna habitat, including rainforest, and visual environment.

Native forest harvesting must be carried out in accordance with *Victoria's Native Vegetation Management – A Framework for Action (2002)*, an incorporated document in the Victorian Planning Provisions. Timber harvesting may not be allowed in forests that are considered to have high or very high conservation significance.

Operational Goals

Approval for timber production activities in native forests is obtained through the relevant planning scheme.

A Timber Harvesting Plan is prepared and submitted to the relevant Responsible Authority prior to the commencement of harvesting operations. It applies to a single coupe or to an area in which a number of coupes are harvested.

Timber Harvesting Plans

Mandatory Actions

A Timber Harvesting Plan must be prepared and submitted to the satisfaction of the Responsible Authority prior to the commencement of operations for harvesting of native forests.

When preparing a Timber Harvesting Plan the following issues must be considered:

- methods to minimise impacts on water quality and river health from the operation and associated roads;
- ways to minimise impacts on the visual landscape and any cultural heritage values;

- the need for an Aboriginal cultural heritage assessment in collaboration with the relevant Traditional Owners; and
- any requirements for protecting, or minimising the impacts on, water availability set out in relevant plans prepared under the *Water Act* 1989, *Catchment and Land Protection Act* 1994, *Planning and Environment Act* 1987, the Victorian Planning Provisions and Local Planning provisions and in Regional Catchment Strategies prepared by the relevant Catchment Management Authority.

The Timber Harvesting Plan must include:

- a map showing:
    - the coupe location(s);
    - the area(s) to be harvested and exclusion zones, including areas reserved or specifically managed for biodiversity conservation or waterway protection (including any buffers or filter strips);
    - new or upgraded roads and coupe infrastructure
- conditions applying to the operation; and
- a regeneration program to follow harvesting where required.

The size of clear-felled, seed tree or shelterwood coupes should generally not exceed 40 hectares net harvested area. Such coupes may be aggregated up to 120 hectares net harvested area over a period of up to five years.

Thinning coupes may not exceed 120 hectares net harvested area. In single tree selection coupes, coupe size may exceed 120 hectares if it will not impact on landscape or environmental values.

Coupe boundaries must take advantage of topographic and/or artificial features (such as roads and property boundaries) where they exist, with due regard to safety, operational requirements, landscape values and environmental values. Where coupe boundaries do not follow obvious natural or artificial features, they must be clearly marked on site.

Characteristics of coupes for salvage of timber in forests damaged by fire, pests, pathogens or other events may differ from undamaged forests. A special (salvage) plan or an amended Timber Harvesting Plan must be developed taking into account:

- the need for urgency in timber recovery; and
- the need to modify prescriptions, as required, to meet environmental care goals and address recovery strategies for other forest values such as fauna.

Salvage harvesting must take as much account of environmental care as any other harvesting operation.

A copy of the Timber Harvesting Plan and any supporting prescriptions must be provided to the harvesting team leader. The Plan's implementation, including specific prescriptions to be applied to the coupe, must be discussed with him/her. These documents must be available on site while operations are in progress. Boundaries must be identified in the field.

Guidance

The Timber Harvesting Plan may include information on:

- the period(s) during which operations are to occur;
- methods of marking;

- estimated timber volumes to be harvested and proposed cartage route;
- the area to be harvested;
- soil erosion hazard class (or classes) of the coupe area and associated operational restrictions (e.g. slope);
- type(s) of harvesting and regeneration systems to be employed;
- areas within or adjacent to a coupe that are to be excluded from harvesting, or to which special prescriptions apply (eg. biodiversity protection or habitat enhancement, landscape protection, or Aboriginal cultural sites) and details of any special conditions or prescriptions appropriate to protecting those sites;
- measures to be employed to protect and rehabilitate soils and to ensure maintenance of water quality;
- location, design, construction, maintenance and closure of log extraction roads;
- location and methods of rehabilitation of log landings and dumps and, where necessary, siting and rehabilitation measures for major snig tracks.
- seasonal restrictions;
- any required vegetation offsets; and
- fire protection restrictions.

The location and design of the coupe should take account of the type of harvesting equipment to be used.

The Timber Harvesting Plan may include consideration of any objectives of regional River Health Strategies, Sustainable Water Strategies or any water quality plans prepared by the Catchment Management Authority or Melbourne Water.

Techniques that can be used to protect water availability include the adoption of longer rotations, limitations on annual harvest areas, the control of stand density by thinning to maintain streamflow, or other techniques as research knowledge becomes available. In determining which techniques may be appropriate to protect water availability in any area, consideration should be given to the forest types and age classes present, existing water yields and the level of commitment of the water resource.

Authorities responsible for administering planning schemes may provide advisory information to assist landowners develop and implement plans to protect forest values identified as important at the catchment level. The Responsible Authority may place additional requirements on the Timber Harvesting Plan to meet local planning objectives.

Prescriptions may be developed that provide relevant local interpretations of this Code, however these must be consistent with this Code.

The Responsible Authority may accept the lodgement of an annual Timber Harvesting Plan rather than Timber Harvesting Plans for individual coupes if it is satisfied that the annual Timber Harvesting Plan adequately covers the information required for all coupes included in the Plan.

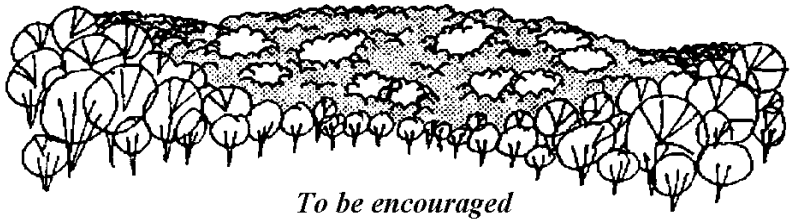
Cultural heritage assessment, in consultation with the relevant Traditional Owners where appropriate, will be consistent with cultural heritage legislation and the Burra Charter.

Adverse visual impact can be minimised by appropriate modification of coupe design and distribution. The objective is to blend harvesting scenes with natural features of the landscape and particularly to minimise skyline impact (refer to Figure 2-2).

Figure 2-2 Minimising visual impact

Small curvilinear-shaped coupes create less dominant visual impact as they blend with the natural landscape

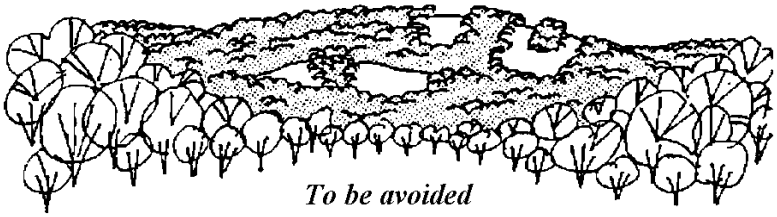
Sequencing of harvest operations over time reduces their visual impact



To be encouraged

Large geometrically-shaped harvest areas create unsightly contrasts with the natural forms and lines of the landscape

Harvest areas which breach the horizon create unsightly skyline impacts



To be avoided

2.2 Establishing and Tending Timber Production Stands

This section covers the regeneration of native forest and the subsequent management of such stands, where required. Unless required for another authorised purpose, native forests in Victoria are fully regenerated to approximate the original forest.

2.2.1 Regeneration

Operational Goals

Regeneration of harvested native forest is conducted to ensure the native forest is perpetuated.

Mandatory Actions

Action must be taken to secure the regeneration of harvested coupes, except where:

- the land is to be used for an authorised/approved purpose for which native vegetation is not compatible (for example, authorised/approved services and infrastructure, and structures); or
- timber has been harvested by thinning a stand; or
- the stocking of seedlings or regrowth is assessed as sufficient to ensure natural regeneration.

Silvicultural methods for regeneration must be appropriate to the forest type and local conditions.

Where fire is used in regeneration operations, all practicable measures must be taken to protect all areas excluded from harvesting.

Use of pesticides in site preparation and/or seedling or regrowth/advance growth liberation must comply with Commonwealth and State legislation and regulations.

Public Land

Harvested native forest must not be cleared to provide land for the establishment of plantations.

Use of fire must be in accordance with the *Code of Practice for Fire Management on Public Land* (2006). A regeneration burn is a prescribed burn and requires an approved Burn Plan under that Code.

Private Land

Regeneration of private native forests must be in accordance with the Victorian Planning Provisions and the relevant incorporated document, *Victoria's Native Vegetation Management – A Framework for Action* (2002).

Use of fire must be in accordance with the *Country Fire Authority Act* 1958 and any associated regulations, planning provisions and any planning permit conditions.

Guidance

DSE maintains standards against which regeneration may be assessed, that may provide a useful reference for forest operators.

Appropriate silvicultural systems for harvesting and regeneration of coupes include selection, shelterwood, seed tree and clear-felling.

Where natural seedfall or sowing is used, surveys may be conducted to assess the quality of the seedbed before seed is applied.

Receptive seedbed for regeneration may be achieved by:

- burning of harvest debris; or
- mechanical disturbance.

Burning of debris may reduce the fire hazard associated with large accumulations of flammable material but may affect the regeneration of fire sensitive species. Mechanical disturbance may degrade the soil or affect water quality.

Planting can be used to regenerate the forest (see section 2.2.2 regarding the source of seed for seedlings used).

Private land

Under *Victoria's Native Vegetation Management – A Framework for Action*, offsets are required for harvested vegetation. For private native forest harvesting the offset can be regeneration of the harvested area if this achieves recovery of 50 per cent of the habitat value within 10 years and ultimately the same quality (minus the large tree component). Refer to Appendix 5, Table 7 of the Framework, page 56. Harvested native forest on private land that is not adequately regenerated on site will require off-site offsets.

2.2.2 Tree Species and Seed Source for Regeneration

Operational Goals

The local species mixes and representative gene pools are maintained when regenerating native forests by using appropriate seed sources and mixes of dominant species.

Mandatory Actions

Native forest stands must be regenerated with species native to the area, wherever possible using the same provenances, or if not available, from an ecologically similar locality.

Except where past management practices may have altered species composition, regeneration operations must aim to approximate the composition and spatial distribution of canopy species common to the coupe prior to harvesting, where they can be determined.

Public Land

The source of seed used must be recorded in a manner that allows for future reference.

Guidance

An ecologically similar locality for a species is from a similar elevation, aspect, soil type and/or climate, preferably as close as possible to the harvested area. Genetic testing may assist in determining similarity.

The regeneration of understorey species should be facilitated where possible. Harvesting and regeneration methods that minimise disturbance to understorey elements or protect understorey patches may assist in regenerating this component of the forest structure.

The careful screening or treatment of seed and nursery stock used in regeneration will minimise the spread of weeds, pathogens or pests.

Public Land

The source of any seed used may be recorded on the Coupe Information System or equivalent database.

Private Land

Where seed is used, the source of seed may be noted on Timber Harvesting Plans.

2.2.3 Stocking Assessment and Remedial Treatment

Operational Goal

Stocking and early growth is monitored and remedial action is taken where necessary to successfully regenerate harvested areas of native forests.

Mandatory Actions

Regeneration on harvested coupes must be assessed within a reasonable time from treatment, to determine if regeneration has been achieved and allow for re-treatment where necessary.

When stocking, health or early growth is inadequate, remedial work must be conducted as soon as practicable (on private land, where directed by the Responsible Authority) to obtain adequate regeneration.

The results of assessment must be recorded for future reference.

Guidance

DSE has publicly available standards for the assessment of regeneration for various forest types and silvicultural systems. These may be considered by the Responsible Authority for application on private land.

Where selection (uneven-aged) silvicultural systems are used, stocking assessments should take account of retained trees.

Public Land

The results of assessments and details of any further silvicultural treatments may be recorded on the Coupe Information System or equivalent database.

Private Land

The results of assessments and details of any further silvicultural treatments may be recorded on Timber Harvesting Plans.

Victoria's Native Vegetation Management – A Framework for Action indicates required stocking and regeneration quality standards, being 50 per cent of the habitat value within 10 years and ultimately the same quality (minus the large tree component).

2.2.4 Tending

Operational Goal

The productive capacity and other values of the forest are maintained or enhanced by appropriate tending of stands.

Mandatory Actions

Tending operations must be planned and conducted in a manner that minimises adverse impacts on areas that are excluded from harvesting.

Guidance

Appropriate action may be taken to tend native timber production stands where consistent with environmental safeguards. Examples of such action include stand improvement (such as overwood culling), thinning, fertilising, salvage fellings, pest control and other silvicultural methods to promote stand health and timber production.

When commercial thinning is undertaken, DSE maintains standards that may be used to assess the success of the operation.

Fire prevention and suppression measures may be taken to protect timber stands from wildfire, taking care to minimise the effects of these measures on other environmental values.

2.2.5 Forest Health

Operational Goals

Forest health is monitored and maintained by employing appropriate preventative, protective and remedial measures.

Chemical use is appropriate to the site conditions and is conducted with due consideration to the maintenance of water quality.

Mandatory Actions

Chemical use must be appropriate to the circumstances and conducted with due consideration to the maintenance of water and soil quality.

If the introduction of a new or unknown exotic agent is suspected, Biosecurity Victoria must be informed.

The use of chemicals for control of pests and pathogens must be in accordance with relevant Commonwealth and State legislation, regulations and statutory codes of practice. Instructions printed on product labels or any off-label permits issued must be followed. In particular, chemical use must comply with the relevant provisions of the *Catchment and Land Protection Act* 1994, the *Agricultural and Veterinary Chemical (Control of Use) Act* 1992 and any regulations under that Act. Users must be trained and/or licensed as required by law.

Where there is a known risk of introducing pests and pathogens to the forest (for example, but not limited to *Armillaria* or *Phytophthora*), precautions must be taken and the risk minimised through appropriate treatment of equipment when moving from known infested areas.

Where Myrtle Wilt fungus (*Chalara australis*) is known to exist, precautionary measures must be applied to minimise the spread of this pathogen.

Public Land

Precautions must be taken to avoid the transport of any pest animal, pest plant or pathogen into or from a State forest, or from one place to another within a State forest.

Guidance

The risks posed by pest plants, pest animals and pathogens and other environmental stresses to forest health may be assessed regularly and systematically so that problems are detected early and appropriate remedial strategies are implemented. Pre-operations surveys can include soil sampling and testing for soil-borne pathogens as appropriate.

Various aspects of forest health may be monitored and documented (aided by photographic records as appropriate) in assessments, including crown and foliage condition, presence of damaging agents and description of damage levels.

Successful control or management of forest health problems may require coordinated action involving adjacent landholders and other forest owners.

Washing of machinery and equipment when moving between forest areas will assist in the control of the spread of pathogens and weeds.

Stand health may be promoted through stand management practices (such as fire application, thinning, salvage felling, weed, pest and pathogen control), where unacceptable risks to health exist. A permit from relevant planning authorities may be required.

Where legislation permits, native animals that threaten regeneration may be controlled, but only under permits and in accordance with any associated conditions as issued by relevant authorities.

Where pesticides are used, a Pesticide Application Plan may be prepared that specifies the target pest(s), chemical(s), target area(s), application rates and method(s) and operational controls that will be adopted to minimise unintended off-target and off-site impacts. It could also address the process for any notifications required by law.

Chemical use in water supply catchments, particularly declared Special Water Supply Catchment Areas, may require consultation with the relevant Water Authority.

The Action Statement *Human Activity which results in artificially elevated or epidemic levels of Myrtle wilt with Nothofagus dominated Cool Temperate Rainforest* provides guidance on control measures for Myrtle Wilt.

2.3 Roading for Timber Production

This section covers the planning, location, design, construction, maintenance and use of permanent and temporary timber extraction roads. This section does not consider requirements for snigging and forwarding tracks, which are covered under coupe infrastructure (section 2.4.3).

Poorly designed or maintained forestry roads have the potential to create significant environmental impacts, particularly on water quality and river health. The aim of this Code of Practice is to protect a range of values while allowing economic roading for timber production.

DSE is the Road Authority under the *Road Management Act* 2004 for the State forest road network. The Road Authority must manage roads they are responsible for in accordance with the requirements of the *Road Management Act* 2004 and any Codes of Practice made under that Act.

Operational Goal

The planning and management of all roads that are part of commercial timber operations takes account of environmental values, the safety of road users and the intended use of the road.

Mandatory Actions

All legal and statutory requirements must be complied with.

2.3.1 Road Planning

Mandatory Actions

Road planning and design for new and substantially upgraded roads must ensure the road network is adequate for the intended range of uses and users, while ensuring the protection of water quality and conservation values, including river health.

Road planning must:

- identify possible environmental risks and construction difficulties, so that adequate design standards can be used, and so that construction activities can be timed to minimise risks associated with wet weather;
- locate roads so as to minimise risks to environmental values, particularly soil, water quality and river health, during both construction and ongoing road use;
- locate roads to avoid Reference Areas and designated cultural heritage sites;
- identify the need for an Aboriginal cultural heritage assessment in collaboration with the relevant Traditional Owners, consistent with cultural heritage legislation and the Burra Charter; and
- comply with any relevant Action Statements and/or Recovery Plans under the *Flora and Fauna Guarantee Act* 1988, the *Environment Protection and Biodiversity Conservation Act* 1999, the *Native Title Act 1993,* and avoid areas which are the subject of an Interim Conservation Order pursuant to the *Flora and Fauna Guarantee Act* 1988.

Existing roads must, where practicable, be used for access to a coupe or work site and to cart timber, unless the construction of a new road is also required for other purposes.

Public Land

Plans for permanent roads must be approved in advance of harvesting operations to enable the roads to be located on alignments and grades that provide the required standard of access without compromising water quality and other environmental values.

Plans for permanent and temporary roads must be based on field surveys to ensure all environmentally sensitive locations are identified and appropriate design and construction techniques adopted.

New road construction and significant improvement works on the existing road network must be identified in the Wood Utilisation Plan or Timber Release Plan.

Private Land

Road planning, including approval for stream and drainage line crossings, must comply with the *Catchment and Land Protection Act* 1994, the *Water Act* 1989 and the *Planning and Environment Act* 1987, and any planning provisions and any conditions of planning permits (refer clause 52.18-4 of Victorian Planning Provisions).

Guidance

Roads should be located to permit road surface run-off to be discharged away from streams or drainage lines, to minimise the number of stream crossings and to avoid:

- steep and unstable slopes and areas prone to landslips;
- disturbance to streams, buffer strips, riparian vegetation and rainforest in areas not associated with approved crossings; and
- the movement of side-cast material into streams or drainage lines.

Private Land

Plans for permanent and temporary roads may be based on field surveys to ensure that all environmentally sensitive locations are identified and appropriate design and construction techniques adopted.

2.3.2 Road Design

Road design includes the consideration of surface materials, road shape as well as road infrastructure including culverts, drains, batters, bridges and fords.

Mandatory Actions

New or upgraded roads must be designed to a standard capable of carrying anticipated traffic with reasonable safety, and meeting Code requirements, particularly water quality.

Roads must be designed to ensure the protection of water quality and river health, and biodiversity conservation values.

Stream crossings must be designed according to the nature, size and period of flow (both pre and anticipated post harvest) and characteristics of the bed and banks of the stream.

Road drainage must not discharge directly into waterways.

Drainage from road sections outside buffer strips must be discharged before the road enters buffer strips, where practicable. Silt traps must be used if this is not possible.

Drainage onto exposed erodible soil or over fill slopes must be avoided where possible. Energy dissipating structures or silt traps must be used where necessary. Structures and earthworks required to avoid such discharges are to be identified during planning and construction as required.

Stream crossings must be appropriately designed to minimise barriers to the passage of fish and other aquatic fauna.

Public land

Engineering advice must be sought for road alignments traversing cross slopes of 30 degrees or greater and 25 degrees or greater in areas of high soil erodibility.

Private land

Stream crossings must be designed to comply with the *Catchment and Land Protection Act* 1994 and any other Acts, regulations or statutory Codes controlling stream crossings.

Guidance

The season of harvesting, transport needs, construction standards specified in the planning scheme (or a permit issued under the planning scheme), and the water quality values to be protected are important considerations in road design.

To avoid discharge into waterways, energy dissipating structures, silt traps or other protective measures may be put in place to discharge into undisturbed vegetation.

Silt traps should be located to prevent direct discharge into streams, streamside buffers or filter strips.

Where possible, stream crossings should be adequately elevated and low approaches maintained such that water drains away from the crossing point and is discharged into vegetated areas rather than flowing directly down the crossing to the stream channel.

Roads may be designed and managed in accordance with:

- *Review of road classifications, geometric designs and maintenance standards for low volume roads* (Giummarra 2001);
- *Guidelines for assessment of applications for Permits and Licences for works on waterways* (Sinclair Knight Merz 2001);
- *Unsealed roads manual: Guidelines to good practice: a comprehensive manual prepared by the Australian Roads Research Board* (ARRB 2000); and
- *Fish Passage Requirements for Waterways Crossings* (NSW Fisheries 2004).

Bridges should be designed in accordance with AS5100 (2004) *Bridge Design*.

Private Land

Engineering advice should be sought for road alignments traversing cross slopes of 30 degrees or greater and 25 degrees or greater in areas of high soil erodibility.

2.3.3 Road Construction

Mandatory Actions

Road construction must be conducted in a manner consistent with plans and designed to ensure the protection of water quality and river health, Aboriginal cultural sites and biodiversity conservation values.

All fill disposal areas and embankments must be planned and designed to minimise soil erosion, mass soil movement, and potential water quality deterioration. They must be stabilised and rehabilitated when no longer required.

Where revegetation is used to stabilise fills or embankments, the species must be suitable for the site and, where possible, indigenous to the area.

Adequate temporary stabilisation must be employed to deal with site earthwork drainage and erosion control if road construction is halted or suspended for any reason.

All quarries, gravel and borrow pits must be in accordance with the *Extractive Industries Development Act* 1995 and the *Catchment and Land Protection Act* 1994 and any associated regulations.

Quarry materials must not be used if known to be infected with *Phytophthora cinnamoni*.

Construction operations must ensure that:

- disturbance to stream beds and banks is kept to a minimum;
- fill is not pushed into streams, nor placed into a position where there is a risk that it can erode into a stream; and
- cement and raw concrete are not spilt into watercourses during any construction.

Private land

All quarries, gravel and borrow pits, must also be in accordance with the requirements of the *Planning and Environment Act* 1987.

Stream crossings must be in accordance with the requirements of the *Water Act* 1989.

Guidance

Permanent road and temporary road construction should be conducted when rainfall and soil conditions minimise the risk of erosion and potential offsite impact on water quality.

Stabilisation may be achieved by measures such as, but not limited to, revegetation and use of erosion control materials. Additional information can be found in *Unsealed roads manual: Guidelines to good practice* (ARRB 2000).

Traffic management should be in accordance with AS 1742.3 and Code of Practice for Worksite Safety – Traffic Management.

2.3.4 Road Maintenance

Mandatory Actions

Road maintenance must be scheduled and implemented to minimise erosion and to protect water quality.

Road drainage systems must be maintained to minimise erosion and the discharge of turbid water into streams and drainage lines.

Blading-off is only permitted where measures are in place to prevent potential adverse impacts on water quality and where effective side drainage can be maintained.

Private Land

Management of vegetation beside permanent roads that remain open must comply with the requirements of the *Planning and Environment Act* 1987, the Victorian Planning Provisions and conditions of any planning permit.

Guidance

Private Land

Under clause 52.18-4 of Victorian Planning Provisions, it is the responsibility of the forest owner or manager to restore any roads that are used as a cartage route to the same condition they were in before the start of harvesting operations, to the extent of any damage caused as a result of the harvesting operations.

2.3.5 Suspension of Cartage

Mandatory Actions

Roads must be temporarily closed to heavy timber harvesting traffic when persistent wet weather or road stability threaten water quality, in the absence of suitable preventative or remedial actions to manage the risk to water quality.

Roads must be temporarily closed to heavy timber harvesting traffic when persistent dry weather causes the surface materials to unravel to a degree that poses a threat to water quality, in the absence of suitable preventative or remedial actions to manage the risk to water quality.

Guidance

Central tyre inflation (wet weather), road watering/rolling (dry weather) and other technology may extend the window for operational compliance with the Code.

2.3.6 Road Closure

Mandatory Actions

Roads no longer required for timber harvesting or other purposes, such as fire management, must be permanently closed and effectively drained.

Public Land

Seasonal, temporary and permanent road closures must be implemented in accordance with Section 21a of the *Forest Act* 1958 and the *Country Fire Authority Act* 1958 as applicable.

Guidance

Stabilisation of closed roads can be achieved by measures such as, but not limited to, revegetation and use of erosion control materials. Section 2.2.1 of this Code covers appropriate regeneration activities.

2.4 Timber Harvesting

Operational Goal

Timber harvesting is conducted in a manner appropriate to the site, to manage the impact on water and other environmental attributes.

Mandatory Actions

Timber must be directed to fall within the coupe boundary unless the operator is specifically authorised otherwise and the reason for authorisation is documented.

Public Land

All timber harvesting must comply with the requirements of the Timber Harvesting Regulations 2000[♆].

Timber harvesting operations are not permitted in special protection zones (buffers, habitat protection etc.) or other excluded areas identified on the coupe plan unless harvesting has been authorised and documented for:

- protection of public and worker safety or forest health; or
- the construction of roads or stream crossings.

Private Land

All timber harvesting must comply with the requirements of the *Planning and Environment Act* 1987, Victorian Planning Provisions, the approved Timber Harvesting Plan and the conditions of any planning permit.

Guidance

Where forest operations are to take place near residences, the occupants should be notified and consideration given to appropriate hours of machinery operation. Operating hours may be documented in the Timber Harvesting Plan or Forest Coupe Plan. Consideration should be given to the EPA publication *Interim Guidelines for Control of Noise from Industry in Country Victoria*.

2.4.1 Water Quality, River Health and Soil Protection

The Code classifies waterways in Victoria using the following system. Classifications are defined based on waterway form prior to harvesting. There are three classes of waterways:

Class 1 - Pools, permanent streams and wetlands

Class 1 includes permanent streams such as rivers and creeks that flow throughout the year, as well as pools (including isolated pools in temporary streams), all wetlands and other bodies of standing water.

Permanent streams may stop flowing and water bodies may dry up in extremely dry years. Sites of permanent streams, pools and wetlands are generally distinguishable by the presence of riparian vegetation that is distinctively different from vegetation in the surrounding area[*], and is indicative of

[♆] to be amended in 2006.

[*] The presence of redgum (*E camaldulensis*) does not indicate riparian vegetation, as it may occur at some distance from waterways.

extended periods of saturation. Permanent streams are likely to have a well-defined, permanent channel incised into the bottom of the valley.

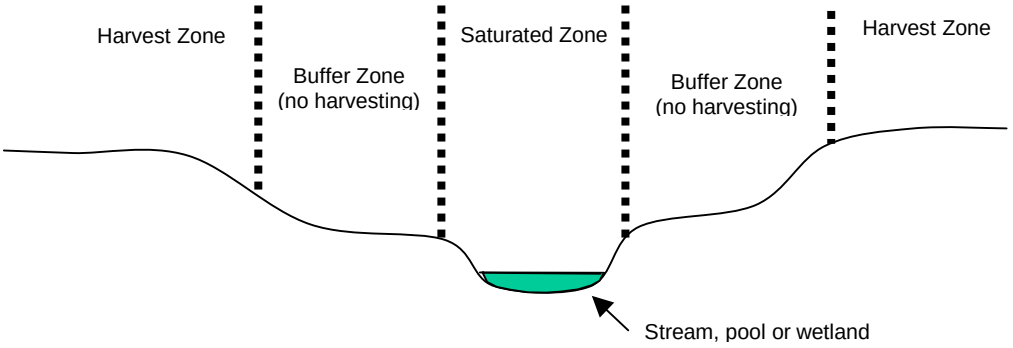


Figure 2-3 Class 1 – Permanent stream[†]

Class 2 - Temporary streams

Temporary streams flow regularly during certain seasonal periods of the year, but not throughout the year. A temporary stream may be similar in appearance to a permanent stream; both may have a clearly defined continuous channel or streambed and riparian vegetation[*].

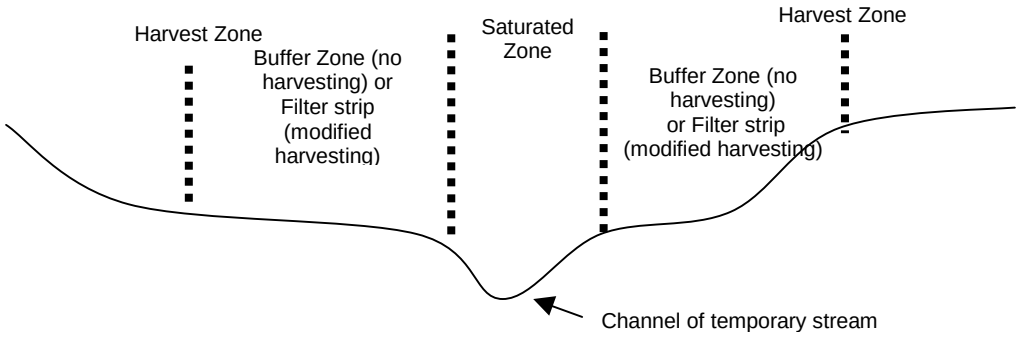


Figure 2-4 Class 2 – Temporary Stream[†]

Class 3 - Drainage lines

Drainage lines are depressions that have evidence of periodically flowing water with a small defined channel appearing at least intermittently. Visible water flow would be expected after storm events or briefly in the wettest times of the year. They may or may not contain distinctive riparian vegetation, indicative of periods of saturation.

[†] diagrams not to scale: zone widths vary according to circumstance.

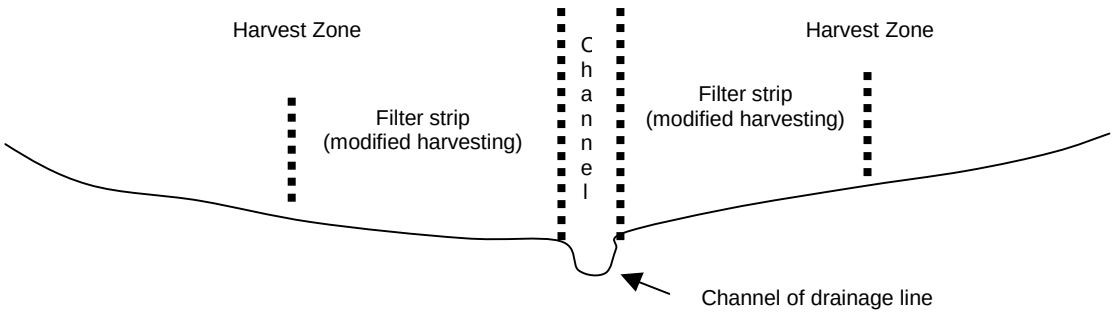


Figure 2-5 Class 3 – Drainage Line[†]

Operational Goal

Measures are taken to control timber harvesting operations in the vicinity of all classes of waterway to protect waterways from disturbance and exposure.

Soil erosion is minimised by avoiding harvesting in inappropriate areas or slopes and undertaking necessary preventive measures.

Mandatory Actions

Waterways within and immediately adjacent to each coupe must be classified using the waterway classification system described above.

Water quality and river health must be protected by maintaining buffers and/or filter strips (to each side of the waterway) of not less than the widths specified in Table 2-1.

Measures to reduce the impact of timber harvesting on water quality and river health must take account of other requirements set out in Special Area Plans made under the *Catchment and Land Protection Act* 1994.

Storage, use and disposal of petroleum products and machinery servicing must not pollute the environment nor result in littering. Waste oil, all empty drums, discarded machinery parts and other waste must be removed from the forest and taken to an approved disposal facility. Toilet wastes must not be allowed to enter a waterway.

Timber harvesting must only occur on slopes where the operation can be conducted safely and does not threaten the stability of the soil or cause adverse off-site effects.

[†] diagrams not to scale: zone widths vary according to circumstance.

Table 2-1 Minimum width in metres for buffer strips (B) and filter strips (F) to be applied to various waterway categories, in relation to soil type and slope.

	Soils with high permeability and low potential for overland flow	Soils with low permeability and high potential for overland flow	
Waterway Class		**Slope 0-20°**	**Slope >20°**
1. Pools, permanent streams and wetlands	20B	30B	40B
2. Temporary streams	10F	10B	20B
3. Drainage lines	10F	10F	15F

Notes: Slope is the average slope of the coupe area in the vicinity of the water body.

Some drainage lines are channelled or incised because of human impacts. Buffers and filter strips must be applied to each waterway class regardless of the origins of the channelling.

The width of buffer areas and filter strips must be measured in the horizontal plane, from the edge of the saturated zone (at time of harvesting) or channel (whichever is greater).

Buffers and filter strips must be:

- specified on the basis of field assessments; and
- shown on Forest Coupe Plans (public land) or Timber Harvesting Plans (private land).

Additional measures to protect water quality and aquatic habitat (including widening buffers or filter strips) must be considered where there is a high local risk due to:

- the erodibility of soils;
- rainfall erosivity;
- steep topography;
- intensity and magnitude of the harvesting operation;
- location of the coupe in a declared Special Water Supply Catchment area or water supply protection area.

Any particular requirements to increase buffers due to the location of a water supply off-take point; or any other relevant requirements set out in Special Area Plans under the *Catchment and Land Protection Act* 1994, must be observed.

<u>For operations within buffer areas:</u>

Trees must not be felled from within buffer areas unless the selective removal of trees for safety is approved by an authorised officer and specified in the approved Forest Coupe Plan (public land) or specified on the Timber Harvesting Plan (private land).

Buffers must be protected from damage caused by trees felled in adjacent areas. Trees accidentally felled into buffers may be removed where authorised and only if significant damage and disturbance of soil and vegetation in the buffer can be avoided.

Machinery must not enter a buffer area except for the construction and use of stream crossings as specified in the approved Forest Coupe Plan (public land) or Timber Harvesting Plan (private land).

Pushing of fill or harvesting debris into a buffer or construction of drain structures within a buffer is not permitted except for the construction of an approved stream crossing.

For operations within filter strips:

Disturbance to soil and understorey vegetation from harvesting operations in filter strips must be minimised.

Trees may be felled both from within and into filter strips.

Machinery must not enter a filter strip, except at stream crossings as specified in the approved Forest Coupe Plan (public land) or Timber Harvesting Plan (private land).

Pushing of fill or harvesting debris into a filter strip is not permitted except for the construction of an approved stream crossing.

Where temporary culverts are used, they must be removed immediately after harvesting or any subsequent regeneration work for which they are required, using a technique that minimises soil disturbance.

Crossing of filter strips must be minimised. Approved crossings must be designated on the Forest Coupe Plan (public land) or Timber Harvesting Plan (private land). Where crossings involve the use of log culverts, these must be removed when harvesting is completed.

Operations on Steep Slopes

Harvesting operations must be excluded from slopes greater that 30 degrees where the soil erodibility is high.

On slopes greater than 30 degrees with low or medium soil erodibility, and slopes less than 30 degrees with a high soil erodibility, additional measures must be taken to avoid movement of soil into streams, such as modification to harvesting methods or increasing of the widths of buffers and filter strips.

For areas restricted by slope, small areas within coupes (not greater than 10 per cent or exceeding two hectares of net harvested area in one coupe) that are greater than the maximum slope limit may be harvested where the land is assessed as capable of supporting harvesting activities.

Guidance

Directing trees to fall out of filter strips may reduce soil disturbance.

Logging techniques specifically designed for steep slopes (such as cable logging) may be used to minimise soil movement.

The actual protection measures applied to protect waterways from disturbance will depend on the erodibility and permeability of soils, rainfall erosivity, topography, intensity and magnitude of harvesting operations, and the physical design of any water supply off-take and distribution system.

Waterway classifications and associated buffers and filter strips post-harvesting should consider potential changes in forest hydrology following harvesting and resultant changes on stream flow.

There are appropriate Australian Standards for the storage and handling of fuels, such as AS1940, that may be considered.

There may be other special requirements for water quality and soil protection set out in a regional River Health Strategy, or a Water Quality Plan prepared by the relevant Catchment Management Authority or Melbourne Water. These plans may provide guidance on additional protection measures.

2.4.2 Conservation of Biodiversity

Operational Goal

Planning, harvesting and silvicultural operations in native forests specifically address the conservation of biodiversity, in accordance with relevant legislation and regulations.

Mandatory Actions

Adherence is required to relevant Action Statements and/or Recovery Plans for species and/or Interim Conservation Orders to the *Flora and Fauna Guarantee Act* 1988, and the provisions of the *Environment Protection and Biodiversity Conservation Act* 1999, where applicable.

Where fire is used in regeneration operations, all practicable measures must be taken to protect all areas excluded from harvesting.

Rainforest stands in Victoria must not be harvested. Rainforest stands must be protected from the impacts of harvesting through the use of appropriate buffers to maintain microclimatic conditions and protect from disease and other disturbance.

Public Land

Buffers and other mechanisms for the protection of rainforest stands must be developed with reference to the *Rainforest and Cool Temperate Mixed Forests* Action Statement.

The following approaches must be considered on public land to facilitate protection of biodiversity values:

- adoption of the precautionary principle to the conservation of biodiversity values, permitting further monitoring and research to improve understanding of the effects of forest management on forest ecology and conservation values;
- engagement of relevant expertise in conservation biology and management during the development and review of Forest Management Plans and local prescriptions;
- use of wildlife corridors, comprising varying widths of retained forest, to facilitate animal movement between patches of forest of varying ages and stages of development, and contribute to a linked system of reserves.
- retention of habitat trees or patches and mature understorey elements in appropriate numbers and configurations, and provision for replacement of old hollow-bearing trees within the harvested area.
- providing appropriate undisturbed buffer areas around significant habitats; and
- modifying coupe size and dispersal in the landscape, as appropriate.

Guidance

Opportunities to improve the protection of threatened species or habitat values may include reserving further strategic areas from harvesting, or modifying harvesting and silvicultural techniques to achieve specific conservation objectives.

Where vegetation is retained, consideration should be given to both the protection of retained vegetation during harvesting and subsequent management, and the effect of retained vegetation on the growth of future crop trees.

Where appropriate, streamside buffers may have a dual role of protecting water quality and acting as a wildlife corridor. However, the need for corridors along or across other topographic features will arise and should be considered in relation to the forest type and fauna present.

When planning and undertaking regeneration burning operations, minimising slash near any retained vegetation (eg. buffer strips, habitat trees or patches or shelterwood one trees) will assist its survival.

Private Land

Buffers and other mechanisms for the protection of rainforest stands may be developed with reference to the *Rainforest and Cool Temperate Mixed Forests* Action Statement.

The following approaches should be considered to facilitate protection of biodiversity values:

- use of wildlife corridors, comprised of varying widths of retained forest, to facilitate animal movement between patches of forest of varying ages and stages of development.
- retention of habitat trees or patches and mature understorey elements in appropriate numbers and configurations, and provision for replacement of old hollow-bearing trees within or around coupes. Consideration should be given to both the protection of habitat trees during harvesting and subsequent management, and the effect of retained trees on the growth of future crop trees;
- providing appropriate undisturbed buffer areas around significant habitats;
- modifying coupe size and dispersal in the landscape where possible and as appropriate.

Responsible Authorities and the Department of Sustainability and Environment may provide further information to assist private land managers to implement these approaches during the development of Timber Harvesting Plans.

2.4.3 Coupe Infrastructure

Coupe infrastructure includes log landings and dumps, snigging and forwarding tracks.

Mandatory Actions

The area of log landings and log dumps must be minimised without compromising safety. Landings and dumps must be located, constructed and maintained to minimise potential adverse impacts on soil and water quality.

Log landings and dumps must not be located within areas excluded from harvesting.

Landing construction must include stockpiling of any existing topsoil for later use in rehabilitation, unless using suitable soil protection techniques (such as cording and matting).

Landings must be rehabilitated on completion of operations, where not required for future operations, using rehabilitation techniques that provide suitable soil conditions for the regeneration and growth of vegetation existing on the site prior to harvesting. Refer to section 2.2 of this Code.

Rutting and compaction must be minimised by use of appropriate snigging/forwarding equipment or by appropriate harvesting methods.

Snigging and forwarding track location must minimise potential adverse impact on soil and water quality and maintain effective drainage to prevent soil erosion. Following harvesting, tracks must be effectively rehabilitated to prevent soil erosion.

In wet weather, modifications to harvesting operations must be considered to minimise the risk to soil and water values from coupe infrastructure.

Snig tracks must not be bladed off where this would result in an adverse impact on water quality or the loss of topsoil from the site.

Public Land

Snig tracks must not be bladed-off except with specific authorisation from an Authorised Officer.

Private Land

Cross-drains, where used, must be spaced and angled according to any prescriptions in planning schemes, conditions of any planning permit or other approved plan to prevent surface run-off and subsequent discharge of turbid water into streams or drainage lines.

Guidance

Rehabilitation of coupe infrastructure should be assessed within two years of initial treatment and, where found inadequate, remedial action should be taken.

Rutting and compaction may be minimised by use of cording or matting of snig tracks and or landings.

Alignment of snig tracks and forwarding tracks should be located where they can be effectively cross-drained and out-sloped.

Appropriate drainage of snig tracks may include out-sloping, cross-draining or placement of slash to interrupt surface water flow and disperse it onto undisturbed or uncompacted areas. Cross-drains should be spaced and angled according to local prescriptions (where these exist) according to soil erosion hazard class.

Tracks designed with minimal slope and cross-fall will assist drainage. Preference should be given to uphill snigging using spurs and ridge tops, where possible.

2.4.4 Operational Restrictions

Mandatory Actions

Timber harvesting operations must be restricted or stopped where there is a risk to soil and water quality values during or following wet weather conditions.

Snigging and forwarding operations must be suspended when significant rutting is likely to be caused by machine traffic unless actions are taken to reduce that risk.

Snigging, forwarding and cartage operations must be suspended when water begins to flow along tracks, threatening stream water quality or soil values, unless appropriate remedial actions have been taken to protect those values.

Landing operations must be temporarily suspended when continuation would result in significant deterioration of the landing surface.

Guidance

Where weather patterns and soil type create unsuitable working conditions, consideration should be given to seasonal or temporary closure of the forest to timber harvesting.

Cording and matting can be used to extend the operational window for compliance with the Code.

Other relevant operational restrictions may be prescribed elsewhere. These may include, but are not limited to, the *Code of Practice for Fire Management on Public Land,* the *Forests Act* 1958 and *Country Fire Authority Act* 1958.

2.4.5 Safety

Operational Goal

All operations are conducted in a manner that meets all safety and duty of care requirements.

Mandatory Actions

Operations must comply with the requirements of the *Occupational Health and Safety Act* 2004 and any relevant Codes of Practice prepared under that Act.

3. Application of the Code – Plantations

Plantations are intensively managed stands of trees of either native or exotic species, created for timber production purposes.

3.1 Plantation Planning and Design

Operational Goals

Plantations are designed, management measures are taken and operations are conducted in accordance with all relevant legal requirements.

Plantation Development Notices are lodged to the satisfaction of the Responsible Authority prior to the commencement of plantation development.

Sites of conservation and cultural heritage significance are protected as required by the relevant State and/or Commonwealth legislation.

Mandatory Actions

Plantation design must take account of environmental values, and be consistent with relevant fire protection requirements.

Plantation planning must identify the need for an Aboriginal cultural heritage assessment in collaboration with the relevant Traditional Owners.

Any removal of native vegetation must comply with the Victorian Planning Provisions, as applicable. Native vegetation must where possible be retained along waterways (refer Section 3.2).

Plantation operations such as establishment, tending, roading, harvesting and re-establishment must be planned and conducted in such a manner as to not compromise soil stability or lead to mass movement or sedimentation of waterways.

As specified in the Victorian Planning Provisions, a plantation must not be within 100 metres of:

- any dwelling in separate ownership;
- any land zoned for residential, business or industrial use; or
- any site specified on a permit which is in force which permits a dwelling to be constructed.

The plantation must not be within 20 metres of a power line whether on private or public land, except with the consent of the relevant electricity supply or distribution authority.

Approval for plantation establishment, where required, must be obtained through relevant planning schemes.

A Plantation Development Notice must be lodged to the satisfaction of the responsible authority prior to the commencement of site preparation. A Plantation Development Notice must include:

- the landowners name and address;
- a map of the plantation, showing:
    - the location of the plantation;

  - any new or upgraded roads;
  - any retained vegetation
- the total area to be planted;
- species to be planted; and
- year of planting.

Required firebreaks must be in place and maintained in accordance with *Country Fire Authority Act* 1958 and any associated regulations, Victorian Planning Provisions, or relevant conditions of any planning permit.

Protection of landscape values must comply with the requirements of Victorian Planning Provisions, and any local policies, as applicable. Refer to your relevant Municipal Strategic Statement.

Guidance

Plantations can be established with species that meet the objectives of the grower, unless the growing of that species is prohibited by the provision(s) of other law(s) or regulation(s).

Any removal of native vegetation may require the provision of offsets, as detailed in *Victoria's Native Vegetation Management - A Framework for Action* (2002).

3.2 Environmental Values

Where plantations have been established on previously cleared agricultural land, they can provide important environmental benefits, such as carbon sequestration, salinity control and reduced soil disturbance. Impacts from plantations on environmental values, particularly water quality and river health, can be avoided by appropriate planning and management.

3.2.1 Water Quality, River Health and Soil Protection

Waterways include all three classes as defined in Section 2.4.1. Managing plantation operations (eg. establishment, tending, roading and harvesting) near waterways is an important consideration, as poor practices have the potential to create unacceptable off-site impacts.

Operational Goal

Measures are taken to control plantation operations to protect waterways from disturbance and exposure that could reduce their water quality and river health values.

Soil erosion is minimised by avoiding plantation operations in inappropriate areas or slopes and undertaking necessary preventive measures.

Mandatory Actions

Storage, use and disposal of petroleum products and machinery servicing must not pollute the environment nor result in littering. Waste oil, all empty drums, discarded machinery parts and other waste must be removed from the forest and taken to an approved disposal facility. Toilet wastes must not be allowed to enter a waterway.

Additional measures to protect water quality and aquatic habitat must be considered where there is a high local risk due to:

- the erodibility of soils;
- rainfall erosivity;
- steep slopes;
- the intensity and magnitude of the harvesting operation; and
- any particular requirements of a water supply off-take point.

Operations near waterways

Near waterways, any machinery activity must:

- be kept to the minimum necessary;
- not occur within five metres of the edge of a permanent waterway;
- not take place on, or cause disturbance to, permanent waterway banks;
- not allow any soil or debris to enter the waterway.

When felling trees, they must be directed to fall away from a waterway.

Trees must not be extracted across a class 1 or 2 waterway.

Intact native vegetation along a waterway must be protected from damage caused by trees felled in adjacent areas. Trees accidentally felled into retained vegetation or across a waterway must be carefully removed with minimal disturbance to the soil or its protective cover.

Any particular requirements to increase buffers due to the location of a water supply off-take point; or any other relevant requirements set out in Special Area Plans under the *Catchment and Land Protection Act* 1994, must be observed.

Operations on Steep Slopes

Soil and water values must be protected by the limitation of site preparation and harvesting operations on steep slopes or on lesser slopes of unstable soil where erosion hazard is high;

Site preparation and harvesting operations must be excluded from slopes greater that 30 degrees where the soil erodibility high.

On slopes greater than 30 degrees with low or medium soil erodibility, and slopes less than 30 degrees with a high soil erodibility, additional measures must be taken to avoid movement of soil into streams, such as modification to harvesting methods or the provision of buffers and filter strips (as described in section 2.4.1).

For areas restricted by slope, small areas within compartments (not greater than 10 per cent or exceeding two hectares in one compartment) that are greater than the maximum slope limit may be harvested where the land is assessed as capable of supporting harvesting activities.

Guidance

Any unavoidable machinery activity near waterways should:

- be parallel to the waterway wherever practicable;
- done in such a way as to ensure water is not diverted from any waterways; and
- not take place when the soil is saturated.

Site preparation by non-mechanical means may be considered near waterways to minimise risks to water quality and soil values.

The actual protection measures applied to protect waterways from disturbance will depend on the erodibility and permeability of soils, rainfall erosivity, topography, intensity and magnitude of harvesting operations.

There are appropriate Australian Standards for the storage and handling of fuels, such as AS1940, that may be considered.

Logging techniques specifically designed for steep slopes (such as cable logging) may be used to minimise soil movement.

There may be other special requirements for water quality and soil protection set out in a regional River Health Strategy, or a Water Quality Plan prepared by the relevant Catchment Management Authority or Melbourne Water. These plans may provide guidance on additional protection measures.

3.2.2 Conservation of Biodiversity

Operational Goal

Planning and all operations in plantations address the conservation of biodiversity, including rainforest, in accordance with relevant legislation and regulations.

Mandatory Actions

Where prepared, Action Statements and/or Recovery Plans for species listed under the *Flora and Fauna Guarantee Act* 1988 and the *Environment Protection and Biodiversity Conservation Act* 1999 must be adhered to, where they apply to private land.

Measures must be taken to protect all retained vegetation that could be damaged by plantation operations.

If waste timber and debris are to be burned, then burning operations must be planned and managed to minimise damage to retained native vegetation both within and outside the operational area.

Guidance

Buffers and other mechanisms for the protection of rainforest stands may be developed with reference to the *Rainforest and Cool Temperate Mixed Forests* Action Statement.

Opportunities to improve the protection of threatened species or habitat values may include reserving strategic areas from harvesting, or by modifying harvesting and silvicultural techniques to achieve specific conservation objectives.

Responsible Authorities and DSE may provide further information to assist private land managers to protect biodiversity during the development of Timber Harvesting Plans.

3.3 Establishment and Tending of Plantations

3.3.1 Site Preparation

Site preparation activities should be appropriate for successful tree establishment and growth, whilst minimising potential adverse environmental impacts.

Operational Goal

Site preparation operations are appropriate to the characteristics of the particular site, and are conducted with due consideration given to the maintenance of soil and water values and site productivity.

Mandatory Actions

If waste timber and debris are to be burned, then burning must minimise damage to retained native vegetation within or outside the operational area. Any burning operations conducted as part of site preparation activities must comply with relevant Acts, regulations and gazetted Codes of Practice, as required.

Any burning must be conducted in accordance with the *Country Fire Authority Act* 1958.

Where windrows or heaps are created, soil within them must be kept to a minimum.

Guidance

When a plantation is to be re-established on a harvested plantation site, harvesting debris should be retained as mulch rather than being burnt, where practicable.

Site preparation techniques including ripping, ploughing and mounding could be used to promote successful tree establishment and growth, although such techniques must be planned and conducted in such a manner as to not compromise soil stability or mass movement, or sedimentation of waterways (as per Section 3.2).

Site preparation by non-mechanical means (eg. spot herbicide treatment) should be considered near waterways to protect soil values and be conducted in a way that minimises risks to water quality. Where chemicals are used, refer to Section 3.3.2.

When creating windrows or heaps, soil movement can be minimised by using appropriate machinery such as bulldozers fitted with stick-rake blades, excavators fitted with grabs, and by using skilled operators.

3.3.2 Chemical Usage

Operational Goal

Fertiliser and chemical use is appropriate to the site conditions and circumstances and is conducted with due consideration given to the maintenance of water quality and soil values.

Mandatory Actions

Where fertiliser, biosolids or other organic wastes or industrial by-product additives are used, they must be used in accordance with the law and conditions of any required approvals.

Chemical use must be appropriate to the circumstances and conducted with due consideration given to the maintenance of water quality. Potential off-site, non-target impacts must be minimised.

Plantation operations must comply with relevant parts of the *Catchment and Land Protection Act* 1994, the *Agricultural and Veterinary Chemical (Control of Use) Act* 1992 and any regulations under that Act. Users must be trained and/or licensed as required by law.

All chemical and biological control measures must adhere to required environmental safe-guards. The use of chemicals for control of pests and diseases must be conducted in accordance with relevant Commonwealth and State legislation, regulations and statutory Codes of Practice. Instructions printed on product labels or any off-label permits issued must be followed.

Guidance

Application of bio-solids will be guided by the EPA publication 943 '*Guidelines for Environmental Management: Bio-solids Land Application*'.

The Australian Fertiliser Services Association has developed voluntary Codes of Practice for the responsible application of fertiliser to protect waterways and other values. These may assist in managing efficient and effective fertiliser use.

Where chemicals are to be used, an Application Plan could be prepared that specifies the target, the chemicals(s), target area(s) application rates and method(s) and operational controls that will be adopted to minimise unintended off-target and off-site impacts. It could also address the timing and a process for any notifications required by law.

Chemical use in water supply catchments, particularly declared Special Water Supply Catchment Areas, may require consultation with the relevant Water Authority.

3.3.3 Plantation Health

Operational Goal

Plantation health is monitored and maintained by employing appropriate preventative, protective and remedial measures.

Mandatory Actions

If the introduction of an exotic agent is suspected, Biosecurity Victoria must be informed.

Where there is a known risk of introducing pests and pathogens, the risk must be minimised through appropriate treatment of equipment when moving from known infected areas.

Machinery, vehicles and other equipment used on private land must not transport any pest animal, noxious weed or pathogen from one property to another.

Guidance

The risks posed by pest plants and animals, and pathogens and other environmental stresses to plantation health should be assessed regularly and systematically so that problems are detected early and appropriate remedial strategies are implemented.

Various aspects of forest health could be monitored and documented (aided by photographic records as appropriate) in assessments including crown and foliage condition, presence of damaging agents and description of damage levels.

Successful control or management of plantation health problems may require coordinated action involving adjacent landholders and other forest owners.

Health of the stand may be promoted through stand management practices (such as thinning, salvage felling, weed, pest and disease control), where unacceptable risks to health exist.

Where legislation permits, native animals that threaten planted trees may be controlled, but only under permits and in accordance with any associated conditions as issued by relevant authorities.

Nursery stock used for plantation establishment should be carefully screened or treated so as to avoid the accidental spread of weeds, pathogens or pests.

3.4 Plantation Roading

This section covers the planning, location, design, construction, maintenance and use of timber extraction roads, and stream crossings.

Operational Goal

The management of all roads that are part of plantation operations takes account of environmental values, the safety of road users and the intended use of the road.

Mandatory Action

All legal and statutory requirements must be complied with.

3.4.1 Road Planning

Mandatory Actions

Road planning, including approval for stream and drainage line crossings, must comply with the *Catchment and Land Protection Act* 1994, the *Water Act* 1989 and the *Planning and Environment Act* 1987, and any relevant planning provisions and any conditions of planning permits (refer clause 52.18-4 of Victorian Planning Provisions).

Road planning must:

- identify possible environmental risks and construction difficulties, so that adequate design standards can be used, and so that construction activities can be timed to minimise risks associated with wet weather;
- locate roads so as to minimise risks to environmental values, particularly soil, water quality and river health, during both construction and ongoing road use, while ensuring road user safety;
- locate roads so they avoid any designated cultural heritage sites; and
- comply with any relevant Action Statements and/or Interim Conservation Orders under the *Flora and Fauna Guarantee Act* 1988 and recovery plans under the *Environment Protection and Biodiversity Conservation Act* 1999.

Guidance

Plans for permanent and temporary roads should be based on field inspection to ensure that all environmentally sensitive locations are identified and appropriate design and construction techniques adopted.

Periodic reviews of roading networks may be undertaken to ensure the network is sufficient for intended uses, complies with relevant standards and to identify and treat any risks to environmental values.

3.4.2 Road Design

Road design includes the consideration of surface materials, road shape as well as road infrastructure including culverts, drains, batters, bridges and fords.

Mandatory Actions

Plantation roads must be designed to a standard capable of carrying anticipated traffic with reasonable safety, and meeting Code requirements, particularly water quality.

Road drainage must not discharge directly into waterways.

Drainage onto exposed erodible soil or over fill slopes must be avoided where possible. Energy dissipating structures or silt traps must be used where required. Structures and earthworks required to avoid such discharges must be identified during planning and construction as required.

Stream crossings must be designed to comply with the *Catchment and Land Protection Act* 1994 and any other Acts, regulations or statutory Codes controlling stream crossings.

Stream crossings must be appropriately designed to minimise barriers to the passage of fish and other aquatic fauna.

Guidance

Important considerations in road design include the season of harvesting, transport needs, construction standards specified in the planning scheme (or a permit issued under the planning scheme), and the water quality values to be protected.

To avoid discharge into waterways, energy dissipating structures, silt traps or other protective measures may be placed to discharge into undisturbed vegetation.

Silt traps should be located to prevent direct discharge into streams, streamside buffers or filter strips.

Where possible, stream crossings should be adequately elevated and low approaches maintained such that water drains away from the crossing point and is discharged into vegetated areas rather than flowing directly down the crossing to the stream channel.

Roads may be designed and managed in accordance with:

- *Review of road classifications, geometric designs and maintenance standards for low volume roads* (Giummarra 2001);
- *Guidelines for assessment of applications for Permits and Licences for works on waterways* (Sinclair Knight Merz 2001);
- *Unsealed roads manual: Guidelines to good practice* (ARRB 2000); and
- *Fish Passage Requirements for Waterways Crossings* (NSW Fisheries 2004).

Bridges may be designed in accordance with AS5100 (2004) *Bridge Design*.

3.4.3 Road Construction

Mandatory Actions

Road construction must be conducted in a manner consistent with plans and designed to ensure the protection of water quality and river health, Aboriginal cultural sites and biodiversity conservation values.

All fill disposal areas and embankments must be planned and designed to minimise soil erosion, mass soil movement, and potential water quality deterioration. When no longer required they must be stabilised.

Adequate temporary stabilisation must be employed to deal with site earthwork drainage and erosion control if road construction is halted or suspended for any reason.

All quarries, gravel and borrow pits must be managed in accordance with the *Extractive Industries Development Act* 1995, the *Catchment and Land Protection Act* 1994, the *Planning and Environment Act* 1987 and any associated regulations.

Quarry materials must not be used if known to be infected with *Phytophthora cinnamoni*.

Construction operations must ensure that:

- disturbance to stream beds and banks is kept to a minimum;
- fill is not pushed into streams, nor placed into a position where there is a risk that it will erode into a stream; and
- cement and raw concrete are not spilt into watercourses during any construction.

Guidance

Permanent roads and temporary road construction should be conducted when rainfall and soil conditions minimise the risk of erosion and potential offsite impact on water quality.

Stabilisation can be achieved by measures such as, but not limited to, revegetation and use of erosion control materials. Additional information can be found in *Unsealed roads manual: Guidelines to good practice* (ARRB 2000).

Traffic management may be managed in accordance with AS 1742.3 and the Code of Practice for Worksite Safety – Traffic Management.

3.4.4 Road Maintenance

Mandatory Actions

Road maintenance must be scheduled and implemented to minimise erosion and protect water quality.

Road drainage systems must be maintained to minimise erosion and the discharge of turbid water into streams.

Blading-off is only permitted where measures are in place to prevent potential adverse impacts on water quality.

Management of vegetation beside permanent roads must comply with the requirements of the *Planning and Environment Act* 1987, the Victorian Planning Provisions and conditions of any planning permit.

Guidance

Under Clause 52.18-4 of the Victorian Planning Provisions, it is the responsibility of the forest owner or manager to restore any roads used as a cartage route to the same condition they were in before the commencement of harvesting operations, to the extent of any damage caused as a result of the harvesting operations.

3.4.5 Suspension of Cartage

Mandatory Actions

Roads must be temporarily closed to timber traffic when persistent wet weather or road stability threaten water quality, in the absence of suitable preventative or remedial actions to manage the risk to water quality.

Roads must be temporarily closed to heavy timber harvesting traffic when persistent dry weather causes the surface materials to unravel to a degree that poses a threat to water quality, in the absence of suitable preventative or remedial actions to manage the risk to water quality.

Guidance

Central tyre inflation, road watering/rolling and other technology may extend the window for operational compliance with the Code.

3.4.6 Road Closures

Mandatory Actions

Roads used for timber cartage are to be either actively managed or permanently closed to ensure protection of water quality and other environmental values.

Roads permanently closed to all traffic must be adequately drained.

Roads must be closed and effectively rehabilitated when they are no longer required or their continued use will threaten environmental values.

Guidance

Stabilisation can be achieved by measures such as, but not limited to, revegetation and use of erosion control materials.

3.5 Timber Harvesting

Timber harvesting needs to be undertaken in a manner appropriate to the site. Mandatory Actions relevant to timber harvesting that are necessary for the protection of environmental values are described in section 3.2.

Operational Goal

Timber harvesting is conducted in a manner appropriate to the site, and manages the impact on water and other environmental attributes.

Mandatory Action

All timber harvesting must comply with the requirements of the *Planning and Environment Act* 1987, Victorian Planning Provisions, the Timber Harvesting Plan and the conditions of any planning permit.

3.5.1 Timber Harvesting Plan

Operational Goal

A Timber Harvesting Plan is prepared and submitted to the relevant Responsible Authority prior to the commencement of harvesting operations. It applies to a single compartment or to an entire plantation's harvesting operations.

Mandatory Action

A Timber Harvesting Plan must be prepared and submitted to the satisfaction of the Responsible Authority prior to the commencement of operations for harvesting of plantations.

When preparing a Timber Harvesting Plan the following issues must be considered:

- protection of relevant environmental and cultural heritage values;
- methods to minimise impacts on water quality and river health from the operation and associated roads;
- ways to minimise impacts on the visual landscape;
- any requirements for protecting, or minimising the impacts on, water availability set out in relevant plans prepared under the *Water Act* 1989, *Catchment and Land Protection Act* 1994, *Planning and Environment Act* 1987, the Victorian Planning Provisions and Local Planning provisions and in Regional Catchment Strategies prepared by the relevant Catchment Management Authority.

The Timber Harvesting Plan must include:

- a map showing:
    - the plantation or compartment location(s);
    - the area(s) to be harvested and exclusion zones;
    - new or upgraded roads;
    - plantation infrastructure
- conditions applying to the operation.

A copy of the Timber Harvesting Plan and any supporting prescriptions must be provided to the harvesting team leader. The Plan's implementation, including specific prescriptions to be applied to the plantation, must be discussed with him/her. These documents must be available on site while operations are in progress. Boundaries must be identified in the field.

Guidance

The Timber Harvesting Plan may include information on:

- the period(s) during which operations are to occur;
- estimated timber volumes to be harvested and proposed cartage route;
- the area of the compartment to be harvested;
- soil erosion hazard class (or classes) of the compartment area and associated operational restrictions (e.g. slope);
- type(s) of harvesting systems to be employed;
- areas within or adjacent to a plantation that are to be excluded from harvesting, or to which special prescriptions apply (eg. biodiversity protection or habitat enhancement, landscape protection, or cultural heritage values) and details of any special conditions or prescriptions appropriate to protecting those sites;
- measures to be employed to protect and rehabilitate soils and to ensure maintenance of water quality;
- location, design, construction, maintenance and closure of log extraction roads;
- location and methods of rehabilitation of log landings and dumps and, where necessary, siting and rehabilitation measures for major snig tracks;
- seasonal restrictions; and
- fire protection restrictions.

Where forest operations are to take place near residences, the occupants should be notified and consideration given to appropriate hours of machinery operation. Operating hours should be documented in the Timber Harvesting Plan. Consideration should be given to the EPA publication *Guidelines for control of noise from industry in country Victoria*.

The Timber Harvesting Plan may include consideration of any objectives of regional River Health Strategies, Sustainable Water Strategies or any Water Quality Plans prepared by the Catchment Management Authority or Melbourne Water.

Authorities responsible for administering planning schemes should provide advisory information to assist landowners develop and implement plans to protect forest values identified as important at the catchment level. The Responsible Authority may place additional requirements on the Timber Harvesting Plan to meet local planning objectives.

The Responsible Authority may accept the lodgement of an annual Timber Harvesting Plan rather than individual Timber Harvesting Plans if it is satisfied that the annual Timber Harvesting Plan adequately covers the information required for all compartments included in the Plan.

3.5.2 Plantation Infrastructure

Mandatory Actions

The operation of a harvesting compartment requires the development and use of specific infrastructure, which must be done in a manner that manages potential negative impacts on environmental values.

The area of log landings and log dumps must be minimised without compromising safety. Landings and dumps must be located, constructed and maintained to minimise potential adverse impacts on soil and water quality.

Log landings and dumps must not be located within areas excluded from harvesting.

Landing construction must include stockpiling of any existing topsoil for later use in rehabilitation of the landing.

Landings must be stabilised upon completion of operations where not required for future operations.

Extraction and forwarding tracks must be located to minimise potential adverse impact on soil and water quality and maintain effective drainage to prevent soil erosion.

Following harvesting, all tracks must be effectively rehabilitated to prevent soil erosion.

Cross-drains where used, must be spaced and angled according to any prescriptions in planning schemes or conditions of any planning permit, to prevent surface run-off and subsequent discharge into streams or drainage lines.

Blading-off of extraction tracks must not result in adverse impact on water quality or the loss of topsoil from the site.

Where log culverts are used, they must be removed immediately following completion of harvesting or any subsequent re-establishment work for which they are required using a technique that minimises soil disturbance.

Guidance

Rehabilitation techniques could include draining the site, removing bark heaps, ripping to reduce compaction and respreading topsoil.

Tracks should be out-sloped, cross-drained or slash used to interrupt any flow of surface water down the track and disperse it onto undisturbed or uncompacted areas, avoiding direct discharge into drainage lines or streams.

Tracks should be designed with a view to minimising slope and cross-fall to assist drainage.

3.5.3 Operational Restrictions

Mandatory Actions

Timber harvesting operations must be restricted or stopped where there is a risk to soil and water quality values during or following wet weather conditions.

Extraction and forwarding operations must be suspended when significant compaction, rutting or soil mixing is likely to be caused by machine traffic unless actions are taken to reduce that risk.

Extraction, forwarding and cartage operations must be suspended when water begins to flow along tracks, putting stream water quality at risk, unless remedial actions have been taken to negate that risk.

Landing operations must be temporarily suspended when continuation would result in significant deterioration of the landing surface.

Guidance

A range of techniques to assist harvesting such as flotation tyres and use of harvesting slash on extraction tracks can be used to extend the operational window for compliance with the Code, while minimising the impact of the operation on environmental values.

Other relevant operational restrictions might also be prescribed elsewhere. This may include, but not be limited to, conditions on a planning permit, and restrictions under the *Forests Act* 1958 and *Country Fire Authority Act* 1958.

3.5.4 Safety

Operational Goal

All operations are conducted in a manner that meets all safety and duty of care requirements.

Mandatory Action

All operations must be compliant with the requirements of the *Occupational Health and Safety Act* 2004, including any Codes of Practice prepared under that Act.

Glossary

The following definitions apply to the interpretation of terms used in this Code:

Aboriginal Culture – Indigenous culture is a living entity and includes stories, cultural practices and ongoing use of natural resources. Connections exist through places where resources have been extracted like bark and timber, spiritual and ceremonial places, travel paths, and Aboriginal sites. In the forests specifically, artefact scatters, scarred trees, shell middens, rock art and mounds have been recorded.

Aboriginal Sites and Places – Aboriginal people are intrinsically connected to the land and water. Traditional owners have cared for Country including the land and natural resources for thousands of years. Indigenous people continue to have strong ongoing associations with the land and forests and their involvement in the management of the forests is vital to their community's identity and wellbeing.

Authorised officer - A person appointed as an Authorised officer under the *Conservation Forests and Lands Act* 1987 and other relevant Acts (*Forests Act* 1958).

Biodiversity - The natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats, and the ecosystems of which they are an integral part.

Blading-off - the use of a machine to sweep drifts of loose mud, slush, or soil from the surface of a road.

Bodies of standing water - naturally occurring lakes and swamps of normally permanent water that contain a distinct aquatic ecosystem and littoral zone (they may dry up in extended dry periods).

Borrow pit - an excavation sometimes made alongside a road in order to obtain gravel or other material for use in road construction or surfacing.

Buffer (strip) - a protective margin of vegetation excluded from any harvesting activity abutting a waterway or an area of rainforest or other special area, which protects it from potentially detrimental disturbances in the surrounding forest. Buffer width is defined as horizontal distance from which various operations are excluded.

Burn Plan - a plan which, in the required Departmental format, is approved for the conduct of prescribed burning and contains a map identifying the area to be burned and incorporates the specifications and conditions under which the operation is to be conducted. Refer to the *Code of Practice for Fire Management on Public Land (2006).*

Burra Charter – A set of guidelines that recommend procedures for assessing the cultural significance of a place, for preparing a statement of cultural significance and for making such information publicly available.

Chemical control agent - refer to Pesticide.

Clear-felling – silvicultural method of harvesting a coupe whereby all merchantable trees, apart from those to be retained for wildlife habitat, are removed.

Coupe - an area of native forest of variable size, shape and orientation from which timber is harvested. The equivalent term in plantations is compartment.

Cross draining, of roads - interception drains provided across the longitudinal direction of the road to divert water from the road surface.

Crowned (in relation to roads) - the formation of a road surface by a grader or dozer to a convex-shape from which water will freely drain to both sides away from the middle.

Drainage lines - depressions that have evidence of periodically flowing water with a defined channel appearing at least intermittently. Visible water flow would be expected after storm events. They may contain distinctive riparian vegetation, indicative of periods of saturation.

Environmentally sensitive area - an area of highly significant environmental value that is sensitive to disturbance. Examples include waterways and their associated riparian zones, rainforest, and sites of rare flora or fauna.

Erosion hazard, of the soil - the likelihood of erosion occurring due to soil erodibility, rainfall erosivity, slope and soil disturbance.

Exotic - introduced, not native.

Extraction track - the track along which logs are extracted from the forest to the roadside or a landing, usually carried by a forwarder. Sometimes called a forwarding track or a snig track, although that term is more commonly used in native forest harvesting.

Fill disposal area - site where surplus soil and rock material produced as a by-product of road construction operations may be stockpiled or disposed of.

Filter strip - a strip of vegetated ground where trees may be felled subject to certain conditions and machinery entry is permitted only in certain situations, to minimise soil compaction and erosion.

Forest Coupe Plan - a plan that must be prepared for each harvesting operation in public native forest and contains a map identifying the area and a schedule incorporating the specifications and conditions under which the operation is to be administered and controlled.

Forest Management Plan - addresses the full range of values and uses in Forest Management Areas that have been designated as the units for planning forest management activities.

Habitat Tree – A tree identified and protected from harvesting to provide habitat or future habitat for wildlife. A habitat tree may be living or dead, and often contains hollows which are suitable shelter and/or nesting sites for animals such as possums and parrots.

Harvesting Team Leader - The principal licensee or harvesting contractor, or a person appointed by the principal licensee or harvesting contractor, responsible for supervising and controlling a timber harvesting operation in the forest.

Landing - a place where trees or parts of trees are sorted, processed and/or loaded for transport from the forest. Areas where there has been no significant soil disturbance associated with landing establishment, and where no further processing takes place, are not regarded as landings. Conversion sites that do not involve earthworks or clearing, or where there has been no significant soil disturbance, are also not regarded as landings.

Landscape sensitivity (high) - areas identified as having a high scenic quality and visual sensitivity. They are usually areas that are readily visible from high-usage recreational facilities such as look-outs, walking tracks, tourist roads, or campsites.

Microclimate - climate of a small, localised part of a forest. Vegetation, soil conditions and small scale topography may create pronounced microclimatic differences.

Mixed Forest - an intermediate community between rainforest and surrounding vegetation. Comprises a closed (70 per cent projected foliage cover) stratum of mainly rainforest canopy species beneath a eucalypt canopy which exceeds 10 per cent crown cover. The eucalypt canopy can be any age.

Native Forest – an area originally naturally occurring, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. This definition includes areas of trees that are sometimes described as woodlands, but does not include plantations (which may exhibit the characteristics of a native forest but are established for commercial purposes).

Native vegetation - plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses.

Outsloping, of roads or tracks - the formation of a road or track surface to provide slope or camber so that water will drain from it on the outside of the road/track. Sometimes called 'cross-sloping'.

Permanent Road - a generally high standard road constructed initially for timber extraction, but then permanently required for the continuing management of the forest including timber harvesting.

Permeability (high) - Soils with high permeability and low potential for overland flow are soils which are able to directly absorb large quantities of water without producing any significant run-off. The soils will be generally well structured with a friable surface and a high organic matter content.

Permeability (low) - Soils with low permeability and high potential for overland flow are soils which will not readily absorb heavy falls of rain nor small surface flows of water. The soils will be generally poorly structured with poorly defined aggregation.

Permanent waterways - rivers and streams that flow throughout the year or retain pools of water, permanent springs or swampy ground, wetlands or other bodies of standing water. Permanent waterways only stop flowing or dry out in extremely dry years, providing refuge for aquatic flora and fauna. Permanent waterways will support distinctive riparian vegetation (not including *E camaldulensis*), indicative of extended periods of saturation and distinguishable from vegetation communities in surrounding areas. Streams have a well-defined permanent channel incised into the bottom of the valley.

Pesticide (and/or Chemical control agent) – a chemical product that is used to control pest plants or animals. Include herbicides, insecticides, fungicides, rodenticides and other similar products. Their registration for sale and use is controlled by specific State and Commonwealth legislation.

Plantation - intensively managed stands of trees of either native or exotic species, created for timber production purposes.

Plantation Development Notice - a notice that must be prepared and lodged with the Responsible Authority before a private plantation is established for the first time. The notice must contain the information set out in Section 3.1 of this Code.

Precautionary principle – when contemplating decisions that will affect the environment, the precautionary principle involves careful evaluation of management options to avoid wherever practical, serious or irreversible damage to the environment; and to properly assess the risk-weighted consequences of various options. When dealing with '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'.

Private land - for the purposes of this Code, private land comprises:

a) land alienated from the Crown;

b) unalienated land of the Crown managed and controlled by other than the Minister for Environment, the Minister for Agriculture, or the Secretary of Sustainability and Environment;

c) unalienated land of the Crown occupied under a lease from the Crown; and

d) land licensed or leased under the *Victorian Plantations Corporation Act* 1995.

Provenance (seed) - the source or place from which that seed was obtained.

Public land - unalienated land of the Crown managed and controlled by the Minister for Environment, the Minister for Agriculture, or the Secretary of Sustainability and Environment, whether or not occupied under a licence or other right (but not including land occupied under a lease or licence under the *Victorian Plantations Corporation Act* 1995).

Rainfall erosivity - is the potential of rainfall to cause soil erosion and is directly related to rainfall amount and rainfall intensity.

Rainforest community - closed (>70 per cent projected foliage cover) broadleaved forest vegetation with a more or less continuous rainforest tree canopy of variable height, and with a characteristic composition of species and life forms, of at least 100 square metres in area. Refer to the *Rainforest and Cool Temperate Mixed Forests* Action Statement for a full definition including field identification.

Rainforest tree canopy species - characteristic shade tolerant tree species that are able to regenerate below an undisturbed canopy, or in small canopy gaps resulting from locally recurring minor disturbances, such as isolated windthrow or lightning strike, which are part of the rainforest ecosystem. Such species are not dependent on fire for their regeneration.

Regeneration - the renewal or re-establishment of native forest by natural or artificial means.

Rehabilitation - the restoration and revegetation of a site of disturbance usually associated with forest road works and landings.

Responsible Authority - as defined in s.13 of the *Planning and Environment Act* 1987. Generally the local government authority responsible for administering the local planning scheme.

Retained trees - trees retained on a coupe during a harvesting operation because they are unmerchantable, are to serve as seed trees or wildlife habitat trees, or have been selected to grow on after thinning.

Riparian vegetation - vegetation that requires free or unbound water, or conditions that are noticeably moist along the margins of streams, drainage lines, and lakes.

Rotation - the planned number of years between the regeneration of a forest stand and its final harvesting, taking into account the full range of values and uses the owner wishes to derive from the forest.

Run-off (with regard to road construction) - a short graded channel angled away from road edges to divert road drainage water off the road into undisturbed vegetation. Sometimes called a mitre drain.

Saturation zone - associated with waterways, the area where the soil is muddy or permeated with water attributable to the water body. The zone ends where moisture is no longer visibly present in the soil. This zone is often delineated by riparian vegetation.

Seed tree system - a silvicultural system used for harvesting and regeneration. All merchantable trees are harvested apart from those specifically retained for regenerating the coupe by natural or induced seedfall and for habitat purposes.

Seed trees - trees retained on harvested coupes to provide habitat and seed for natural regeneration of that coupe.

Selection systems - silvicultural systems used for harvesting and regeneration. Trees are harvested either singly or in small groups at relatively short intervals (usually 10 - 20 years) over the rotation. Regeneration is established in the gaps produced and an uneven-aged stand is maintained.

Shelterwood system - a silvicultural system used for harvesting and regeneration. The original stand is removed in two fellings. Firstly a proportion of the mature trees are cut to allow the establishment of essentially even-aged regeneration under sheltered conditions, followed by a second felling (usually about 10 years later) of the remainder of the mature (seed) trees.

Silviculture - the science and practice of managing harvesting, forest establishment, composition, and growth, to achieve specified objectives.

Site preparation - the preparation of the ground to provide conditions suitable for seedling establishment by either seed or planted seedlings.

Snigging - the towing or winching of a log from the stump to the landing site.

Snig track - the track along which a log is snigged.

Soil erodibility - the susceptibility of a soil to erosion when exposed and/or disturbed. Classified into low medium or high according to prescribed techniques.

Stand condition - the health, age and size class distribution, and stocking of a forest stand.

State forest - as defined in section 3 of the *Forests Act* 1958. State forest comprises publicly owned land which is managed for the conservation of flora and fauna; for the protection of water catchments and water quality; for the provision of timber and other forest products on a sustainable basis; for the protection of landscape, archaeological, historical and other cultural values; and to provide recreational and educational opportunities.

Stocking – a measure of density of any given forest stand, which can be expressed in a variety of terms, such as the number of trees per hectare, the basal area per hectare, and the percentage of stocked plots.

Temporary road - a timber-extraction road constructed specifically for use during the harvesting operation and closed at the completion of harvesting. It is generally a short length of road leading from a permanent timber-extraction road to a landing or series of landings in one or more harvesting coupes.

Temporary streams - streams have a clearly defined continuous channel or streambed and flow regularly during certain seasonal periods of the year, such as following snowmelt, but not throughout the year. Temporary streams are physically similar to permanent streams in having a well-defined permanent channel incised into the bottom of a valley. They contain distinctive riparian vegetation (not including *E camaldulensis*), indicative of extended periods of saturation and distinguishable from vegetation communities in surrounding areas.

Tending - the treating of a forest stand to protect, maintain, or improve its stand health and/or timber production potential.

Thinning - the removal of part of a forest stand or crop, with the aims of increasing the growth rate and/or health of retained trees and, in commercial thinning, obtaining timber from trees that would otherwise eventually die before final harvest.

Timber - a general term used to describe standing trees or felled logs before their processing into wood products. This includes timber from trees or parts of trees which are specified as available for timber harvesting, but does not include firewood collected for domestic use.

Timber extraction roading - the road network in areas of forest for the primary purpose of extracting or carting timber from the forest.

Timber growing - an activity that includes regeneration, planting and tending of trees and tree crops for wood production.

Timber harvesting - includes tree felling, log snigging and forwarding, and the sorting, loading and carting of timber.

Timber Harvesting Plan - a plan prepared under this Code of Practice for private native forests and plantations, usually consisting of a map identifying the area(s) to be harvested and a statement of conditions applying to the operation, and lodged with the Responsible Authority. The plan may apply to a single coupe or compartment or to an area in which a number of coupes are to be harvested.

Timber production - the growing and harvesting of timber from native forests and plantations.

Timber Release Plan - publicly available documents that detail the location, nature and approximate timing of timber harvesting by VicForests, including the location of associated access roads. Timber Release Plans are prepared by VicForests in accordance with the Part 5 of the *Sustainable Forests (Timber) Act* 2004, which stipulates what the plan must include. They are required in respect of an area to which an allocation order applies for the purposes of harvesting timber resources and undertaking associated management activities in relation to those timber resources. The Timber Release Plan must be consistent with this Code of Practice.

Water supply catchment - a catchment from which water is used for domestic water supply purposes.

Waterway – permanent stream, temporary stream, drainage line or wetland as defined in this Code.

Wetland - permanent spring, swampy ground, wetlands or other bodies of standing water.

Wildlife corridor - a strip of forest of varying width reserved from harvesting, to facilitate fauna movement including gene movement between patches of forest of varying ages and stages of development.

Wood Utilisation Plan - a plan prepared by DSE, detailing the location, nature and approximate timing of timber harvesting including the location of associated access roads and a plan for the allocation of wood to processors. The Plan is generally produced to cover a three-year period, with detailed specifications for the first year and indicative specifications for the following two years, and updated annually. The Plan must be consistent with this Code of Practice.

Appendix A

Legislation, Regulations and Codes applying to forest management for timber production on public and private land

Commonwealth Legislation	**Public Land**	**Private Land**
Aboriginal and Torres Strait Island Heritage Protection Act 1984	✓	✓
Australian Heritage Commission Act 1975	✓	✓
Environment Protection and Biodiversity Conservation Act 1999	✓	✓
Export Control Act 1982		✓
National Environment Protection Measures (Implementation) Act 1998	✓	✓
Native Title Act 1993	✓	✓
Quarantine Act 1908	✓	✓
Regional Forests Agreement Act 2002	✓	✓

State legislation	**Public Land**	**Private Land**
Accident Compensation Act 1985	✓	✓
Agricultural and Veterinary Chemicals (Control of Use) Act 1992	✓	✓
Agricultural and Veterinary Chemicals Act 1994	✓	✓
Archaeological and Aboriginal Relics Preservation Act 1972	✓	✓
Building Act 1993	✓	✓
Catchment and Land Protection Act 1994	✓	✓
Conservation, Forests and Lands Act 1987	✓	✓
Country Fire Authority Act 1958	✓	✓
Crown Land (Reserves) Act 1978	✓	
Dangerous Goods Act 1958	✓	✓
Emergency Management Act 1986	✓	✓
Environment Protection Act 1970	✓	✓
Extractive Industries Development Act 1995	✓	✓
Fences Act 1968.		✓
Firearms Act 1996	✓	✓
Fisheries Act 1995	✓	✓
Flora and Fauna Guarantee Act 1988 (Vic)	✓	✓
Forests Act 1958	✓	✓
Forest Rights Act 1996		✓
Forest Rights (Amendment) Act 2001		✓
Heritage Act 1995	✓	✓
Heritage Rivers Act 1992	✓	✓
Land Act 1958	✓	✓
Land Conservation (Vehicle Control) Act 1972	✓	
Local Government Act 1989		✓
Occupational Health and Safety Act 1985	✓	✓

Planning and Environment Act 1987 (Vic)	✓	✓
Planning and Environment (Planning Schemes) Act 1996		✓
Plant Health and Plant Products Act 1995	✓	✓
Prevention of Cruelty to Animals Act 1986	✓	✓
Reference Areas Act 1978	✓	
Road Management Act 2004	✓	✓
Safety on Public Lands Act 2004	✓	
Summary Offences Act 1966	✓	
Sustainable Forests (Timber) Act 2004	✓	
Water Act 1989	✓	✓
Wildlife Act 1975	✓	✓

Regulations	**Public Land**	**Private Land**
Agricultural and Veterinary Chemicals (Control of Use) Regulations 1996	✓	✓
Building (Interim) Regulations 2005	✓	
Dangerous Goods (Explosives) Regulations 2000	✓	✓
Dangerous Goods (HCGD) Regulations 2005	✓	✓
Dangerous Goods (Storage and Handling) Regulations 2000	✓	✓
Extractive Industries Development Regulations 1996	✓	✓
Flora and Fauna Guarantee Regulations 2001	✓	
Forests (fire protection) regulations	✓	
Forests (Miscellaneous) Regulations 2000	✓	
Land Act Regulations 1996	✓	✓
Land Conservation (Vehicle Control) Regulations 2003	✓	
Road Management (General) Regulations 2005	✓	
Timber Harvesting Regulations 2000	✓	✓

Policy	Public Land	Private Land
Code of Practice for Fire Management On Public Land (2006)	✓	
Code of Practice for Safety in Forest Operations (1990)	✓	✓
National Forest Policy Statement 1992	✓	✓
Victoria's Native Vegetation Management - A Framework for Action (2002).	✓	✓
Our Forests, Our Future (2002)	✓	
State Environment Protection Policy (Air Quality Management)	✓	✓
State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade)	✓	✓
State Environment Protection Policy (Groundwaters of Victoria)	✓	✓
State Environment Protection Policy (Waters of Victoria)	✓	✓
Victorian Pest Management Framework (2002)		
Victorian River Health Strategy	✓	✓
Victorian Biodiversity Strategy (1997)	✓	✓

Appendix B

Guidance Documents

The following documents may assist forest managers to achieve the operational goals and mandatory actions set out in the Code.

- AS 5100-2004 *Bridge Design*
- AS 1742 *Manual of uniform traffic control devices*
- AS 1940-2004 *The storage and handling of flammable and combustible liquids*
- Australian Roads Research Board (2000) *Unsealed roads manual: Guidelines to good practice.* Giummarra, G. ed. Revised Ed. ARRB Transport Research Ltd.
- Code of Practice for Worksite Safety – Traffic Management
- EPA publication 275 '*Construction techniques for sediment pollution control'*
- EPA publication 464.2 '*Use of reclaimed Water'*
- EPA publication N3-89 'Interim guidelines for control of noise from industry in country Victoria'
- EPA publication 943 '*Guidelines for Environmental Management: Biosolids Land Application'*
- Gippsland Private Forestry Inc (2004) *Model template for a Timber Harvesting Plan (THP) for private land in Victoria*. Prepared for Timber Towns Victoria (a Local Government Association). Available from http://www.gpf.com.au/
- Giummarra, G. (2001) *Review of road classifications, geometric designs and maintenance standards for low volume roads. Research report* ARR 354. ARRB Transport Research Ltd. p47.
- NSW Fisheries (2004) *Fish Passage Requirements for Waterways Crossings*.
- Native Forest Silviculture Guideline No. 1 (1993) Seed crop monitoring and assessment
- Native Forest Silviculture Guideline No. 2 (1994) Seed collection
- Native Forest Silviculture Guideline No. 3 (1994) Seed extraction, cleaning and storage
- Native Forest Silviculture Guideline No. 4 (1995) Eucalypt seed sampling and testing
- Native Forest Silviculture Guideline No. 5 (2001) Seed coating
- Native Forest Silviculture Guideline No. 6 (1998) Site preparation
- Native Forest Silviculture Guideline No. 7 (2006) Browsing management
- Native Forest Silviculture Guideline No. 8 (2001) Sowing and seedfall
- Native Forest Silviculture Guideline No. 9 (1993) Eucalypt planting
- Native Forest Silviculture Guideline No. 10 (1997) Eucalypt stocking surveys
- Native Forest Silviculture Guideline No. 11 (2006) Bark disposal and landing rehabilitation
- Native Forest Silviculture Guideline No. 12 (1999) Treatment of non-merchantable trees
- Native Forest Silviculture Guideline No. 13 (2006) Thinning of Ash regrowth
- Native Forest Silviculture Guideline No. 14 (1997) Thinning of mixed-species regrowth
- Sinclair Knight Merz (2001) *Guidelines for assessment of applications for Permits and Licences for works on waterways*.
- VPP Practice Note - *Timber Production in the Rural Zone* (02/99)

Attachment 1 - Harvesting Prescriptions for *Rainforest and Cool Temperate Mixed Forest* Action Statement

Recognition of rainforest and mixed forest

Definition

Rainforest is defined ecologically as closed (>70 per cent projected foliage cover) broadleaved forest vegetation with a more or less continuous rainforest tree canopy of variable height, and with a characteristic composition of species and life forms. Rainforest canopy species are defined as shade tolerant tree species that are able to regenerate below an undisturbed canopy, or in small canopy gaps resulting from locally recurring minor disturbances, such as isolated windthrow or lightning strike, which are part of the rainforest ecosystem. Such species are not dependent on fire for their regeneration.

Mixed forest comprises a closed (>70 per cent projected foliage cover) stratum of mainly rainforest canopy species beneath a eucalypt canopy which exceeds 10 per cent crown cover. The eucalypt canopy may be of any age.

Interpretation

Rainforest includes vegetation where a closed stratum of rainforest trees (and vines) occurs with scattered emergent eucalypts. Where the eucalypt stratum exceeds 10 per cent crown cover, the vegetation is considered to be mixed forest rather than rainforest.

Rainforest canopy species

In East Gippsland, Warm Temperate Rainforest canopy species are: *Acmena smithii* (Lilly Pilly), *Tristaniopsis laurina* (Kanuka), *Pittosporum undulatum* (Sweet Pittosporum), *Acacia melanoxylon* (Blackwood), *Elaeocarpus reticulatus* (Blue Olive-berry), *Myrsine howittiana* (Muttonwood) and *Cissus hypoglauca* (Jungle Grape).

In East Gippsland, Cool Temperate Rainforest canopy species are: *Atherosperma moschatum* (Southern Sassafras), *Elaeocarpus holopetalus* (Black Olive-berry), *Acacia melanoxylon* (Blackwood), *Telopea oreades* (Gippsland Waratah), *Notelaea ligustrina* (Privet Mock-olive), *Pittosporum bicolor* (Banyalla), *Podocarpus* sp. aff. *lawrencei* ((Goonmirk Rocks) Errinundra Plum Pine) and *Tasmannia xerophila subsp. robusta* (Errinundra Pepper).

In the Central Highlands and South Gippsland, Cool Temperate Rainforest canopy species are: *Nothofagus cunninghamii* (Myrtle Beech), *Atherosperma moschatum* (Southern Sassafras), *Acacia melanoxylon* (Blackwood), *Pittosporum bicolor* (Banyalla), *Tasmannia lanceolata* (Mountain Pepper) and *Leptospermum grandifolium* (Mountain Tea-tree).

In South Gippsland, Warm Temperate Rainforest canopy species are: *Pittosporum undulatum* (Sweet Pittosporum), *Myrsine howittiana* (Muttonwood) and *Acacia melanoxylon* (Blackwood).

In the Otways, Cool Temperate Rainforest canopy species are: *Nothofagus cunninghamii* (Myrtle Beech) and *Acacia melanoxylon* (Blackwood).

In all areas, forest stands dominated by *Acacia melanoxylon* (Blackwood), *Leptospermum grandifolium* (Mountain Tea-tree), *Pittosporum undulatum* (Sweet Pittosporum), *Tasmannia xerophila subsp. robusta* (Errinundra Pepper) or *Tasmannia lanceolata* (Mountain Pepper), with few other rainforest characteristics, are not to be treated as rainforest.

Field recognition and delineation

Rainforest stands are identified in the field when the tree canopy species are present and conform to the definition described above. The boundary of the rainforest or mixed forest and the adjoining eucalypt forest is often clear in the field. However, in circumstances where further clarification is required, the boundary can be determined by using the "differential species approach" (DSE 2005). Using the differential species approach, the rainforest or mixed forest boundary is the point where the number of rainforest differential species exceeds the number of eucalypt forest differential species. Mixed forest may be patchy, with small areas within the stand lacking eucalypts and other small areas lacking the continuous rainforest canopy stratum.

Note: Special care is required when assessing the presence and extent of rainforest and mixed forest where disturbance, such as fire, disease, windthrow, etc., has temporarily removed the rainforest canopy or has created temporary canopy gaps. In these cases, the differential species approach will be the best indicator of the long-term rainforest boundary.

Minimum area for recognition

The minimum area for recognition of a rainforest stand is 0.1 hectare (e.g. 20 m by 50 m). The minimum area for recognition of a mixed forest stand is 1 hectare (e.g. 100 m by 100 m). Mixed forest is not recognised as occurring in linear stands – narrow strips of mixed forest-like vegetation may occur as a ecotone between rainforest and eucalypt forest.

Note: groupings of rainforest species that occur together in areas of less than 0.1 hectare are not recognised as rainforest stands. Edge effects, including elevated light, elevated temperature and reduced humidity, and an increased risk of frequent fire, means that the likely long term persistence of such grouping is very low.

Linear stands

Linear stands are defined as stands of rainforest which are elongated and which are between 20 m and 40 m wide. Linear stands of rainforest usually occur along drainage lines or small streams. Linear stands may be "overshadowed" by eucalypts from the adjoining eucalypt forest.

Aggregation of stands of rainforest

Stands of rainforest may be aggregated to form a larger stand where each stand to be aggregated exceeds 0.1 hectare and, for linear stands, the gap between the stands is less than 50 m, or, for non-linear stands, the gaps between stands are smaller in area than the stands themselves.

Protection from timber harvesting and roading

Small stands

All viable rainforest stands (that is, exceeding 0.1 ha in area) must be protected from timber harvesting. Linear stands exceeding 0.2 ha but less than 0.4 ha in area must be protected by a 20 m buffer. Aggregated linear stands must be treated as linear stands. No buffer will be provided for linear stands of less than 0.2 ha or for non-linear stands of less than 0.4 ha. However, the following measures must be applied in the stands:

- trees must not be felled from within the stand unless approval is given to permit selective removal of trees for safety purposes.
- machinery must not enter the rainforest stand, except for construction and use of approved1 stream crossings.
- the stands must be protected from damage caused by trees felled in adjacent areas. Trees felled for safety purposes or accidentally felled into the rainforest stand may be removed if significant damage and disturbance to vegetation and soils can be avoided.
- care must exercised in the planning and operational stages to avoid regeneration burns entering the stand. Slash accumulation must be avoided around retained stands.

Any eucalypts within the stand may be counted as habitat and/or seed trees to be retained.

Larger stands

Rainforest stands (including linear stands) exceeding 0.4 ha must be protected by a 40 metre buffer. Aggregated stands must be treated as entire stands.

Sites of significance for rainforest

Sub-catchment protection of rainforest stands must be provided in core areas of National Sites of Significance for Rainforest (Cameron 1990, unpubl; Peel 1999), with buffers to the nearest watershed. As part of detailed forest management planning, further protection has been considered for rainforest stands within sites of State or regional Significance, where the values of these stands warrant such protection.

Mixed forest

Mixed forest stands exceeding 1 hectare will be protected from timber harvesting and must be protected by a 40 m buffer.

Myrtle Wilt

Rainforest stands (including linear stands of 0.2 – 0.4 ha in area) where Myrtle Beech exceeds 20% projected foliage cover must be protected by a 60 m buffer. Mixed forest stands exceeding 1 ha where Myrtle Beech exceeds 20% projected foliage cover must be protected by a 60 m buffer.

[1] Stream crossings included in approved coupe plans prepared in accordance with the Code of Practice for Timber Production.

Roading

Roads, including temporary access tracks and snig tracks, must not be constructed across areas of rainforest or mixed forest unless no feasible alternative exists. Where roads or tracks are to be constructed in rainforest or mixed forest, design and construction will avoid or minimise impacts to the maximum extent possible, with consideration given to retaining canopy closure, minimising the width and length of road or track within the stand, and utilising existing gaps.

Land adjoining rainforest and mixed forest

Care must be taken to exclude regeneration burns from rainforest and mixed forest. Boundary tracks must be situated outside the rainforest buffer unless otherwise authorised by the Regional Director. Regeneration and fuel reduction burns may only be conducted when fuel moisture differentials indicate that fire will be unlikely to enter the rainforest or buffer. Construction of control lines is permitted if necessary. Application of pesticides and herbicides must not be undertaken where this may impact on rainforest values.

References

Cameron, D.G. (1990, unpub.) *Proposed Sites of Significance for Rainforest*, Unpublished report for Government of Victoria.

Peel, B. (1999) *Rainforests and Cool Temperate Mixed Forests of Victoria*, Department of Natural Resources and Environment, East Melbourne.

Attachment 2 - Amendments to Victorian Planning Provisions, Clauses 17.07 and 52.18

Clause 17.07 of the State Planning Policy Framework - Forestry and Timber Production

17.07-1 Objective

To facilitate the establishment, management and harvesting of plantations, harvesting of timber from native forests and the development of forest based industries consistent with the National Forest Policy Statement.

17.07-2 General implementation

Planning and responsible authorities should consider environmental, social and economic factors in planning for forestry and timber production activities, including protection of water quality and soil stability. Timber production in native forests should be conducted in an environmentally sustainable manner.

Planning and responsible authorities should promote the establishment of softwood and hardwood plantations on predominantly cleared land as well as other areas subject to or contributing to land and water degradation.

Planning authorities should identify areas which may be suitably used and developed for plantation timber production.

Timber production (except agroforestry, windbreaks and commercial plantings on land 5 hectares or less) is to be conducted in accordance with the Code of Practice for Timber Production (Department of Sustainability and Environment, 2006) or as amended from time to time.

Clause 52.18 - Particular Provisions - Timber Production

52.18-1 Timber production on Crown land

Any requirement of this scheme which:

- requires timber production to be conducted in a particular way
- requires that a permit be obtained to use or develop land for timber production or to carry out timber production in a particular way
- requires that some aspect of timber production be carried out to the satisfaction of the responsible authority

does not apply to timber production on unalienated land of the Crown managed and controlled by the Minister for Environment and Water or the Secretary to the Department of Sustainability and Environment, whether or not occupied under a licence or other right.

All requirements of this scheme apply to Crown land which has been leased.

52.18-2 Timber production to comply with the Code of Practice for Timber Production

Timber production must comply with the Code of Practice for Timber Production (Department of Sustainability and Environment 2006) or as amended from time to time in

accordance with Part 5 of the *Conservation, Forests and Lands Act* 1987 (the Code). In accordance with Section 6(4A) of the *Planning and Environment Act* 1987, this applies whether the use of land for timber production is commenced before or after the coming into effect of this requirement.

This does not apply to agroforestry (the simultaneous and substantial production of forest and other agricultural products from the same land unit), windbreaks or commercial plantings on land less 5 hectares or less.

The Code must be complied with to the satisfaction of the responsible authority.

A permit may require that matters required by the Code must be done to the satisfaction of the responsible authority or a Minister, public authority or referral authority, and may require the responsible authority to seek comments from any other person or authority before making a decision.

52.18-3 Removal of native vegetation

If land is to be used for timber production the provisions of Clause 52.17 do not apply and no permit is required for the removal, destruction or lopping of native vegetation if any of the following apply:

- The native vegetation consists of seedlings or regrowth less than 10 years old on land which has previously been cleared.
- The native vegetation is proclaimed as a noxious weed or is bracken (*Pteridium esculentum*).
- The Secretary to the Department of Sustainability and Environment is satisfied that the land receives more than 550mm of rainfall per annum and does not support vegetation in which all the following apply:
  - The number of native plant species exceeds the number of non-native plant species.
  - The cover of native plant species (as measured by projected foliar cover) exceeds the cover of the non-native plant species.
  - The number of native plant species native to the locality exceeds the number of native plant species non-native to the locality.

In determining the above, a site of 5 hectares with a minimum width of 100 metres must be considered. If the land has an area less than 5 hectares the total site must be considered.

52.18-4 Road repairs

After a Timber Harvesting Plan is lodged with the responsible authority under the Code and before the commencement of harvesting operations, the responsible authority, in consultation with the forest owner or manager, must establish the condition of any roads which are proposed to be used as a cartage route.

The forest owner or manager must advise the responsible authority when harvesting operations are complete. After receiving this advice, the responsible authority, in consultation with the forest owner or manager, must establish the condition of any roads which were used as a cartage route.

It is the responsibility of the forest owner or manager to restore any roads which were used as a cartage route to the same condition that they were in before the commencement of harvesting operations to the extent of any damage caused as a result of the harvesting operations.

The cartage of timber associated with harvesting operations is extraordinary traffic for the purpose of Section 112 of the *Road Management Act 2004*.

52.18-5 Decision guidelines

Before deciding on an application to use or develop land for timber production, in addition to the decision guidelines in Clause 65, the responsible authority must consider:

- the need to encourage plantation establishment and timber production in locations where it is of significance to national, state and regional economies, and in areas affected by salinity and other forms of land degradation
- the role of native forest and plantations in:
  - protecting water quality
  - conserving flora and fauna
  - preventing land degradation, including soil erosion, salinisation and water logging
  - preventing adverse effects on groundwater recharge.
- the preservation of and impact on the natural environment and on visual amenity
- whether it is appropriate to require environmental protection standards greater than those in the Code
- The principles and operational goals of the Code.